Curtis Park Village Project

Project# P04-109

State Clearing House # 2004082020

Final Environmental Impact Report

Volume I

PREPARED FOR THE
CITY OF SACRAMENTO

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FINAL ENVIRONMENTAL IMPACT REPORT
Curtis Park Village Project (P04-109)
State Clearing House # 2004082020

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1. INTRODUCTION, LIST OF COMMENTERS, AND PROJECT REVISIONS

1 INTRODUCTION, LIST OF COMMENTERS, AND PROJECT REVISIONS

1.0 INTRODUCTION

This Final Environmental Impact Report (FEIR) contains a listing of the public and agency comments received during the public review period of the Curtis Park Village Draft Environmental Impact Report (DEIR). This document has been prepared by the City of Sacramento, as lead agency, in accordance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines Section 15132. Chapter 1of the FEIR discusses the background of the DEIR, the organization of the FEIR, and lists the comment letters received shows the revisions to the text of the DEIR. This chapter also includes a description of the revisions to the project subsequent to the DEIR.

1.1 BACKGROUND

The Curtis Park Village DEIR contains the following environmental analysis chapters:

- Land Use;
- Aesthetics;
- Transportation and Circulation;
- Air Quality;
- Noise and Vibration;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Public Health and Hazards;
- Hydrology, Water Quality, and Drainage;
- Population and Housing;
- Public Services and Utilities; and
- Parks and Recreation.

The City of Sacramento used the following methods to solicit public input on the DEIR: a Notice of Preparation (NOP) for the DEIR was released for a 30-day review on August 4, 2004; a revised NOP was released for a 30-day review on May 12, 2008, due to changes in the project description; a second revised NOP was released on November 13, 2008, due to additional project description changes; and the DEIR was distributed for an extended 75-day comment period from April 1 to June 15, 2009. In addition, a scoping meeting was held on August 18, 2004 and a public hearing was held on May 28, 2009 for further discussion and comments regarding the DEIR. The DEIR was distributed to applicable public agencies, responsible agencies, and interested individuals. Copies of the document were made available at the public counter of the Community Development Department, located at 300 Richards Boulevard, Sacramento, California.

1.2 ORGANIZATION OF THE FEIR

The FEIR is organized into the following chapters:

1. Introduction, List of Commenters, and Project Revisions
Chapter 1 provides an introduction and overview of the document, describing the background and organization of the FEIR. Chapter 1 also provides a list of commenters who submitted letters in response to the DEIR and a list of project revisions by the applicant in response to comments.

2. Revisions to the DEIR Text
Chapter 2 is intended to summarize changes made to the DEIR text either in response to comment letters or minor staff edits that do not change the intent or content of the analysis or effectiveness of mitigation measures.

3. Responses to Comments
Chapter 3 presents all of the comment letters received and responses to each comment. Each comment letter received has been numbered at the top and then bracketed to indicate how the letter has been divided into individual comments. Each comment is given a number with the letter number appearing first, followed by the comment number. For example, the first comment in Letter 1 would have the following format: 1-1.

4. Mitigation Monitoring Plan
The Mitigation Monitoring Plan (MMP) in Chapter 4 includes a description of the requirements of CEQA. The intent of the MMP is to prescribe and enforce the proper and successful implementation of the mitigation measures as identified within the EIR for the Curtis Park Village project.

1.3 LIST OF COMMENTERS

The City of Sacramento received 30 comment letters during the open comment period on the DEIR for the proposed project. In addition, the City received two comment letters after close of the DEIR comment period. A copy of each letter is provided in Section 3.1 and 3.2 of this FEIR. In addition, a public hearing was held regarding the proposed project. A copy of the verbal comments that were made at the public hearing is included in Section 3.3 of this FEIR. The comment letters were authored by the following representatives of local agencies and groups, as well as other interested parties:

Agencies

Letter 1 ..... Elizabeth Obon, Sacramento Regional County Sanitation District
Letter 2 ..... Traci Canfield, Sacramento Regional Transit District
Letter 3 ..... Joseph James Hurley, Sacramento Metropolitan AQMD
Letter 4 ..... Guenther Moskat, Department of Toxic Substance Control
Letter 30 ..... Terry Roberts, Governor's Office of Planning and Research

Groups

Individuals

Late Comment Letters

Verbal Comments Regarding the Curtis Park Village Project

1.4 Project Revisions

Subsequent to the release of the Draft EIR (DEIR) for this project, the project applicant applied for Proposition 1C funds for the project. The grants, provided by the California Department of Housing and Community Development, help fund affordable housing and transit oriented development and are a result of the Proposition 1C Housing Bond Program. The Curtis Park Village project applicant proposed an additional 10 senior housing units (90 versus 80 proposed in the DEIR) and increased the amount of multi-family from 212 to 247 dwelling units , in order to conform more closely to the type of projects that can be approved for the grant funding.

In December 2009, the applicant also revised the project in response to public comments received on the Draft EIR. These revisions included removing the traffic roundabout, to allow for a grid-type street layout, decreasing the amount of proposed commercial square footage, and relocating the senior housing units away from the eastern boundary of the project site.

In response to the December 2009 submittal and public comments made on the DEIR, the City requested that the project applicant reduce the number of parcels, and increase the sizes of the resulting parcels, in the southern portion of the site to allow for the creation of lots and streets that more easily accommodate the Urban Form Guidelines for the Traditional Center land use designation in the 2030 General Plan.

In addition to the above revisions, the December 2009 application revision included a General Plan Amendment for 8.0 acres of the project site from Traditional Neighborhood Low density to Traditional Neighborhood Medium density.

Brownstone and cottage units would be developed within the redesignated 8.0 acres and serve as a transition between the existing Curtis Park Village neighborhood and the Traditional Neighborhood High Density and Traditional Center uses. The project would result in development of 129 single family residences on 19.5 acres (6.4 dwelling units per acre), 45 brownstone and 15 cottage residences on 4.4 acres (17.6 dwelling units per acre), 248 multi-family units on 7.1 acres (34.9 dwelling units per acre), and 90-unit senior multi-family housing on 1.4 acres (64.3 dwelling units per acre), an overall project density of 16.8 units per acre.

The overall project residential density with a General Plan Amendment would be seven units greater than the maximum allowable density studied in the DEIR.

Figure 1-1, Schematic Plan, illustrates the placement of the proposed project land use designations, Figure 1-2, General Plan Amendment Exhibit, illustrates the proposed changes to General Plan land use designations for the site, and Figure 1-3, Rezone Exhibit, illustrates the proposed zoning changes for the site.

Figure 1-1
Schematic Plan

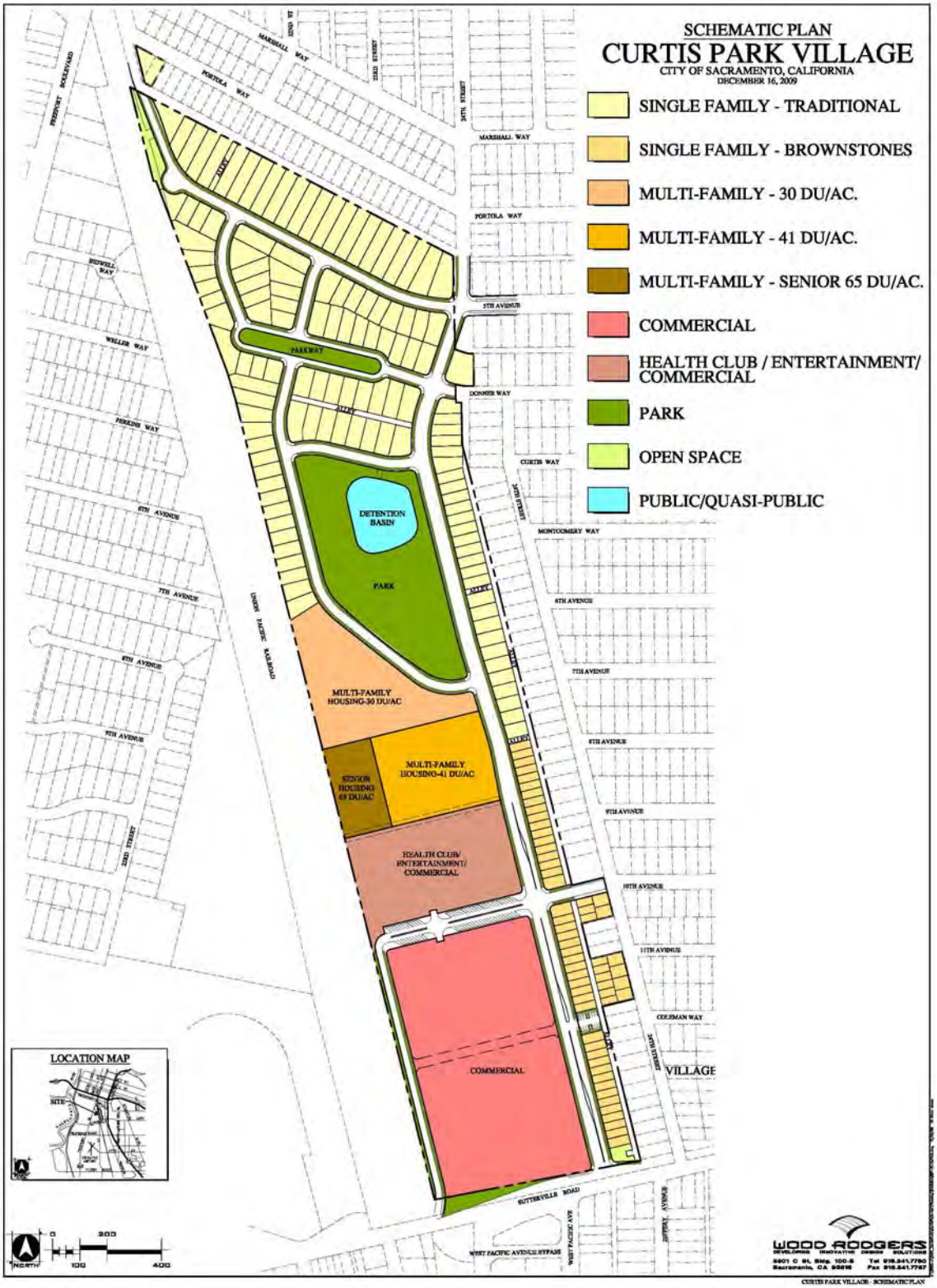


Figure 1-2
General Plan Amendment Exhibit

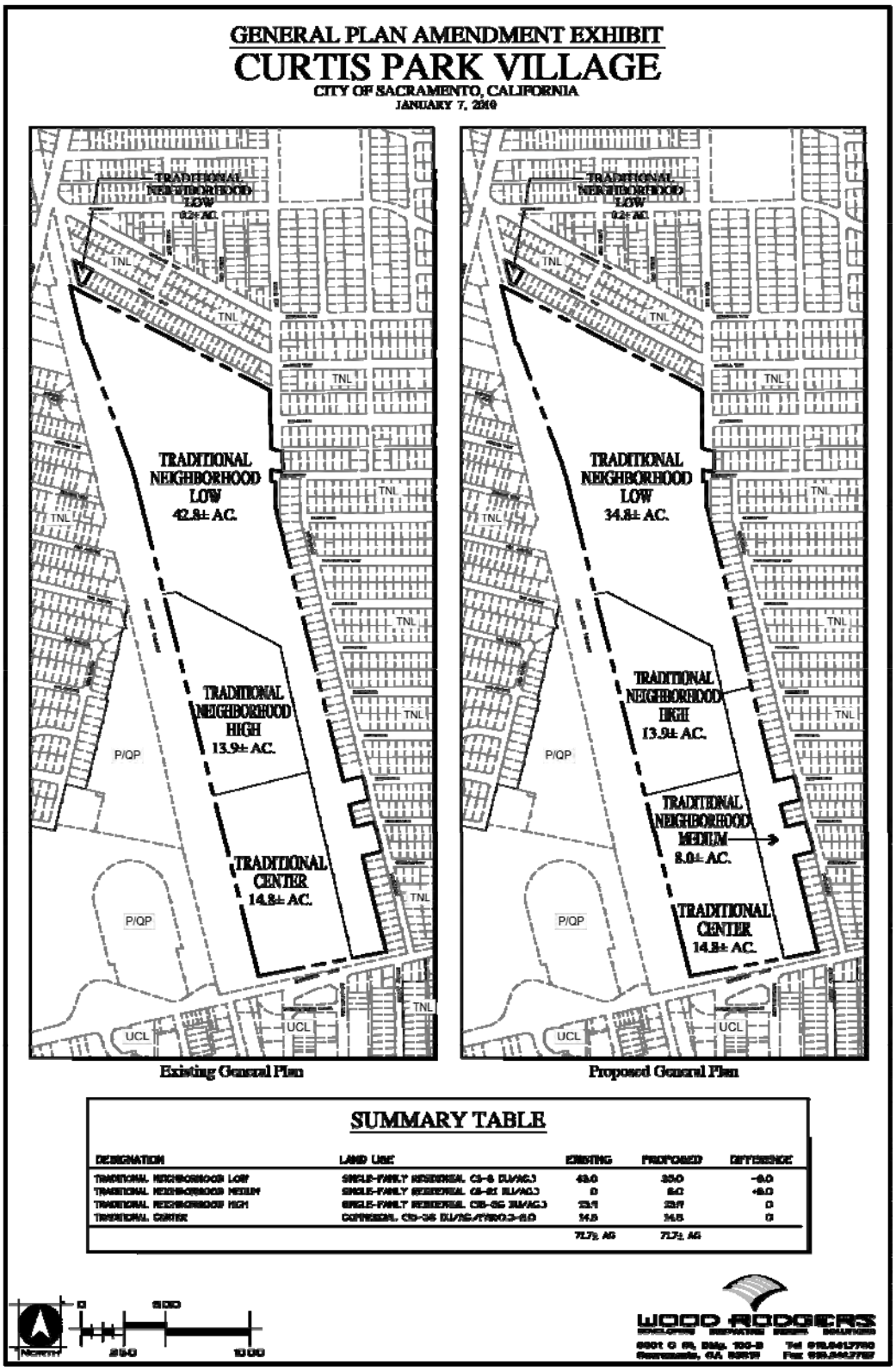
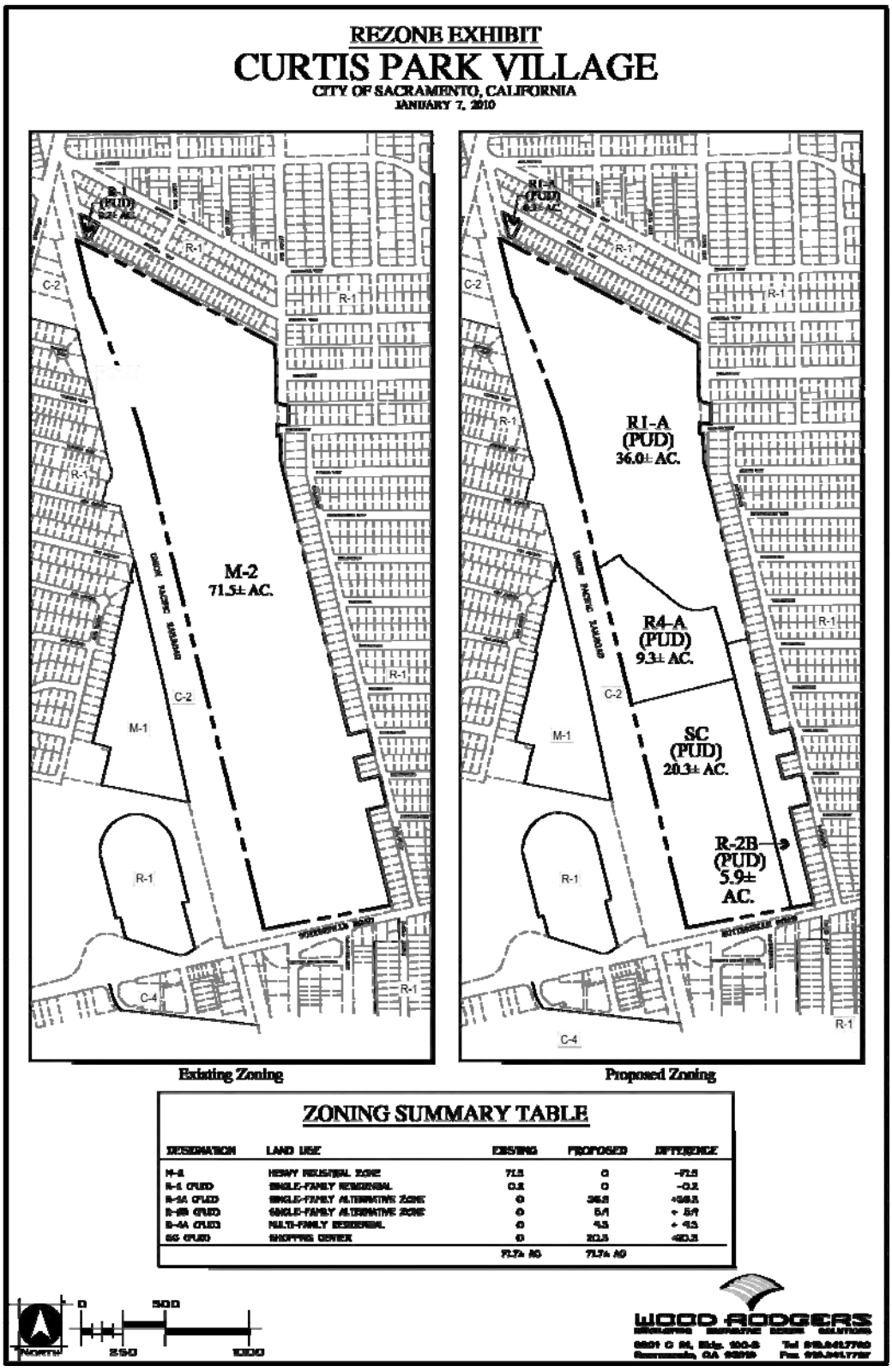


Figure 1-3
Rezone Exhibit



The project revisions also include a modification to the requested rezones as noted in the Draft EIR. See Table 1-1, below, for the changes in the amount of each project component and the difference in areas of the various land uses.

Table 1-1
Changes in Proposed Project Subsequent to the Release of the Draft EIR

Changes in Proposed Project Components			
Project Components	**Project Description in the Draft EIR**	**Revised Project Description in Final EIR**	**Change**
Commercial	265,000 s.f.	259,000 s.f.	- 6,000 s.f.
Single Family Residential	178 units	189 units	+ 11 units
Multi-Family Residential	212 units	248 units	+ 36 units
Senior Units	80 units	90 units	+ 10 units
Changes in Proposed Project Zoning			
Zoning Category	**Project Description in the Draft EIR**	**Revised Project Description in Final EIR**	**Change**
R1-A (PUD)	33.5	36.2	+ 2.7 acres
R-2B- (PUD)		5.9	+ 5.9 acres
R-4 (PUD)	7.8		- 7.8 acres
R-4A (PUD)		9.3	+ 9.3 acres
R-5 (PUD)	1.7		-1.7 acres
SC (PUD)	21.1	20.3	- 0.8 acres
A-OS (PUD)	7.6		- 7.6 acres
Total	71.7	71.7	

The revised project includes revisions to the southern portion of the project, including Area 1: Commercial Area, Area 2: Transition to Existing Neighborhood, and Area 3: Neighborhood Commercial and Multi-Family Housing Area. The areas, as currently proposed, are described below.

Area 1: Commercial Area

Area 1 is located between Road B (the extension of 10th Avenue into the site) on the north, Road A on the east, Sutterville Road on the south, and the Union Pacific Railyard on the west. Area 1 would include the development of approximately 154,000 square feet (decreased from 160,000 square feet) of neighborhood retail uses and 16,000 square feet of neighborhood serving office uses. Area 1 would provide access to the City's street circulation system via Sutterville Road and the new access road (Road A) into the site. The proposed Road A and Sutterville Road intersection would include full turning movements into Curtis Park Village and would be signalized. In addition to Road A,

circulation to and from Area 1 for service and general vehicles would be facilitated via the existing Western Pacific Road underpass and connection to the Curtis Park Village project site. On site, this connection would be designed to provide connectivity to Area 1 for service trucks while keeping the movement of the trucks out of Curtis Park Village and surrounding established residential neighborhoods. The location of the commercial uses in Area 1 would provide access for users of the retail establishments from existing neighborhoods from Sutterville Road without disrupting the new Curtis Park Village residential areas or the established Curtis Park neighborhood to the east or north of the project site. Area 1 was designed to enable the retail tenants to serve the surrounding neighborhoods while keeping pass-thru traffic out of existing residential areas.

Area 2: Transition to the Existing Neighborhood

Area 2 is located on the east side of Road A and near the signalized intersection of Road A and 10th Avenue. Area 2 would include single-family Brownstone units and an opportunity for a small neighborhood serving retail commercial building on the southeast corner of the intersection of the extension of 10th Avenue onto Road A. The Brownstone units in Area 2 would be adjacent to existing Curtis Park single-family homes and provide a transition to the higher density uses west of Area 2. Road B is the extension of 10th Avenue into Curtis Park Village and would include vehicle, bicycle, and pedestrian connection to the existing Curtis Park neighborhood to the east. Area 2 forms the eastern edge of the village center and is directly across Road A from the Village Green on the northeast corner of Area 1. It should be noted that revisions to the project description include relocation of the senior housing units from Area 2 to Area 3 and reconfiguration the traffic roundabout to a signalized grid-type intersection.

Area 3: Neighborhood Commercial and Multi-Family Housing Area

Area 3 is located to the north of 10th Avenue, west of Road A, and south of the park area. Proposed for this area is a two-story building with 38,000 square feet per floor for athletic club and recreational/entertainment uses, two restaurant pads of 6,500 square feet located at the intersection of Road A and 10th Avenue, 248 multi-family housing units (increased from 212 units), and a 90 unit affordable senior housing facility (increased from 80 units). The multi-family housing units would be divided into two sites, a 40 dwelling unit per acre area located along Road A and a 30 dwelling unit per acre area facing the proposed park. It should be noted that the senior multi-family units are relocated to the western portion of the site and adjacent to the proposed multi-family units. The location of the senior residents would provide access to the commercial, recreational, and transit amenities on the Curtis Park Village site.

The development of seven units more than previously analyzed in the DEIR would not constitute a substantial increase in the severity of an environmental impact. See Chapter 3.0, Master Responses, for detailed discussions regarding the potential impacts related to development of seven additional units.

Tree Removal for Remediation

The removal of Heritage trees (total of 19 oaks) was previously approved as part of the remedial actions associated with the 1995 RAP. The environmental review for the 1995 RAP included the requirements for preparation of an oak tree replacement plan, permits to be obtained prior to removal of the trees and that the oaks would be replaced inch for inch. The project applicant received a permit in 2008 to remove eight of those trees; however, those trees have not yet been removed. The permit is still in effect.

The 1995 RAP requires the full remediation of all contamination on the project site. Because the areas of the contamination are much larger than anticipated in the RAP, additional trees (a total of 129) will require removal in order to remediate the site. The required oak tree replacement plan is currently in preparation by the project applicant. Due to the size and large number of Heritage trees that must be removed in order for to remediate the site, the City and project applicant are developing feasible mitigation for the replacement of Heritage trees.

Although the environmental review for the 1995 RAP specified the number and locations of the oak trees that required removal, given the assumed extents of the contamination at that time, it acknowledged that implementation of the RAP may necessitate removal or disturbance of certain oaks. The tree resources assessment for the project site (2008) determined that all of the Heritage trees on the project site were oaks except for one sycamore tree. Prior to issuance of a tree removal permit for any trees removed as part of the remediation, in addition to the previously approved 19, additional environmental review, based on the Mitigated Negative Declaration for the Final Remediation Action Plan (1995 RAP), and development of a tree replacement plan would be required.

The currently proposed update to the RAP would allow different remedies for the disposal of the contaminated soils. None of these potential remedies would result in the removal of trees. As noted on page 5.5-16 of the DEIR, the changes in the remedies in the RAP would not result in additional impacts to biological resources, including Heritage trees, beyond what was anticipated in the approved RAP. Therefore, impacts to Heritage trees associated with the update of the RAP would be less than significant, as noted in the DEIR.

2. REVISIONS TO THE DEIR TEXT

2 REVISIONS TO THE DEIR TEXT

2.0 INTRODUCTION

The Revisions to the DEIR Text chapter presents all of the revisions made to the DEIR in response to comments received or minor staff initiated edits. It should be noted that the following revisions do not change the intent or content of the analysis or effectiveness of mitigation measures presented in the DEIR.

2.1 DESCRIPTION OF CHANGES

New text is double underlined and deleted text is ~~struck through~~. Text changes are presented in the page order in which they appear in the DEIR.

The following are text changes that are applicable to every instance that the phrase or term was used in the DEIR. These global changes are staff initiated revisions that correct text and do not change the intent or content of the analyses.

Global Revisions to the DEIR Text		
As Appeared in the DEIR	**Corrected Text**	**Example of Corrected Text**
Curtis Park Village site master plans	Curtis Park Village site plans	Page 3-10, first paragraph: The following narrative and Figure 3-3 provide a description of the land use areas as identified on the Curtis Park Village site ~~master~~ plans, tentative map, and circulation plan.
Curtis Park Village Master Plan	Curtis Park Village	Page 3-10, 4th paragraph: Located in the southern most area of the Curtis Park Village ~~Master Plan~~, Area 1 contains 11.9 net acres allowing for the development of approximately 160,000 square feet of retail uses.
Development Services Department	Community Development Department	Page 5.3-12, Mitigation Measure 5.3-2(b): Prior to the approval of any grading permit, the project proponent shall submit a dust-control plan, approved by the SMAQMD, to the City of Sacramento Community Development ~~Services~~ Department.

2.0 EXECUTIVE SUMMARY

Based on changes made within the chapters of the DEIR, Table 2-1, beginning on page 2-1 of the DEIR, is hereby revised as follows:

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.1 Aesthetics			
5.1-1 Impacts related to the update of the Remedial Action Plan.	LS	*None required.*	N/A
5.1-2 Impacts related to visual inconsistency between proposed uses and adjacent existing uses.	LS	*None required.*	N/A
5.1-3 Impacts related to scenic vistas and visual resources.	LS	*None required.*	N/A
5.1-4 Impacts related to light and glare.	LS	*None required.*	N/A
5.1-5 Long-term impacts to the visual character of the region from the proposed project in combination with existing and future developments in the Sacramento area.	LS	*None required.*	N/A
5.2 Transportation and Circulation			
5.2-1 Impacts to study intersections under baseline plus project conditions.	PS	*5.2-1(a)* *At the Freeport Boulevard / 2nd Avenue intersection, provide protected left-turn phasing for the northbound and southbound approaches. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a* ***less than significant*** *level.* *5.2-1(b)* *At the Sutterville Road / Road A intersection, provide overlap signal phasing to allow the southbound Road A right turning traffic to proceed*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		on a green arrow simultaneously with the eastbound left turning movement, and prohibit U-turns for the eastbound left turning movement; ~~and~~ add a southbound left-right lane to provide one left-turn lane, one left-right lane, and one right turn lane, and provide a dedicated right turn lane for the westbound Sutterville Road approach to the intersection. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a ***less than significant*** *level.*	
		5.2-1(c) *Modify the southbound approach to the Sutterville Road / SR99 SB Ramps intersection to provide a left-turn lane, a combination left-through-right lane, and a right-turn lane. This change would consist of adding right-turning movements to the existing combination left-through lane and allow that movement to occur under signal control. This mitigation measure is required at five percent of development based on trip generation. The design of the mitigation is subject to the approval of the City Transportation Department and Caltrans. This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a* ***less than significant*** *level during the p.m. and Saturday peak hours.*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		5.2-1(d) *At the Road A / Area 3 intersection, provide separate right-turn and left-turn lanes on the eastbound approach. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a **less than significant** level.*	
5.2-2 Impacts to study roadway segments under baseline plus project conditions.	PS	*5.2-2* *The project developer shall work with the Regional Transit District to provide bus service or provide private shuttle service from 6:00 to 9:00 a.m. and from 4:00 to 7:00 p.m. between the commercial areas of the project site and the City College light rail station. As an alternative, the project developer shall coordinate with the City to reserve the required right of way needed to construct a pedestrian and bicycle bridge to provide access to the City College Station.*	LS
5.2-3 Impacts to freeway ramps under baseline plus project conditions.	S	*5.2-3* *Implementation of Mitigation Measure 5.2-1(c) would reduce the traffic queue at the southbound 12th Avenue off-ramp for baseline conditions for the Proposed Project and all access scenarios. However, the reduction would not be sufficient to fully mitigate the project impacts and no other feasible mitigation measure was identified. Therefore, the impact shall remain **significant and unavoidable**.*	SU
5.2-4 Impacts to bicycle system under baseline plus project conditions.	LS	*None required.*	N/A

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.2-5 Impacts to pedestrian circulation under baseline plus project conditions.	LS	*None required.*	N/A
5.2-6 Impacts to transit system under baseline plus project conditions.	LS	*None required.*	N/A
5.2-7 Impacts to on-site traffic circulation and safety under baseline plus project conditions.	PS	*5.2-7(a)* *The design plans for the project shall be consistent with City standards. Any deviations are subject to the approval of the City Department of Transportation, Traffic Engineering Division. The horizontal curvatures shall be realigned or design elements such as "knuckles" shall be installed in compliance with City standards.* ~~*5.2-7(b)* *The project applicant shall modify the design at the intersection of the Road J extension/Portola Way, 4th Avenue, and Marshall Way to physically prohibit the northbound left-turning movement from the Road J extension/Portola Way.*~~ *5.2-7(eb)* *The site design shall be modified to reduce the potential for vehicles leaving parking stalls to back across pedestrian crosswalks. This change may require the elimination of some angle parking spaces.*	LS
5.2-8 Impacts to on-site vehicle and bicycle parking capacities.	LS	*None required.*	N/A
5.2-9 Impacts during construction.	PS	*5.2-9(a)* *Before issuance of grading permits for the project site, the project applicant shall prepare a detailed*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Traffic Management Plan that will be subject to review and approval by the City Department of Transportation, Regional Transit, and local emergency service providers, including the City of Sacramento fire and police departments. The plan shall ensure maintenance of acceptable operating conditions on local roadways and transit routes. At a minimum, the plan shall include: • *The number of truck trips, time, and day of street closures;* • *Time of day of arrival and departure of trucks;* • *Limitations on the size and type of trucks and provision of a staging area with a limitation on the number of trucks that can be waiting;* • *Provision of a truck circulation pattern;* • *Provision of a driveway access plan to maintain safe vehicular, pedestrian, and bicycle movements (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas);* • *Safe and efficient access routes for emergency vehicles;* • *Efficient and convenient transit routes;* • *Manual traffic control when necessary;* • *Proper advance warning and posted*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		signage concerning street closures; • *Provisions for pedestrian safety; and* • *Provisions for temporary bus stops, if necessary.* *A copy of the construction traffic management plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before the commencement of construction that would partially or fully obstruct roadways.*	
5.2-10 Cumulative impacts to study intersections.	PS	*5.2-10(a)* *24th Street / 2nd Avenue – The project applicant shall pay a fair share contribution to install a traffic signal at this intersection. This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a* ***less than significant*** *level.* *5.2-10(b)* *24th Street / Portola Way – The project applicant shall pay a fair share contribution to install a traffic signal at this intersection. ~~convert the intersection from all-way stop control to two-way stop control with stop signs only for the Portola Way approaches to the intersection.~~ This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a* ***less than significant*** *level.*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		5.2-10(c) *Sutterville Road / Freeport Boulevard (north) – the applicant shall pay a fair share contribution to provide protected-permitted left turn phasing and install proper signage for southbound Freeport Boulevard. This mitigation measure would reduce the impact of the Proposed Project, Access Scenario 2 and Access Scenario 3 to a* ***less than significant*** *level.* *5.2-10(d)* *Sutterville Road / City College Drive – The applicant shall pay a fair share contribution to provide overlap signal phasing to allow the northbound right turn traffic on City College Drive to proceed on a green arrow simultaneously with the westbound left turning movement, and prohibit U-turns for the westbound Sutterville Road approach to the intersection. This mitigation measure would reduce the impact of the Proposed Project and Access Scenario 2 and 3 to a* ***less than significant*** *level.* *5.2-10(e)* *Sutterville Road / Road A – apply Mitigation Measure ~~4~~5.2-1(~~a~~b) which would provide overlap signal phasing to allow the southbound Road A Right turning traffic to proceed on a green arrow simultaneously with the eastbound left turning movement, and prohibit U-turns for the eastbound left turning movement~~; and~~ provide one left-turn lane, one left-right lane, and one right-turn lane on*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		the southbound approach~~.~~; ~~Also,~~ provide a dedicated right turn lane for the westbound Sutterville Road approach to the intersection; provide an actuated exclusive pedestrian phase to serve pedestrians crossing Sutterville Road; and optimize signal timing. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a ***less than significant*** *level.*	
		5.2-10(f) *Sutterville Road / Curtis Drive West - No feasible mitigation measure was identified for the Sutterville Road / Curtis Drive West intersection. Adding a southbound right turn lane to the intersection would mitigate the impact but was not considered to be feasible because of the need for demolishing several existing buildings to provide additional right-of-way. The cumulative impact for the Proposed Project and all access scenarios would remain* ***significant and unavoidable****.*	
		5.2-10(g) *Sutterville Road / Franklin Boulevard –The project applicant shall pay a fair share contribution to add an eastbound right-turn lane that would mitigate the Saturday peak hour impact of the Proposed Project and Access Scenario 2 and Access Scenario 3 to a* ***less than significant*** *level. For a.m. and p.m. peak hour impacts, the cycle length would increase to 110 seconds. These mitigation*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		*measures would reduce the impact of the Proposed Project and Access Scenario 2 and Access Scenario 3 to a **less than significant** level.* *5.2-10(h)* *Sutterville Road / SR 99 Northbound Ramps – The project applicant shall pay a fair share contribution to modify signal timing to provide split phase for all approaches and re-strip the eastbound lanes to provide one left-turn, one left-through, and one through lane. This mitigation measure would reduce the impact of the Proposed Project and Access Scenario 2 and 3 to a **less than significant** level.* *5.2-10(i)* *Road A / Area 1 – The project applicant shall pay a fair share contribution to modify the signal phasing to provide overlaps for the eastbound right-turn movement; provide protected-permitted phasing for the northbound left-turn movement; prohibit U-turn movement at this intersection; and increase the cycle length to 95 seconds. This mitigation measure would reduce the impact of the Proposed Project and Access Scenario 2 and 3 to a **less than significant** level.*	
5.2-11 Cumulative impacts to study roadway segments.	LS	*None required.*	N/A
5.2-12 Cumulative impacts to freeway ramps.	LS	*None required.*	N/A

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.3 Air Quality			
5.3-1 Impacts related to the update of the Remedial Action Plan.	PS	*5.3-1* *Prior to import of clean soil associated with the ongoing remediation activities in excess of the volume anticipated in the existing RAP, contracts for soil hauling shall specify that all haul trucks shall be model year 2007 or newer, or be retrofitted to meet model year 2007 emission standards, for the review and approval of the DTSC and the SMAQMD.*	LS
5.3-2 Impacts related to exhaust emissions and fugitive particulate matter emissions from project-associated construction activities.	PS	*5.3-2(a)* *The project applicant shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		supercede other SMAQMD or state rules or regulations.	
		5.3-2(b) *Prior to the approval of any grading permit, the project proponent shall submit a dust-control plan to the City of Sacramento Development Services Department. The dust-control plan shall stipulate grading schedules associated with the project phase, as well as the dust-control measures to be implemented. Grading of proposed project phases shall be scheduled so that the total area of disturbance would not exceed 15 acres on any given day. The dust control plan shall be incorporated into all construction contracts issued as part of the proposed project development. The dust-control plan shall, at a minimum, incorporate the following measures:* • *Apply water, chemical stabilizer/suppressant, or vegetative cover to disturbed areas, including storage piles that are not being actively used for construction purposes, as well as any portions of the construction site that remain inactive for longer than 3 months;* • *Water exposed surfaces sufficient to control fugitive dust emissions during demolition, clearing, grading, earth-moving, or excavation operations. Actively*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		disturbed areas should be kept moist at all times; • *Cover all vehicles hauling dirt, sand, soil or other loose material or maintain at least two feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114;* • *Limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when construction operations are occurring; and* • *Limit onsite vehicle speeds on unpaved surfaces to 15 mph, or less.*	
5.3-3 Impacts related to a temporary increase in NO_X emissions.	PS	*5.3-3(a)* *Prior to issuance of a grading permit, the applicant shall submit a SMAQMD-approved plan, which demonstrates that the heavy-duty (>50 horsepower) off-road vehicles to be used during construction of the project (including owned, leased, and subcontracted vehicles) will achieve a project-wide average of 20 percent NO_X reduction and 45 percent particulate matter reduction, based on the most recent CARB fleet average at the time of construction. In addition, the applicant shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment (>50 horsepower) that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project. Inventory shall not be required for any 30-day period in which construction activities do not occur. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the applicant shall provide SMAQMD with the anticipated construction timeline, including the start date and the name and phone number of the project manager and on-site foreman. *5.3-3(b)* *Prior to issuance of a grading permit, the applicant shall provide a construction mitigation fee to the SMAQMD sufficient to offset project emissions of NO_X above 85 pounds per day. The amount of the fee shall be based on updated construction scheduling and equipment lists, and shall be calculated using the SMAQMD method of estimating excess emissions. The current price of NO_X construction offsets calculated by SMAQMD is $16,000 per ton.*	
5.3-4 Development of the project would result in increases in emission of carbon monoxide.	LS	*None required.*	N/A
5.3-5 Impacts related to long-term increases of criteria air	S	*5.3-5(a)* *Prior to the issuance of any grading permit, the project applicant shall coordinate with the*	SU

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
pollutants.		*SMAQMD and the City of Sacramento Development Services Department to develop a project Air Quality Mitigation Plan (AQMP). In accordance with SMAQMD recommendations, the AQMP shall achieve a minimum overall reduction of 15 percent in the project's anticipated operational emissions. SMAQMD-recommended measures and corresponding emissions-reduction benefits are identified in SMAQMD's Guidance for Land Use Emission Reductions, which can be found in Appendix E of the SMAQMD document. The AQMP shall be reviewed and endorsed by SMAQMD staff prior to project implementation. Available measures to be included in the AQMP include, but are not limited to, the following:* • *Prohibit the installation of wood-burning fireplaces and stoves;* • *Provide onsite bicycle storage and showers for employees that bike to work sufficient to meet peak season maximum demand;* • *Provide preferential parking (e.g., near building entrance, sheltered area, etc.) for carpool and vanpool vehicles;* • *Provide transit enhancing infrastructure that includes: transit shelters, benches, etc.; street lighting; route signs and displays; and/or bus turnouts/bulbs;*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Incorporate onsite transit facility improvements (e.g., pedestrian shelters, route information, benches, lighting) to coincide with existing or planned transit service;* • *Incorporate landscaping and sun screens to reduce energy use. Deciduous trees should be utilized for building shading to increase solar heating during the winter months. Install sun-shading devices (e.g., screens) or recessed windows on newly proposed buildings;* • *Install efficient lighting and lighting control systems;* • *Install energy-efficient heating and cooling systems, appliances and equipment;* • *Install light colored "cool" roofs and pavements (i.e., high reflectance, high emittance roof surfaces, or exceptionally high reflectance and low emittance surfaces) and strategically placed shade trees to the extent practical;* • *Limit hours of operation of outdoor lighting to the extent practical; and* • *Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30 percent of the site's non-roof impervious surfaces,*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		including parking lots, walkways, plazas, etc.; or, place a minimum of 50 percent of parking spaces underground or covered by structured parking; or, use an open-grid pavement system (less than 50 percent impervious) for a minimum of 50 percent of the parking lot area. *5.3-5(b) Documentation confirming implementation of the Air Quality Mitigation Plan shall be provided to the SMAQMD and City prior to issuance of occupancy permits.*	
5.3-6 Development of the project could place new sensitive receptors in proximity of a rail line, a source of diesel particulate emissions.	LS	*None required.*	N/A
5.3-7 Impacts related to the project's production of greenhouse gas emissions.	LS	*None required.*	N/A
5.3-8 Cumulative contribution to regional air quality conditions.	S	*5.3-8 Implement Mitigation Measures 5.3-2(a) and (b) and 5.3-4(a) and (b).*	SU
5.4 Noise and Vibration			
5.4-1 Impacts related to the update of the Remedial Action Plan.	LS	*None required*	N/A
5.4-2 Construction noise impacts to surrounding existing uses.	PS	*5.4-2 Construction activities shall be limited to the hours set forth below, unless an exception is granted by the Development Services Department:*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Monday through Saturday* *7:00 a.m. to 6:00 p.m.* • *Sunday* *9:00 a.m. to 6:00 p.m.* *These restricted hours shall be included on all grading and construction plans submitted for the review and approval of the Development Services Department prior to issuance of grading and construction permits.*	
5.4-3 Project-related increase in existing traffic noise levels.	LS	*None required.*	N/A
5.4-4 Exterior roadway traffic noise impacts on project residences.	LS	*None required.*	N/A
5.4-5 Internal roadway traffic noise levels at proposed residences within the project site.	LS	*None required.*	N/A
5.4-6 Railroad related vibration at proposed residences.	LS	*None required.*	N/A
5.4-7 Railroad noise levels at exterior noise spaces of proposed project residences.	PS	*5.4-7 Prior to the issuance of building permits, a noise barrier shall be shown on the plans along the western boundary of the project site, from the northern boundary of the CPV site to the southern end of ~~the Multi-family parcel~~,any parcel with residences for the review and approval of the City Engineer. A barrier 10 feet in height (relative to nearest outdoor activity elevations) would intercept line of sight to railroad pass-bys, thereby reducing future UPRR noise levels to 70 dB Ldn or less at*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
			the nearest outdoor activity areas proposed adjacent to the tracks. *Barriers can take the form of earthen berms, solid walls, or a combination of the two. Appropriate materials for noise walls include precast concrete or masonry block. Other materials may be acceptable provide they have a surface density of approximately four pounds per square foot.*	
5.4-8 Railroad noise levels at interior spaces of proposed residences on the project site.	PS	*5.4-8(a)*	*Prior to the issuance of building permits, all residential lots and residential buildings located within the 70 dB Ldn contour shall include noise insulation features such as the following:* • *Sound-rated windows and doors with STC rating of 35; and* • *Stucco exterior siding.*	LS
		5.4-8(b)	*Prior to sale of any residential lots, statements shall be included in the title for all properties within the 65 dB Ldn contour that informs the buyer of elevated noise levels during train passages, and that train passages routinely occur during nighttime hours.*	
5.4-9 Noise-producing commercial uses proposed within the project site.	PS	*5.4-9(a)*	*Unshielded (i.e. unloading activities which are visible from any residential window) nighttime truck unloading shall be prohibited within 200 feet of any residential unit.*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
		5.4-9(b)	*Prior to issuance of a building permit, the site plans shall indicate that a parapet wall shall be constructed along the edge of the roofs of the commercial buildings of sufficient height to intercept line of sight from rooftop mechanical equipment at the nearest residences to reduce noise levels at those nearby residences.*	
5.4-10 Park generated noise at residential uses proposed within the project site.	PS	*5.4-10*	*Park activities shall be restricted to daytime hours, with exceptions allowed on a case-by-case basis subject to the approval of the Director of the Parks and Recreation.*	LS
5.4-11 Project-related increase in cumulative traffic noise levels.	LS	*None required.*		N/A
5.4-12 Cumulative exterior roadway traffic noise impacts on project residences.	LS	*None required.*		N/A
5.5 Biological Resources				
5.5-1 Impacts to biological resources related to the update of the Remedial Action Plan.	LS	*None required.*		N/A
5.5-2 Impacts to burrowing owl.	LS	*5.5-2*	*Prior to any ground disturbance associated with grading or construction, the applicant shall initiate a burrowing owl consultation with the California Department of Fish and Game (CDFG) and shall implement the following mitigation measures or equivalents, based on the results of the consultation.*	N/A

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		The developer shall arrange for burrowing owl surveys to be performed consistent with the CDFG's 1995 Staff Report on Burrowing Owl and the California Burrowing Owl Consortium's (CBOC) Survey Protocol (1997) not less than 30 days prior to ground disturbance for each phase of project grading. If burrowing owls are not detected, further mitigation is not necessary. However, if burrowing owls are detected the following steps shall be taken: *If site disturbance commences during the nesting season (between February 1 and August 31) and burrowing owls are detected, a fenced buffer shall be erected on the project site by the developer not less than 250 feet between the nest burrow(s) and construction activities. The 250-foot buffer shall be observed and the fence left intact until a qualified raptor biologist determines that the young are foraging independently, the nest has failed, or the owls are not using any burrows within the buffer.* *If ground disturbance associated with grading or construction commences outside of the nesting season, and burrowing owl(s) are present on-site or within 160 feet of site disturbance, passive relocation consistent with the CDFG Staff Report (1995) and the CBOC Survey Protocol (1997) shall be performed. At least one or more weeks will be*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
			necessary to accomplish this and allow the owls to acclimate to off-site burrows. The pre-construction surveys shall be repeated if more than 30 days elapse between the last survey and the start of construction activities.	
5.5-3 Impacts to Swainson's hawk nesting and foraging habitat.	PS	*5.5-3*	*If site disturbance associated with grading or construction activities is proposed by the developer during breeding season (February to August), a pre-construction survey for Swainson's hawk nests shall be conducted within 30 days prior to site disturbance/construction activities by a qualified biologist in order to identify active nests in the project site vicinity. The results of the survey shall be submitted to CDFG and the Development Services Department. If active nests are not found during the pre-construction survey, further mitigation is not required. If active nests are found, pursuant to consultation with CDFG, a fenced buffer shall be erected by the developer on the project site not less than one-quarter mile (approximately 1,300 feet) around the active nest. Site disturbance associated with grading or construction activities that may cause nest abandonment or forced fledging shall not be initiated within this buffer zone between March 1 and September 1. Any trees containing nests that must be removed as a result of project implementation shall be removed during the non-breeding season (September to January).*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.5-4 Impacts to raptors and migratory birds.	PS	*5.5-4* *Prior to any grading or construction activities during the nesting season (February 1 to August 15), a preconstruction survey shall be conducted by a qualified wildlife biologist within 15 days of the start of project-related activities. If nests of migratory birds are detected on site, or within 75 feet (for migratory passerine birds) or 250 feet (for birds of prey) of the site, the developer shall consult with the CDFG to determine the size of a suitable buffer in which new site grading or construction disturbance is not permitted until August 15, or the qualified biologist determines that the young are foraging independently, or the nest has been abandoned.* *5.5.4(b)* *Prior to any grading or construction activities from March 15 to May 15 within 100 feet of the overcrossing of the railroad tracks on Sutterville Road, adjacent to the project site, a preconstruction survey shall be conducted by a qualified biologist within 15 days of the start of project-related activities. If active nests are present in the overcrossing, no construction shall be conducted within 100 feet of the edge of the purple martin colony (as demarcated by the active nest hole closest to the construction activity) at the beginning of the purple martin breeding season from March 15 to May 15. The buffer area shall be avoided to prevent disturbance to the nest(s) until it is no*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		longer active. The size of the buffer area may be adjusted if a qualified biologist and CEFG determine it would not be likely to have adverse effects on the purple martins. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest(s) is no longer active.	
5.5-5 Impacts to Heritage Trees.	LS	*None required.*	N/A
5.5-6 Cumulative loss of biological resources in the City of Sacramento and the effects of ongoing urbanization in the region.	LS	*None required.*	N/A
5.6 Cultural Resources			
5.6-1 Impacts related to the update of the Remedial Action Plan.	PS	*5.6-1(a)* *In the event that any prehistoric subsurface archeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, animal bone, obsidian and/or mortars are discovered during earth-moving activities, all work within 100 feet of the resource shall be halted, and the City shall consult with a qualified archeologist, representatives of the City and a qualified archeologist shall coordinate to determine the appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis and professional museum curation.*	LS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		5.6-1(b) *If a Native American site is discovered, the evaluation process shall include consultation with the appropriate Native American representatives.* *If a Native American archeologist, ethnographic, or spiritual resources are discovered, all identification and treatment shall be conducted by qualified archeologists, who are certified by the Society of Professional Archeologists (SOPA) and/or meet the federal standards as stated in the Code of Federal Regulations (36 CFR 61), and Native American representatives, who are approved by the local Native American community as scholars of the cultural traditions.* *In the event that no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted. If historic archeological sites are involved, all identified treatment is to be carried out qualified historical archeologists, who shall meet either Register of Professional Archeologists (RPA), or 36 CFR 61 requirements.* *5.6-1(c)* *If a human bone or bone of unknown origin is found during earth-moving activities, all work shall stop within 100 feet of the find, and the County Coroner shall be contacted immediately. If the*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission, who shall notify the person most likely believed to be a descendant. The most likely descendant shall work with the contractor to develop a program for re-internment of the human remains and any associated artifacts. No additional work is to take place within the immediate vicinity of the find until the identified appropriate actions have taken place.	
5.6-2 Project grading could unearth previously unknown archaeological resources.	LS	*None required.*	N/A
5.6-3 Impacts to the historical character of the Curtis Park neighborhood and possible destruction of historic structures.	LS	*None required.*	N/A
5.6-4 Disturbance or destruction of previously unknown archaeological resources in combination with other development in the Sacramento area.	LS	*None required.*	N/A
5.7 Geology and Soils			
5.7-1 Impacts related to the update of the Remedial Action Plan.		*5.7-1(a)* *At least 72 hours prior to the placement of imported fill, the applicant shall have the potential*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		fill inspected by a qualified geotechnical consultant to ensure that all fill being used for fills less than five feet below design grade have a plasticity index of less than or equal to 12, and that all soils are clean and free of deleterious materials, organic materials, and shall not contain particles greater than six inches in size. The results of the geotechnical analysis shall be submitted to the City Engineer prior to placement of fill. *5.7-1(b)* *Prior to placement of imported fill, the applicant shall have the excavation surface inspected by a qualified geotechnical consultant to ensure the stability of the excavation bottom. Should the site be found to be unstable or contain loose or deleterious materials, the applicant shall perform required mitigation as identified by the geotechnical consultants and approved by the City Engineer. Mitigation for unstable fill could include, but is not limited to the following:* • *Restrict fill activities to occur when the excavation bottom is dry and stable during warm weather; or* • *Require that the placement of geotextile fabric be placed prior to granular import fill. The geotextile fabric would be required to be Mirafi 600X or equivalent. Granular fill would consist of well-graded crushed materials, such as Class 2*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		aggregate base of Caltrans Standard Specifications, but may also consist of other granular imported materials. Uniform crushed rock may be used as a stabilizing layer provided that the crushed rock is completely wrapped in the geotextile fabric.	
5.8 Public Health and Hazards			
5.8-1 Impacts related to the update of the Remedial Action Plan.	LS	*None required.*	N/A
5.8-2 Exposure of future residents and construction workers to contaminated soil.	LS	*None required.*	N/A
5.8-3 Exposure of construction workers and future residents to rail line-associated hazards (including loss of service) during construction.	LS	*None required.*	N/A
5.8-4 Impacts related to exposure to asbestos and lead-based paint.	LS	*None required.*	N/A
5.8-5 Impacts related to inadvertent or accidental releases of hazardous substances.	LS	*None required.*	N/A
5.8-6 Long-term hazards-related impacts from the proposed project in combination with existing and future developments in the	LS	*None required.*	N/A

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	Sacramento area.			
	5.9 Hydrology, Water Quality, and Drainage			
5.9-1	**Impacts to hydrology, water quality, and drainage related to the update of the Remedial Action Plan.**	LS	*None required.*	N/A
5.9-2	**Exposure of people and structures to 100-year flood event on the project site.**	LS	*None required.*	N/A
5.9-3	**Project impacts to existing drainage facilities.**	LS	*None required.*	N/A
5.9-4	**Construction-related impacts to surface water quality.**	LS	*None required.*	N/A
5.9-5	**Operational water quality degradation associated with urban runoff from the project site.**	LS	*None required.*	N/A
5.9-6	**Long-term increases in peak stormwater runoff flows from the proposed project in combination with existing and future developments in the Sacramento area.**	LS	*None required.*	N/A
5.9-7	**Cumulative impacts related to degradation of water quality.**	LS	*None required.*	N/A

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.10 Population, Employment, and Housing			
5.10-1 Impacts related to the update of the Remedial Action Plan.	LS	*None required.*	N/A
5.10-2 Inconsistency with City of Sacramento housing policies and Mixed-Income Housing Ordinance.	LS	*None required.*	N/A
5.10-3 Impacts to population and employment.	LS	*None required.*	N/A
5.10-4 Long-term impacts to population, housing, employment, and jobs-to-housing ratio from the proposed project in combination with existing and future developments in the Sacramento area.	LS	*None required.*	N/A
5.11 Public Services and Utilities			
5.11-1 Impacts to public services and utilities associated with the update of the Remedial Action Plan.	LS	*None required.*	N/A
5.11-2 Impacts related to increased demand for water supply, treatment, and/or conveyance.	LS	*None required.*	N/A
5.11-3 Increased demand for stormwater and wastewater	LS	*None required.*	N/A

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
collection and treatment.			
5.11-4 Increased demand for solid waste disposal services.	LS	*None required.*	N/A
5.11-5 Impacts to gas and electric facilities.	LS	*None required.*	N/A
5.11-6 Impacts to telecommunication facilities.	LS	*None required.*	N/A
5.11-7 Increased demand for law enforcement services.	LS	*None required.*	N/A
5.11-8 Increased demand for fire protection services, including emergency medical personnel.	LS	*None required.*	N/A
5.11-9 Increased demand for school resources.	LS	*None required.*	N/A
5.11-10 Increased demand for library services.	LS	*None required.*	N/A
5.11-11 Long-term impacts to public services and utilities from the proposed project in combination with existing and future developments in the Sacramento area.	LS	*None required.*	N/A
5.12 Parks and Recreation			
5.12-1 Impacts related to the update of the Remedial Action Plan.	LS	*None required.*	N/A
5.12-2 Impacts related to the project creating the need for construction or expansion of	LS	*None required.*	N/A

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
recreational facilities beyond what was anticipated in the General Plan.			
5.12-3 Impacts related to the provision of adequate recreational facilities on the project site in combination with existing and future development in the Sacramento area.	LS	*None required.*	N/A

To correct text, page 2-9 of the DEIR is revised as follows:

Alternative 2: Reduced Commercial Alternative A

The Reduced Commercial Alternative A would include a reduction in the commercial land use area from approximately 260,000 square feet to 150,000~~100,000~~ square feet. The reduction in square footage in the commercial land-use area from the amount contemplated in the proposed project would instead be developed as single-family residential lots at a density of nine dwelling units per acre.

Alternative 3: Reduced Commercial Alternative B

The Reduced Commercial Alternative B would include a reduction of square footage in the commercial land use area from the proposed plan of 260,000 square feet to 100,000 square feet. The reduction in square footage in the commercial land-use area from the amount contemplated in the proposed project would instead be developed as single-family residential lots at a density of nine dwelling units per acre.

The sixth paragraph on page 2-9 of the DEIR is hereby corrected to read:

The Multi-Family Alternative would include a reduction of the total commercial land use area of the proposed project from approximately ~~314,000~~ 260,000 square feet to 194,400 square feet. The reduction in square footage in the commercial land-use area from the amount contemplated in the proposed project would instead be developed as multi-family residential lots at a density of 30 dwelling units per acre.

3.0 PROJECT DESCRIPTION

In response to comments the applicant has revised the proposed project. See Chapter 1.0 of this FEIR, Introduction, List of Commenters, and Project Revisions, for the revisions.

5.1 AESTHETICS

For clarification purposes, the third paragraph on page 5.1-9 of the DEIR is hereby revised to read:

It should be noted that ~~the updates to the RAP remedies could result in more stockpiles of soil on the site, but the soil stockpiles would not be any larger than the stockpiles currently on-site (due to implementation of the existing RAP), and these stockpiles would eventually be removed from the site and hauled to an appropriate landfill~~ soil stockpiles would be managed in accordance with remedial alternatives approved in the updated RAP.

The third paragraph on page 5.1-11 of the DEIR is hereby revised as follows, in order to clarify the intent:

> ~~The removal of trees was covered in the approved RAP; in particular, the cleanup of the site under the approved RAP or the revised RAP would require removal of many of the trees on site, and this cleanup must occur regardless of whether the City approves the proposed project.~~
>
> The remediation of the site in accordance with the 1995 RAP assumed that trees, in particular, Heritage trees would be removed. Because the site must be cleaned to the standards set in the 1995 RAP, and a much larger portion of the site is contaminated than anticipated in the 1995 RAP, any tree that prevents the remediation of the contamination must be removed. The loss of these trees would occur regardless of whether the proposed Curtis Park Village project is approved.

5.2 TRANPORTATION AND CIRCULATION

The text is corrected on page 5.2-3 of the DEIR, second paragraph, as follows:

> *24th Street* is a four-lane arterial road from Sutterville Road south through Sacramento Executive Airport and the Florin Area of Sacramento to terminate near Meadowview Park in southern Sacramento. At Sutterville Road, the roadway is off-set about 1,000 feet to the east and travels north near the project vicinity. It operates primarily as a two-lane collector road until around ~~Castro Street~~2nd Avenue where it widens to four-lanes and continues through Midtown Sacramento to the Southern Pacific railroad tracks just south of the American River.

For clarification purposes, page 5.2-3 of the DEIR, fifth paragraph is revised as follows:

> *Freeport Boulevard* extends from I-80/I-50 south to the city limit. To the north, it continues as 19th Street and to the south, it becomes River Road. Between G Street and just south of 4th Avenue, it operates as a one-way southbound arterial roadway. As with 21st Street, a portion of Freeport Boulevard was recently converted to two-way traffic operations. It serves as an alternative route to connect to I-80/I-50.

Text in the first paragraph on page 5.2-5 of the DEIR is hereby corrected as follows:

> The Sacramento Regional Transit District (RT) provides bus and light rail services near the project site. Three ~~Four~~ bus routes operate~~s~~ in the project area: Routes 62 (Freeport), 63 (24th Street-Hogan), ~~64 (24th Street-City College)~~, and 83 (14th Avenue). Route 62 provides ~~daily service between Rush River Drive and the downtown area in 30-minute intervals~~ 30 minute service intervals Monday through Friday, hourly service on Saturdays, and no service on Sundays. It operates from about 6:00 am to 11:00 pm on weekdays, and 7:00 am to 10:00 pm on Saturdays~~, and 9:00 am to 10:00 pm on Sundays~~. Route 63 ~~and Route 64~~

provides service between Meadowview Road and the downtown area. Route 63 ~~While both routes~~ converges on 24th Street near the project site, ~~Route 63~~ and travels up Franklin Boulevard ~~and Route 64 up 24th Street~~ for much of the~~ir~~ route~~s~~. ~~Service on both routes is provided on 60- to 75-minute intervals from about 5:30 a.m. to 8:00 p.m. during weekdays.~~ Service on Route 63 is provided on 60- to 75-minute intervals between 5:30 a.m. and 6:30 p.m. on weekdays, but is not offered during the weekends or holidays. ~~Route 64 operates from about 7:00 a.m. to 6:30 p.m. on Saturdays. Route 63 has no Saturday, service and neither routes have Sunday and holidays service~~. Route 83 provides service between Riverside Boulevard and University/65th Street. In the project vicinity, it operates along Sutterville Boulevard at 30 minute intervals between 6:20 am and ~~to~~ ~~8:00~~ 7:00 pm on weekdays. There is no service on weekends and holidays.

For clarification purposes, page 5.2-6 of the DEIR, last paragraph is revised as follows:

Sidewalks are provided along almost all of the streets in the project area ~~except for the elevated section of Sutterville Road~~.

For clarification purposes page 5.2-9 of the DEIR is revised as follows:

At locations where Year 2007 counts are not available, Year 2005 traffic volumes were adjusted based on Year 2007 counts at adjacent locations if the approach volumes are projected to be higher than Year 2005 counts. Traffic volumes were adjusted for the analysis of project impacts to account for the conversion of Freeport Boulevard and 21st Street to two-way operations. Please refer to the Baseline Conditions section.

To correct text, page 5.2-12 of the DEIR, is revised as follows:

While the 1988 General Plan was in place at the time this study was initiated, the City ~~is currently working on updating the General Plan, with adoption expected in early~~ adopted the 2030 General Plan in March 2009. In general, the *Draft 2030 General Plan* (City of Sacramento, May 2008) update includes similar goals with respect to the transportation system that were described in the 1988 General Plan. However, the goal related to roadway LOS is significantly different under the Draft 2030 General Plan update:

The following clarification has been added to page 5.2-22 under the Access Section:

The last scenario was evaluated qualitatively only based on a comparison of how trips would be distributed, and the remaining scenarios were analyzed quantitatively. With the installation of the proposed signalized intersection on Sutterville Road between West Pacific Avenue and Jeffrey Avenue (Road A), the traffic signal at the Sutterville Road/24th Street intersection would be eliminated. A majority of the through and neighborhood traffic north of the project traversing 24th Street has been reassigned onto the new Road A in this analysis.

The text on page 5.2-36, Mitigation Measure 5.2-1(b) is revised as follows:

5.2-1(b) *At the Sutterville Road / Road A intersection, provide overlap signal phasing to allow the southbound Road A right turning traffic to proceed on a green arrow simultaneously with the eastbound left turning movement, and prohibit U-turns for the eastbound left turning movement; ~~and~~ add a southbound left-right lane to provide one left-turn lane, one left-right lane, and one right turn lane, and provide a dedicated right turn lane for the westbound Sutterville Road approach to the intersection. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a* ***less than significant*** *level.*

Page 5.2-43, Mitigation Measure 5.2-7 is revised as follows:

~~*5.2-7(b)* *The project applicant shall modify the design at the intersection of the Road J extension/Portola Way, 4th Avenue, and Marshall Way to physically prohibit the northbound left-turning movement from the Road J extension/Portola Way.*~~

5.2-7(~~c~~b) *The site design shall be modified to reduce the potential for vehicles leaving parking stalls to back across pedestrian crosswalks. This change may require the elimination of some angle parking spaces.*

The first paragraph on Page 5.2-45 is revised to read:

The findings indicate that the peak parking demand for shared parking spaces at Curtis Park Village is 1,~~563~~182 spaces and would occur between 7:00 pm and 8:00 pm on a typical December weekend evening. This does not include the parking demand from the single-family homes as their requirements are assumed to be fulfilled by the individual garage provided for each unit.

To correct the text, Mitigation Measure 5.2-10(b) on page 5.2-54 is revised as follows:

5.2-10(b) *24th Street / Portola Way – The project applicant shall pay a fair share contribution to install a traffic signal at this intersection. ~~convert the intersection from all-way stop control to two-way stop control with stop signs only for the Portola Way approaches to the intersection.~~ This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a* ***less than significant*** *level.*

For clarification purposes, page 5.2-54, Mitigation Measure 5.2-10(e) is revised as follow:

> *5.2-10(e)* *Sutterville Road / Road A – apply Mitigation Measure ~~4~~5.2-1(~~a~~b) which would provide overlap signal phasing to allow the southbound Road A Right turning traffic to proceed on a green arrow simultaneously with the eastbound left turning movement, and prohibit U-turns for the eastbound left turning movement; ~~and~~ provide one left-turn lane, one left-right lane, and one right-turn lane on the southbound approach; ~~Also,~~ provide a dedicated right turn lane for the westbound Sutterville Road approach to the intersection; provide an actuated exclusive pedestrian phase to serve pedestrians crossing Sutterville Road; and optimize signal timing. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a **less than significant** level.*

To correct the text, the first paragraph of the Mitigation Measure section on page 5.2-60 is revised as follows:

> Implementation of Mitigation Measure 5.2-~~8(j)~~ 10(h) would reduce the traffic queue at the northbound 12th Avenue off-ramp for the Proposed Project and all access scenarios to ***less than significant*** levels.

5.3 AIR QUALITY

Table 5.3-1 on page 5.3-2 of the DEIR is revised as follows to include $PM_{2.5}$ standards:

Table 5.3-1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	--	0.09 PPM
	8-Hour	0.075 PPM	0.070 PPM
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual Average	0.053 PPM	0.030 PPM
	1-Hour	--	0.18 PPM
PM_{10}	Annual Average	--	20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
$PM_{2.5}$	Annual Average	15 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	--

PPM = Parts per Million
µg/m^3 = Micrograms per Cubic Meter

Source: Donald Ballanti, Air Quality Impact Analysis for the Proposed Curtis Park Project, February 2009.

The following paragraph is added after the second full paragraph on page 5.3-3 of the DEIR:

> PM10 refers to particles 10 microns or smaller in diameter. PM2.5 is a subset of PM10 and refers to particles 2.5 microns or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. In urban areas, PM10 is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities. PM2.5 is mostly a product of incomplete combustion of fuels.

The second full paragraph on page 5.3-3 of the DEIR is hereby revised as follows:

> Particulate matter (PM) is a mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small drops of liquid. These particles vary greatly in shape, size, and chemical composition and can be made up of many different particles, including metal, dust, soot, aerosols, and other matter, which are small enough to remain suspended in the air for a long period of time. A portion of the particulate matter in the air is due to natural sources such as wind blown dust and pollen. Man-made sources include combustion, automobiles, field burning, factories, and road dust. Wood burning in fireplaces and stoves is a significant source of PM, particularly during cold, stagnant wintertime episodes when levels are highest. Motor vehicle PM emissions include tailpipe and tire wear emissions; however, greater quantities are generated by re-suspended road dust. A portion of the particulate matter in the atmosphere is also a result of photochemical processes. Inhalable PM consists of particles less than 10 microns in diameter, and is defined as "suspended particulate matter," or PM_{10}. Fine PM is less than 2.5 microns in diameter ($PM_{2.5}$). By definition, $PM_{2.5}$ is included in PM_{10}.

Table 5.3-2 on page 5.3-4 of the DEIR is revised as follows to include $PM_{2.5}$ information:

Table 5.3-2
Air Quality Data Summary for Sacramento T Street Site, 2005-2007

Pollutant	Standard	Days Standard Was Exceeded During		
		2005	2006	2007
Ozone	State 1-Hour	4	6	2
Ozone	Federal 1-Hour	0	0	0
Ozone	State 8-hour	5	14	7
Ozone	Federal 8-Hour	1	3	1
PM_{10}	State 24-Hour	4	8	5
PM_{10}	Federal 24-Hour	0	0	0
$PM_{2.5}$	Federal 24-Hour	14	19	5
Carbon Monoxide	Federal 8-Hour	0	0	0
Carbon Monoxide	State 8-Hour	0	0	0
Nitrogen Dioxide	State 24-Hour	0	0	0

Source: California Air Resources Board. Aerometric Data Analysis and Management (ADAM) System, 2008.

For clarification purposes, the third paragraph on page 5.3-4 of the DEIR is hereby removed:

> ~~In Sacramento, motor vehicles are the major source of reactive organic gases ROG, NO_x, and CO. In addition, the 1986 Sacramento Air Quality Plan identified motor vehicle emissions and evaporation of various organic compounds (solvents, fuels, etc.) as the major contributors to regional ozone problems.~~

To correct the text, the second paragraph on page 5.3-4 of the DEIR is revised as follows:

> "Sensitive receptors in the area include local residences, ~~and~~ C. K. McClatchy High School, the Sacramento Children's Home, the Eskaton Monroe Lodge senior citizen complex and child day care facilities.

To correct the text, the third paragraph on page 5.3-4 of the DEIR is hereby revised to read:

> The CARB has ~~seven air pollution monitoring sites within Sacramento County and three within the City of Sacramento~~ 18 ground-level ozone monitoring sites are located throughout the Sacramento Valley Air Basin (SVAB) federal non-attainment area. Twelve of the 18 monitoring stations are operated by the Local Air Districts and the remaining six monitoring stations are operated by CARB. The air quality monitoring stations measure hourly pollutants and record sufficient data to meet EPA and/or ARB criteria for quality assurance. The closest monitoring site to the project area is located at 13th Street and T Street. This monitoring site measures multiple pollutants. A summary of the annual air quality measurements from this monitoring site is shown in Table 5.3-2.

For clarification purposes, page 5.3-4 of the DEIR, last paragraph is revised as follows:

> The SMAQMD and CARB have ~~has~~ seven air pollution monitoring sites within Sacramento County and three within the City of Sacramento. The air quality monitoring stations measure hourly pollutants and record sufficient data to meet EPA and/or ARB criteria for quality assurance. The closest monitoring site to the project area is located at 13th Street and T Street. This monitoring site measures multiple pollutants. A summary of the annual air quality measurements from this monitoring site is shown in Table 5.3-2.

For clarification purposes, page 5.3-5 of the DEIR is revised as follows:

> The U.S. Environmental Protection Agency (USEPA) is the federal agency responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. The USEPA regulates emission sources that are under the ~~exclusive~~ authority of the federal government.

The text on page 5.3-5 of the DEIR is revised as follows:

> The California Air Resources Board (CARB), a part of the ~~USEPA~~ California Environmental Protection Agency (CALEPA), is responsible for the coordination and administration of ~~both federal and~~ State air pollution control programs within California. The CARB conducts research, sets State ambient air quality measure standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs.

To correct the text, Table 5.3-3 on page 5.3-6 of the DEIR is hereby revised to read:

Table 5.3-3
Attainment Status Designations - Sacramento County

Pollutant	National Designation	State Designation
Ozone (1-hour)	No federal standard	Nonattainment/ ~~severe~~ serious
Ozone (8-hour)	Nonattainment/serious	Nonattainment/ ~~severe~~ serious
PM_{10}	Nonattainment/moderate	Nonattainment
$PM_{2.5}$	Attainment/unclassified	Nonattainment
CO	Attainment	Attainment
Nitrogen dioxide	Attainment	Attainment

Source: SMAQMD, http://www.airquality.org/aqdata/attainmentstat.shtml, 2009.

For clarification purposes, page 5.3-7 of the DEIR is revised as follows:

> The SMAQMD is the agency primarily responsible for ensuring that National and State Ambient Air Quality Standards are not exceeded by Sacramento County and that Sacramento County air quality conditions are maintained in the SVAB.

To correct text, Mitigation Measure 5.3-2(b) is changed to include the requirement that the SMAQMD approve the dust-control plan. The text on page 5.3-12 of the DEIR is hereby revised to read:

> *5.3-2(b) Prior to the approval of any grading permit, the project proponent shall submit a dust-control plan, approved by the SMAQMD, to the City of Sacramento Community Development ~~Services~~ Department. The dust-control plan shall stipulate grading schedules associated with the project phase, as well as the dust-control measures to be implemented. Grading of proposed project phases shall be scheduled so that the total area of disturbance would not exceed 15 acres on any given day. The dust control plan shall be incorporated into all construction contracts issued as part of the proposed project development. The dust-control plan shall, at a minimum, incorporate the following measures:*

- *Apply water, chemical stabilizer/suppressant, or vegetative cover to disturbed areas, including storage piles that are not being actively used for construction purposes, as well as any portions of the construction site that remain inactive for longer than 3 months;*
- *Water exposed surfaces sufficient to control fugitive dust emissions during demolition, clearing, grading, earth-moving, or excavation operations. Actively disturbed areas should be kept moist at all times;*
- *Cover all vehicles hauling dirt, sand, soil or other loose material or maintain at least two feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114;*
- *Limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when construction operations are occurring; and*
- *Limit onsite vehicle speeds on unpaved surfaces to 15 mph, or less.*

5.4 NOISE

For clarification purposes, Mitigation Measure 5.4-7 on page 5.4-28 of the DEIR is revised as follows:

5.4-7 *Prior to the issuance of building permits, a noise barrier shall be shown on the plans along the western boundary of the project site, from the northern boundary <u>of the CPV site</u> to the southern end of ~~the Multi-family parcel,~~<u>any parcel with residences</u> for the review and approval of the City Engineer. A barrier 10 feet in height (relative to nearest outdoor activity elevations) would intercept line of sight to railroad pass-bys, thereby reducing future UPRR noise levels to 70 dB Ldn or less at the nearest outdoor activity areas proposed adjacent to the tracks*

Barriers can take the form of earthen berms, solid walls, or a combination of the two. Appropriate materials for noise walls include precast concrete or masonry block. Other materials may be acceptable provide they have a <u>surface</u> density of approximately four pounds per square foot.

Mitigation Measure 5.4-8(a) on page 5.4-28 of the DEIR is revised as follows to include the residential buildings (multi-family and senior housing) located along the western boundary of the project site:

5.4-8(a) *Prior to the issuance of building permits, all residential lots and residential buildings located within the 70 dB Ldn contour shall include noise insulation features such as the following:*

- *Sound-rated windows and doors with STC rating of 35; and*
- *Stucco exterior siding.*

5.5 BIOLOGICAL RESOURCES

To correct text, the first paragraph on page 5.5-10 of the DEIR is revised as follows:

> Swainson's hawks have been found multiple times within 1.5 miles of the project site (CNDDB, 2008), including occurrences along the Sacramento River approximately 1.5 miles west of the project site. Based on past occurrence records, the likelihood of rodents being present on the project site, and the presence of multiple large trees on the site, Swainson's hawk has a moderate potential for occurring on the project site~~, and foraging and nesting habitat for Swainson's hawk is present on site~~.

In response to a comment, Mitigation Measure 5.5-4 on page 5.5-19 of the DEIR is revised as follows:

5.5-4(a) *Prior to any grading or construction activities during the nesting season (February 1 to August 15), a preconstruction survey shall be conducted by a qualified wildlife biologist within 15 days of the start of project-related activities. If nests of migratory birds are detected on site, or within 75 feet (for migratory passerine birds) or 250 feet (for birds of prey) of the site, the developer shall consult with the CDFG to determine the size of a suitable buffer in which new site grading or construction disturbance is not permitted until August 15, or the qualified biologist determines that the young are foraging independently, or the nest has been abandoned.*

5.5.4(b) *Prior to any grading or construction activities from March 15 to May 15 within 100 feet of the overcrossing of the railroad tracks on Sutterville Road, adjacent to the project site, a preconstruction survey shall be conducted by a qualified biologist within 15 days of the start of project-related activities. If active nests are present in the overcrossing, no construction shall be conducted within 100 feet of the edge of the purple martin colony (as demarcated by the active nest hole closest to the construction activity) at the beginning of the purple martin breeding season from March 15 to May 15. The buffer area shall be avoided to prevent disturbance to the nest(s) until it is no longer active. The size of the buffer area may be adjusted if a qualified biologist and CEFG determine it*

would not be likely to have adverse effects on the purple martins. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest(s) is no longer active.

5.6 CULTURAL RESOURCES

For clarification purposes, the sixth paragraph on page 5.6-8 (through 5.6-9) of the DEIR is hereby revised to read:

> The proposed project would not be allowed to proceed until the Department of Toxic Substances Control (DTSC) deems that the ~~updated~~ revised RAP ~~complete~~ remedy objectives are met. Thus, grading associated with the proposed project would occur after soil has been imported to the site consistent with the updated RAP.

5.8 PUBLIC HEALTH AND HAZARDS

For clarification purposes, the first paragraph on page 5.8-8 of the DEIR is hereby revised to read:

> As described above, additional volumes of contaminated soil were discovered during supplemental investigations, completed in December 2008. The additional volumes of the remaining on-site chemicals would require an update to the existing RAP to reflect the additional volume and proposed remediation remedies. However, because specific remediation methods would not be determined in the updated RAP by DTSC until after approval of the DEIR, this section analyzes the impacts of all potential remediation methods. It should be noted that if additional information and data becomes available after certification of the EIR, a re-evaluation by DTSC will determine if the EIR adequately assessed impacts related to the proposed RAP. The RAP could be subject to DTSC approval or an addendum, amendment, or supplement to the certified EIR would be required in order for DTSC to meet its obligations under CEQA.

For clarification purposes, page 5.8-8 of the DEIR is revised as follows:

> The remaining chemicals present in the project area soils mainly fall into the following categories:
>
> - Metals;
> - Petroleum Hydrocarbons; and
> - Semivolatile Organic Compounds (SVOCs).
>
> ~~Although there is some overlap among these categories, typically each category possesses characteristics that influence where the chemicals are likely to be found given their mobility in the environment.~~ The SVOCs (PAHs) and metals are often

found together. Areas of petroleum hydro carbons impact (TPH) in some cases includes both metals and PAHs.

For clarification purposes, the third paragraph on page 5.8-10 of the DEIR is hereby revised to read:

> Personnel involved in on-site activities prior to the completion of the site remediation are trained in accordance with the Occupational Safety and Health Act, participate in a medical surveillance program, and are equipped with personal protective equipment as specified in the Site Health and Safety Plan. Workers are checked frequently during site work to verify compliance with the Site Health and Safety Plan. Under the existing RAP, excavation and off-site disposal of the on-site contaminated soils, utilizing designated haul routes for hazardous materials, is currently being implemented for the above chemicals. Therefore, with implementation of this remedy for the additional volumes encountered, the update of the RAP would result in additional excavation and truck trips to remove the contaminated soil and import clean fill. Thus, because the same regulations and training requirements for the on-site workers conducting the current remediation activities would be required, the additional volumes would not result in increased risk of exposure of workers to contaminated soils or accidental releases of substances transported on adjacent roadways. It should be noted that the additional volumes of contaminants would be removed via truck, not rail. The presence of additional volumes of contaminated soil creates the potential for an increased risk of exposure of future site occupants to contaminated soils or groundwater. However, the implementation of the remedies included in the RAP update and addressed in this chapter would ensure the on-site contaminants are cleaned to DTSC standards. ~~Furthermore, the additional hauling required under this remedy would utilize the same haul routes and be subject to the same laws and regulations as the current site remediation.~~ As a result, impacts related to public health and hazards resulting from the excavation and off-site disposal remedy would be *less than significant*.

For clarification purposes, the first paragraph of page 5.8-11 of the DEIR is hereby revised to read:

> Consolidation involves excavation of target soils and placement in a designated location specifically designed to accommodate the soils. In-situ stabilization involves chemically treating the contaminated soils rendering the soils inert. The treatment of the soils would change the chemical makeup of the soil particles such that the contaminant of concern would be stabilized (i.e., cleaned) to DTSC standards. Encapsulation involves the placement of a membrane over the contaminated soils, which is then covered by clean soil, typically to a minimum of two feet thick. The design of the cap is determined through the scientific processes of DTSC as part of the approval of the updates to the RAP. ~~Because the fill is clean, restrictions on land use above the cap are not required. However, any excavation that would go deeper than the membrane would require workers~~

~~trained in dealing with contaminated soils, and excavated soils would have to be disposed of at an approved facility.~~ As part of DTSC review, Land Use Covenants (LUC) will be applied to all areas with contamination left above the unrestricted land use levels. The LUC would place restrictions to limit land use and activities to be consistent with the cap remedy. Prohibitions against activities such as digging, scraping, or other types of cap disturbance would be included in the LUC. As a result, such areas ~~containing encapsulated soils~~ require the establishment of long-term agreements with DTSC that identify the process for monitoring, conducting maintenance, and construction within the ~~encapsulated area~~ contaminated areas. The placement of encapsulated soils beneath either the proposed park site ~~or~~and/or the commercial portions of the project site is being considered.

For clarification purposes, the following text is added to page 5.8-11 of the DEIR:

Given that the site is currently under remediation, the on-site workers are currently working with contaminated soils and are required to comply with the Site Health and Safety Plan (as described above). Therefore, because the same regulations and training requirements for the on-site workers conducting the current remediation activities would be required for implementation of the encapsulation or in-situ treatment remedies, an increased risk of exposure to contaminated soils for workers would not result. In addition, because of the requirements of SB 120 and the required ongoing groundwater monitoring, these remedies would not result in an increase risk of exposure to contaminated soil for future occupants of the site. Drainage around encapsulated areas would be reviewed by DTSC to ensure that cap integrity is not compromised. Furthermore, these remedies would not result in an increase in transport of contaminated soil, as the soils would remain on-site. Given the above, impacts related to public health and hazards resulting from the encapsulation or in-situ treatment remedies would be *less than significant*.

The following paragraph is added to the top of page 5.8-12 of the DEIR to explain the Operations and Maintenance Plan.

After final remediation is complete, the long-term maintenance of any on-site barriers, caps, or other mechanical means of encapsulation of contaminated soils would be required by the DTSC. An Operation and Maintenance Plan is prepared. This plan would also include land use convenants and controls in order to control all future activities in the area that could disturb or compromise the integrity of any mechanical device used to encapsulate soil. Elements of the plan would include system operations, system maintenance, inspection criteria, replacement criteria, monitoring, and other such elements as necessary to ensure the longevity and integrity of any method used to encapsulate the soils.

For clarification purposes, the third paragraph on page 5.8-12 of the DEIR is hereby revised to read:

> Please refer to Impact 5.8-2 for further discussion of potential impacts during development of the Cutis Park Village project. It should be noted that the implementation of the remedies in the RAP is required to comply with the applicable mitigation measures from Table 2-1 in the DEIR. The updated RAP would not include placing any uses (the site would remain vacant) on the project site after remediation.

For clarification purposes, the first paragraph on page 5.8-13 of the DEIR is hereby revised to read:

> Development of the Curtis Park Village project would not begin until the site has been cleaned to DTSC standards, pursuant to the updated RAP. All single-family residential areas would be cleaned to an unrestricted use standard. Unrestricted standards are intended to allow residents to eat plants grown in their soil, and for children to be able to come into contact with the soil on a daily basis without adverse effect. For areas that are not cleaned to the unrestricted land use standards, soils would be remediated to the construction worker (restricted use) DTSC Target Cleanup Level standards, which would include the non-residential uses. ~~At that point~~ After completion of all components of the approved remedial action have been implemented, including administrative activities (i.e. Operations and Maintenance Agreement, Land Use Covenant, etc.), DTSC would issue certifications of completion and record a deed restriction for the property. Any restricted use areas would be subject to DTSC deed restrictions intended to protect users from exposure to hazardous chemicals.

5.9 HYDROLOGY, WATER QUALITY, AND DRAINAGE

For clarification purposes, the following text is included after the last paragraph on page 5.9-5 of the DEIR:

> The general groundwater flow direction is to the southeast. Constituents historically detected in groundwater include chlorinated volatile organic compounds (1,1-DCA and 1,1-DCE above their MCLs) and metals (nickel above its MCL). Chlorinated volatile organic compound concentrations appear to be stable or decreasing and recent metals concentrations remain comparable to historical detections.
>
> Historical remediation at the site has included soil vapor extraction and groundwater extraction. Currently, only groundwater extraction is being performed as the soil vapor extraction system was granted closure by DTSC in 2004. Groundwater is extracted from on-site and off-site wells, conveyed via underground piping through the site, and discharged under permit directly into the Sacramento County sewer system. Monthly effluent samples are collected to

confirm that constituent concentrations do not exceed County-mandated maximum levels.

The Operations and Maintenance (O&M) Plan presented in the existing RAP includes the following components related to the treatment of contaminated groundwater:

- Extraction system operation utilizing wells equipped with submersible pumps to extract groundwater;
- System operation 24 hours per day, with pumps scheduled for replacement every 5 to 10 years;
- Groundwater treatment options are provided in the Plan, but no longer apply due to low concentrations;
- Groundwater samples are to be collected from monitoring wells and from influent and effluent points within the extraction system; and
- An annual report detailing O&M and groundwater sample results is to be submitted annually.

5.10 POPULATION AND HOUSING

For clarification purposes, page 5.10-6, second paragraph is revised as follows:

The 2030 General Plan EIR projected buildout for Curtis Park Village Project would result in ~~475,000~~2,400 employees. However, implementation of the proposed project would result in the addition of ~~520~~518 employees; ~~474,480~~ 1,882 less employees expected from the 2030 General Plan EIR. The proposed project would result in a ~~1.1~~0.94:1 employee-per-unit ratio.

5.11 PUBLIC SERVICES AND UTILITIES

The fifth paragraph on page 5.11-6 of the DEIR is hereby corrected to read:

Currently, the discharge rates to the SRWTP are restricted to 60 mgd peak flow from Sump 2/2A by a Master Interagency Agreement with the Sacramento Regional ~~Community Services~~ County Sanitation District (SRCSD). ~~Approximately 20 to 30 mgd of dry weather sewer flows to the SRWTP from Sump 2.~~

For clarification purposes, the "Wastewater Treatment" section on pages 5.11-8 and 5.11-9 of the DEIR is hereby revised to read:

Wastewater treatment within the City of Sacramento is provided by the Sacramento Regional County Sanitation District (SRCSD). SRCSD operates all regional interceptors and ~~wastewater treatment plants serving the City~~ the SRWTP. ~~except for t~~The combined sewer and storm drain treatment facilities~~,~~

~~which~~ are operated by the City of Sacramento. The City provides wastewater collection to about two thirds of the area within the City Limits, which is comprised of two distinct areas: the area served by the combined sewer system (CSS), and the areas served by a separated sewer system. The project site is served by the City's CSS facilities.

For clarification purposes, the third paragraph on page 5.11-26 of the DEIR is hereby revised to read:

Wastewater Collection and Treatment

The total projected dry weather wastewater treatment demand from the proposed project is 128,240 gallons per day (See Table 5.11-4). Currently, the SRWTP is permitted an average dry weather flow of 181 mgd, and current average dry weather flows are approximately 150 mgd; therefore, the ~~W~~SRWTP has a current excess capacity of 31 mgd.

For clarification purposes, the second paragraph on page 5.11-27 of the DEIR is hereby revised to read:

The project's contribution of 128,240 gallons per day, or approximately 0.21 mgd, would be significantly less than the ~~W~~SRWTP's excess capacity of 31 mgd. Therefore, the existing ~~W~~SRWTP would have enough capacity to accommodate the proposed project. In addition, the project applicant would be required by the City to pay sewer connection fees. As a result, adverse impacts to wastewater collection and treatment would not result.

7.0 PROJECT ALTERNATIVES

Text on page 7-10 of the DEIR, next to last paragraph, is hereby corrected to read:

The Reduced Commercial Alternative A would include a reduction in the commercial land use area from approximately 260,000 square feet to ~~100,000~~ 150,000 square feet.

3. RESPONSES TO COMMENTS

3.0 MASTER RESPONSES

3.0 MASTER RESPONSES

3.0.1 INTRODUCTION

Several commenters on the Curtis Park Village Draft EIR provide similar comments regarding recirculation (based on similar technical issues) and greenhouse gas (GHG) emissions. The master responses presented in Section 3.0.2, Master Responses, address both of the above commenter issues. It should be noted that Chapters 3.1, 3.2, and 3.3 of this Final EIR provide individual responses to all comments received and refer to the master responses where appropriate.

3.0.2 MASTER RESPONSES

Master Response Regarding Recirculation of the Draft EIR (DEIR)

Several commenters on the Draft EIR stated that various portions of the Draft EIR analysis should be revised and recirculated another public review.

Also under consideration for the need to recirculate are the revisions to the proposed project submitted by the applicant subsequent to the release of the Draft EIR. The revisions resulted from changes to the proposed project made by the project applicant in response to comments received on the DEIR, revisions requested by the City in response to comments received on the DEIR, and changes made to the project as part of a grant application.

Subsequent to the release of the Draft EIR (DEIR) for this project, the project applicant applied for Proposition 1C funds for the project. The grants, provided by the California Department of Housing and Community Development, help fund affordable housing and transit oriented development and are a result of the Proposition 1C Housing Bond Program. The Curtis Park Village applicant proposed an additional 10 senior housing units (90 versus 80 proposed in the DEIR) and 35 more multi-family units in order to conform more closely to the type of projects that can be approved for the grant funding.

In December 2009, the applicant submitted a revised project application in response to public comments received on the Draft EIR. These revisions included removing the traffic roundabout, to allow for a grid-type street layout, decreasing the amount of proposed commercial square footage, and relocating the senior housing units away from the eastern boundary of the project site.

In response to the December 2009 submittal and public comments made on the DEIR, the City requested that the project applicant reduce the number of commercial parcels, and increase sizes of the resulting commercial parcels, in the southern portion of the site, to allow for the creation of lots, blocks, and streets that more easily accommodate the Urban Form Guidelines for the 2030 General Plan Traditional Center land use designation.

Also included in the applicant's December 2009 revised project was a General Plan Amendment to redesignate approximately eight acres from Traditional Neighborhood Low to Traditional Neighborhood Medium. The proposed tentative map shows 60 residential lots for this area. The revisions to the proposed project result in eleven more single family lots than analyzed in the DEIR, which were created by reducing lot sizes. Additionally, 35 more multi-family units are included, which will be created by increasing the number of units in the proposed buildings. The ten additional senior housing units were previously discussed.

In addition to the above changes to the project as proposed by the applicant, the City is revisiting the analysis, as it appeared in the DEIR, of the removal of trees due to the development of the proposed Curtis Park Village.

CEQA Guidelines Section 15088.5(a) recognizes that revisions can be made to a project after public notice is given of the availability of a DEIR. "Information" can include changes in the project or environmental setting, as well as, additional data or other information. This section of the Guidelines also states that recirculation of the EIR is required when the new information is 'significant,' which is defined as new information that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of a project or a feasible way to mitigate or avoid such an effect that the project's proponents have declined to implement.

CEQA Guidelines Section 15088.5(a) states the following would be considered 'significant new information' that requires recirculation:

(1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
(2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
(3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project's proponents decline to adopt it.
(4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

CEQA Guidelines Section 15088.5(b) states that recirculation is not required where the new information merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.

After careful consideration of the issues raised by the commenters on the Draft EIR City staff, as the Lead Agency, determined that none of the responses to the comments resulted in "significant new information" that would trigger the requirement for recirculation of the Draft. Nor did any comment result in the conclusion, by the Lead Agency, that the DEIR was so fundamentally inadequate that the public was precluded from meaningful review and comment.

In addition, City staff determined that the revisions to the proposed project submitted by the applicant and in response to City request did not result in "significant new information," as defined by Section 15088.5(a).

Based on the following analyses, the recirculation of the DEIR, or portions of the DEIR, was determined to not be warranted under CEQA.

(1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.

The DEIR included analyses of the potential environmental impacts due to ground disturbance of the entire site. These include impacts to biological resources and cultural resources. The revisions to the proposed project subsequent to the preparation of the DEIR do not result in a difference in the area of disturbance assumed for the Curtis Park Village project. For this reason, the revisions would not result in new or increased impacts to biological and cultural resources. The impacts were found to be less than significant with implementation of mitigation. The mitigations included in the DEIR would reduce all impacts related to these two resource areas to a less-than-significant level.

The DEIR analyzed the potential exposure of people or structures to geologic and soil hazards due to development of the Curtis Park Village. As with the previous two issue areas, the potential impacts are related to the conditions at the project site, which would not change as a result of the proposed revisions to the project. The impacts were determined to be less than significant and no mitigation was required for the project as analyzed in the DEIR. Because the impacts would be the same for the project as currently proposed, the impacts remain less than significant and no mitigation is necessary.

The DEIR analyzed the potential for development and operation of the Curtis Park Village to result in the exposure of people to contamination, hazards, and hazardous substances. Although the revisions to the project subsequent to the preparation of the DEIR would result in an additional 57 dwelling units, and therefore, more residents on the project site and in potential contact with the hazards on, and adjacent to, the Curtis Park Village site, the impacts would remain less than significant. The conditions that could result in potential hazards on the site (exposure of people to contaminated soils, rail line-associated hazards, asbestos and lead-based paint, and inadvertent of accidental releases of hazardous substances) would not be increased due to the project revisions or to the additional residents that could result. As with the project as proposed in the DEIR, no mitigation would be necessary.

The DEIR analyzed the potential for impacts to water quality, hydrology, and drainage related to the development of the proposed project site. The impacts were determined to be less than significant in the DEIR and no mitigation was required. Although the proposal includes additional dwelling units, the additional units would not require an increase in the amount of developed acreage on the site that was assumed in the DEIR. The revised application reduces the amount of the commercial area by 6,000 square feet. Similarly, this reduction does not reduce the amount of developed acreage. Because the potential impacts due to changes in water quality and increased drainage are dependent upon the amount of impervious surface developed by a project and the type of development that would generate the runoff, the proposed revisions to the project would not result in new or greater impacts. The impact remains less than significant and no mitigation is necessary.

The potential impacts due to the increased need for public services (police, fire, schools, libraries), were determined, in part, by the amount of development that could occur with the proposed project. The project, as currently proposed, could result in approximately 144 more residents than the project analyzed in the DEIR. The additional residents are, therefore, assumed to increase the demand for public services. However, the project site was anticipated for development in the *Sacramento 2030 General Plan*. The provision of public services is planned on a City-wide scale. The environmental analyses in the Master EIR for the General Plan determined that upon implementation of the various public service-related policies included in the General Plan, less than significant impacts would result from buildout of the General Plan. Buildout of the proposed project under the proposed land use designations would result in the development of seven more units than the maximum allowable for the project site assumed in the General Plan. Development of the seven additional units would not constitute a substantial increase in the demand for service than was assumed in the *Sacramento 2030 General Plan Master EIR.*

As noted on Page 5.11-21 of the DEIR, the City's Urban Water Management Plan assumed the estimated demand from the existing zoning of the site, which is currently for industrial uses. Because residential demand rates are lower than industrial, the project would result in a net decrease of 60.2 acre-feet per year than the amount of water assumed in the water supply assessment. The increase in water demand resulting from the additional residential units proposed in the December 2009 application would be approximately 13.42 acre-feet/year; therefore, the water demand would remain less than the demand assumed in the Urban Water Management Plan and the impact would remain less than significant.

The sewage and storm drainage flows from the Curtis Park Village project would increase the flows to the combined sanitary and storm drain system (CCS). The additional residential units proposed in the December 2009 application would result in approximately 22,800 gallons per day in wastewater flows. As noted on Page 5.11-24 of the DEIR, the Curtis Park Village project would either use on-site storage of flows during peak flow conditions or would pay to expand the City's CCS facilities. Because the project would not result in overflow conditions or other adverse impacts, the impact would remain less than significant.

As noted on Page 5.11-26 of the DEIR, the wastewater treatment plant has a current excess capacity of 31 million gallons per day. Therefore, the additional 0.023 million gallons resulting from the December 2009 application would remain a less than significant impact.

Dowling Associates prepared a Trip Generation Comparison Memorandum on September 15, 2009 (See Appendix A of this FEIR). The memorandum includes a comparison of the trip generation for the project as analyzed in the DEIR and the proposed December 2009 revised project. After the traffic analysis for the DEIR was performed, and subsequent to the release of the DEIR, the Institute of Transportation Engineers published an updated edition of *Trip Generation.*

A summary of the trip generation for the land use mix as analyzed in the DEIR and the December 2009 revised project is provided in Table 3.0-1, External Trip Summary. It should be noted that the comparison of the revised project and the DEIR analysis includes the revisions to commercial square footage and number of residential units.

Table 3.0-1
External Trip Summary

Land Use	Trips Generated									
		AM Peak Hour			PM Peak Hour			Saturday		
	Weekday	In	Out	Total	In	Out	Total	In	Out	Total
Revised FEIR Project Description (ITE 8th edition)	15,166	367	376	743	891	703	1,596	931	822	1,754
Project analyzed DEIR (ITE 7th edition)	16,030	365	335	699	901	748	1,649	1,055	815	1,818

Source: Dowling Associates, September 2009.

According to the Trip Generation Comparison Memorandum, the project, as currently proposed, would not cause any new significant impacts, nor would it significantly worsen significant impacts that were identified in the DEIR. The project, as currently proposed, would generate fewer daily, PM and Saturday peak hour trips than the project analyzed in the DEIR. The project, as currently proposed, would generate 44 more trips (six percent) during the AM peak hour than the project analyzed in the DEIR (See Table 3.0-1). The increased number of AM peak hour trips is primarily attributed to the Athletic Club use in Area 3 of the project site. According to the Trip Generation Comparison Memorandum, review of the DEIR traffic analysis indicates that the addition of 44 AM peak hour trips would not result in any new significant impacts after implementation of the mitigation measures required for the project for baseline and cumulative conditions.

With the removal of the proposed roundabout at the intersection of Road A and Road D, Road B and Road D would meet at the intersection of Road A and would require signalization. Traffic impacts related to the signalization of the intersection of Road A, Road B, and Road D would not decrease the LOS of surrounding roadways and intersections.

A traffic memorandum was prepared on October 8, 2009 by Dowling Associates (See Appendix A of this FEIR) regarding modification to the roadway configuration, including removal of the traffic roundabout. Dowling Associates conducted a level of service analysis under both baseline and cumulative conditions for a signalized intersection of Road A and 10th Avenue. The analysis determined with implementation of mitigation measures 5.2-1(b) and 5.2-10(e) of the DEIR, the intersection of Road A and 10th Avenue would operate at LOS A or LOS B during AM, PM, and Saturday peak hours under both baseline and cumulative conditions. In addition, the memorandum determined that under baseline and cumulative conditions, westbound and eastbound traffic volumes along 10th Avenue would be 27 vehicle trips and 18 vehicle trips, respectively. As the intersection of Road A and 10th Avenue would operate at acceptable levels and the traffic volume minimal, the impact to 10th Avenue would be less than significant.

All provisions for pedestrian and bicycle circulation and transit connection would remain unchanged. The streets would be designed in accordance to the City's Pedestrian-Friendly Street standards. The modified section of Road A would remain a two-lane roadway with the transition from four lanes to two lanes occurring just north of the Area 1 intersection as previously analyzed.

Marked pedestrian crossings would be provided on all four legs of the Road A and 10th Avenue intersection, where bus stops are planned for the Regional Transit routes. In addition, a signal warrant analysis was performed for the Road A and 10th Avenue/Road C intersection and determined that a signal was necessary.

The memorandum concluded that the revised roadway configurations would not result in any new significant traffic impacts nor alter the conclusions related to the transportation and circulation analyses in the DEIR.

As shown on Figure 1-1, Schematic Plan, the four-story senior housing units were relocated from the eastern border of the project site (immediately adjacent to the existing residences to the east) to the western border. The DEIR analyzed 80 senior housing located on the eastern boundary. The project applicant's decision to add 10 units resulted in the need to increase from a 3- to a 4-story building, if the housing remained in this location. In response to public concern about a 4-story building at this location, the project applicant moved the senior housing to the western boundary of the site, away from existing development. With implementation of the proposed Design Guidelines for the project, the height, aesthetics, and density of the senior units would be consistent with the proposed surrounding multi-family and health club/entertainment/commercial uses.

Because the project, as proposed in December 2009, would result in approximately 144 more residents, the requirement for the provisions of parks slightly increased by 0.2 acre. Either the proposed park would be increased in size or the applicant would pay in-lieu fees. The analysis in the DEIR related to recreational facilities was determined to be less than significant and assumed development of a park and, potentially the payment of in-lieu fees. For these reasons, the potential impacts related to parks and recreation associated with the December 2009 submittal are also less than significant.

(2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.

A technical memorandum regarding noise related impacts from the adjacent railroad on the relocated senior housing units was prepared for the project by Bollard Acoustical Consultants on January 19, 2010 (See Appendix I of this FEIR). The memorandum determined that implementation of noise reduction mitigation measures in the DEIR would result in less-than-significant noise impacts to the senior housing units, and therefore not change the conclusion in the DEIR. In addition to a barrier along the western boundary of residential uses, the DEIR had mitigation related to building construction to reduce the amount of interior noise.

Mitigation Measure 5.4-8(a) on page 5.4-28 of the DEIR has been revised to include the residential buildings (multi-family and senior housing) located along the western boundary of the project site:

5.4-8(a) *Prior to the issuance of building permits, all residential lots <u>and residential buildings</u> located within the 70 dB Ldn contour shall include noise insulation features such as the following:*

- *Sound-rated windows and doors with STC rating of 35; and*
- *Stucco exterior siding.*

(3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project's proponents decline to adopt it.

The revisions to the project application submitted by the applicant in December 2009 would not alter the project alternatives or the conclusions of the alternatives analysis. As noted above, the December 2009 project does not result in new impacts or a substantial increase in impacts that could trigger the need for a new or revised alternative. Chapter 7.0, Alternatives, analyzes an adequate range of alternatives and includes sufficient information to allow a meaningful evaluation of each alternative. Responses to comments on the DEIR include revisions for clarification, which do not alter the conclusions of the DEIR.

(4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

The following three discussions are in response to the three most common reasons given by commenters for the need to recirculate the DEIR. The responses to the comments on other topics related to recirculation of the DEIR are found in the individual responses to comments.

Proposed Update to the RAP

A frequent reason given by commenters to justify the need to recirculate the Draft EIR was the opinion that the document did not provide sufficient information regarding the update to the 1995 Remedial Action Plan (RAP). The commenters opined that the DEIR should include specific engineering design details and environmental analyses of these details.

As stated on Pages 1-2 and 3-4 of the DEIR, the DEIR analyzed all potential remedies that could be used to address the additional volumes of contaminated soils for the use of the Department of Toxic Substances Control (DTSC) for their approval process. Page 3-5 of the DEIR listed all proposed potential remedies of removing the contaminated soils (by truck, on-site treatment, encapsulation or biodegradation). Also stated on this page was that the encapsulation would be accomplished by constructing a barrier or cap to prevent human contact with the contamination and that the potential sites for such a remedy include the proposed commercial areas and park. For each potential impact in the DEIR, there were separate analyses of the impacts due to the proposed remedies (for example, see Impact 5.5-1 on Page 5.1-9 of the DEIR).

In conformance with the procedures of the Department of Toxic Substances Control (DTSC), once the City Council certifies the EIR for the CPV project, the revised Draft RAP would be submitted to DTSC for final approval. On Page 5.8-7 of the DEIR was a discussion of the process by which the analysis of the potential remedies would be used by the DTSC in their approval of the update to the RAP. DTSC would circulate the Draft RAP for public review for at least 30 days. Following

the public review, the Final RAP will be prepared. The updated RAP will include the detailed descriptions of the remedial actions that would be required by DTSC and undertaken by the CPV developer. It is that DTSC process which addresses the types, locations, and amounts of contaminants on the project site and determines the specific engineering methods necessary to remediate the toxic conditions to be protective of human health and the environment.

Included as an attachment to a comment letter was the 1995 Final Remedial Action Plan. As stated on Page 1 of that RAP (Page 3.1-394 of the FEIR), the purpose of a RAP is to describe the methods which have been and/or will be used to identify and subsequently design and implement a final remedial action. The RAP is a specific requirement of the California Health and Safety Code Section 25356.1.

As noted in the comments on the DEIR from the DTSC (Letter 4 of the FEIR) on Page 3.1-26 of the FEIR, is the statement that, "[…] DTSC has been coordinating with the City to ensure that the draft EIR contains an analysis of potential impacts associated with activities to be contained in a proposed Remedial Action Plan amendment (RAP) subject to DTSC approval that would address additional contamination found at the proposed project site. As a Responsible Agency, DTSC will consider the environmental effects of activities associated with the proposed RAP as shown in the Final EIR prior to reaching a decision on the proposed RAP" and (on Page 3.1-28 of the FEIR) "[…] since a proposed RAP was not available at the time the draft EIR was being circulated for review and comment, DTSC evaluated the potential impacts from the remediation methods identified in the draft EIR."

To summarize, DTSC acknowledged that the specific engineering details that would appear in the RAP were not included in the DEIR and also stated that, as a Responsible Agency, they would depend on this EIR in their consideration of the approval of the RAP. As part of the approval of the RAP, DTSC will circulate the draft RAP for public review and comment. The RAP would include the specific engineering design details that are currently requested by various commenters. The draft RAP would be submitted to the DTSC after approval of the EIR by the City of Sacramento. For each potential impact in the DEIR, there were separate analyses of the impacts due to the proposed remedies (for example, see Impact 5.5-1 on Page 5.1-9 of the DEIR). For these reasons, the DEIR included enough information about the environmental effects of the proposed remedies to allow meaningful public review and comment. The public will have the opportunity to comment on the specific engineering details through the future DTSC process.

2030 General Plan Consistency

Several commenters opined that the proposed Curtis Park Village does not comply with the 2030 General Plan designation for a Traditional Center, and therefore, the project should be redesigned, and opined that this triggered the need for a revised Draft EIR. In response to these comments, City staff requested that the project applicant revise proposed parcel lines in the area proposed as Traditional Center. A reduced number of parcels and larger parcels would allow future development to more easily comply with the Urban Form Guidelines.

Also in response to comments, the project applicant removed the proposed traffic roundabout in the

southern portion of the project site and instead proposed a signalized intersection and a more grid like road pattern. The removal of the roundabout changed the configuration of the surrounding proposed lots to a more linear configuration, which also led the City to request the larger lot sizes in the area of Traditional Center development.

Section 15088(c) of the CEQA Guidelines allows revisions to a project to mitigate objections received in comments on a DEIR. In addition, neither of these revisions (removal of the traffic roundabout and reconfiguration of the parcels in the Traditional Center area) result in either a new impact or increased severity of an existing impact. The potential impacts due to an intersection at 10th Avenue were analyzed in the DEIR (See page 5.2-22 – Access Scenario 3 and Table 5.2-11, Scenario 3, beginning on Page 5.2-33). This analysis assumed that an intersection would replace a traffic roundabout at this location.

As noted in Chapter 1.0 of this FEIR, the overall amount of proposed commercial development is 6,000 square feet less than was analyzed in the DEIR, although the reconfiguration of the commercial parcels did not result in this reduction of commercial development.

These revisions to the project do not result in the need to recirculate the DEIR. The reconfiguration of the parcel lines and resultant fewer parcels in the Traditional Center area would not result in a change in the determinations of the impact analyses in the DEIR. As noted, the one potential impact associated with these proposed project revisions, a signalized intersection instead of the roundabout, was analyzed in the DEIR.

Traffic Analysis and Project Description

As pointed out by commenters, the traffic analysis in Chapter 5.2, Transportation and Circulation, of the DEIR was based on a different mix of land uses than the project as described in Chapter 3, Project Description, of the DEIR. As also acknowledged by some commenters, there was a memorandum in Appendix D of the DEIR that addressed this issue. The land use types did not differ, just the amounts of each type of development.

The traffic analysis that appeared in the DEIR was prepared in the summer of 2008. In November 2008, the applicant submitted a revised application with a similar roadway network, but slightly different land use mix. With the exception of the traffic chapter, the analyses in the DEIR were based on the November 2008 submittal.

Dowling Associates, Inc., the traffic engineers, prepared a trip generation analysis of the November 2008 revised land uses. The conclusion of the analysis was that the land uses proposed in November 2008 would produce few trips than the land uses analyzed in the DEIR. In addition, Dowling Associates, Inc. stated that the DEIR presented a more conservation analysis of the potential impacts and that it was not likely that the revised land uses would result in transportation-related impacts not already identified in the DEIR (see Memorandum from Debbie Yueh, Dowling Associates, Inc., to Samar Hajeer, City of Sacramento, December 9, 2008, re: Curtis Park Village – Trip Generation Comparison of Different Land Uses in Appendix D of the DEIR). The City's Traffic Engineer agreed with the findings stated in the memorandum.

Due to the revised project submittal in December 2009, Dowling Associates again prepared a trip generation analysis of the revised project. As before, the conclusion of the analysis was that although the distribution of trips would be slightly different, the difference was not significant and that the traffic analysis in the DEIR represented a conservative analysis of the potential impacts. This determination was based in part on the updated Institute of Transportation Engineers (ITE) *Trip Generation* manual. The 2008 version of the ITE manual, used for the December 2009 trip generation analysis, uses different generation rates, which in the case of the proposed Curtis Park Village land uses are lower. The use of the most recent ITE generation manual is standard practice in traffic engineering.

There were accurate analyses of the potential traffic and circulation impacts of the proposed project that were made available to the public in the DEIR and the appendix.

Master Response Regarding GHG Emissions

Comments were received regarding the discussion of GHG emissions and global climate change in the Draft EIR. Each of the comments is addressed in the Final EIR in Chapter 3.1, Responses to Comments. This Master Response sets forth the City of Sacramento's approach to the issue, including the approach followed in the 2030 General Plan toward the pattern of urban development, and encouragement of a development model that avoids dispersed residential and employment centers that by their design encourage motor vehicle trips, one of the largest contributors to GHG emissions. Likewise, the 2030 General Plan calls for strengthening the City's efforts to promote building standards to reduce the carbon footprint of buildings, another of the major contributors.

<u>The 2030 General Plan and the Master Environmental Impact Report</u>

In November of 2005, the City Council adopted a resolution committing the City to crafting a General Plan that would accommodate the SACOG Blueprint allocation of an additional 100,000 homes and 140,000 jobs consistent with adopted smart growth principles by the anticipated General Plan build-out date of 2030. The City Council approved the 2030 General Plan on March 3, 2009. As part of its action, the City Council certified the Master Environmental Impact Report (Master EIR) that evaluated the environmental effects of development that is reasonably anticipated under the 2030 General Plan. The Master EIR includes extensive discussion of the potential effects of GHG emissions. The Master EIR discussions regarding climate change are incorporated here by reference. See, for example:

Draft EIR: 6.1 Air Quality (Page 6.1-1)
Final EIR: City Climate Change Master Response (Page 4-1)
Errata No. 2: Climate Change (Page 12)

These documents are available at:
www.cityofsacramento.org/dsd/planning/environmental-review/eirs/ and at the offices of the Community Development Department at 300 Richards Boulevard, Third Floor, Sacramento,

California.

The impact of GHG emissions from human activities, specifically with regard to global climate change, has been acknowledged by the City of Sacramento and others as an inherently cumulative effect. Global climate change occurs, by definition, on a global basis. GHGs remain in the atmosphere for extended periods, and combine with GHG emissions from other areas of the globe, thus creating an inherently cumulative impact.

The 2030 General Plan and Master EIR recognized these unique aspects of the problem. The Master EIR acknowledges that the GHG emissions resulting from development that would be consistent with the 2030 General Plan would be cumulatively considerable, and significant and unavoidable. See Errata 2, February 23, 2009.

In addition, at City Council direction, staff reviewed the various policies and implementation programs in the 2030 General Plan that could mitigate GHG emissions, and determined that a number of these policies could be revised. A list of such policies, and the changes that were made to respond to the continuing discussion of climate change, were included as part of the Mitigation Monitoring Plan that implemented mitigation identified in the Master EIR.

The 2030 General Plan calls for land use patterns that focus on infill and mixed use development that support public transit and increase opportunities for pedestrians and bicycle use; quality design guidelines and "complete" neighborhoods and streets to enhance neighborhood livability and the pedestrian experience; "green building" practices including the adoption of a green building rating program and ordinance and the use of recycled construction materials and alternative energy systems; and adaptation to climate change, such as reducing the impacts from the urban heat island effect, managing water use, and increasing flood protection. Specific goals, policies, and programs targeting GHG reductions commit the City to AB 32 reduction targets, preparation of a GHG emissions inventory for existing land uses and 2030 General Plan build-out, reductions in GHG emissions from new development, and adoption of a climate action and adaptation plan by 2010 with ongoing monitoring and reporting.

The effects of the 2030 General Plan promote denser urban development within the current City territorial limits to accommodate population growth, which will reduce growth pressures and sprawl in outlying areas. While total GHG emissions within the General Plan policy area may increase over time due to growth in population in the region, this increase is less than what would have occurred if the 2030 General Plan were not adopted and development of more land in outlying areas had been permitted under the 1988 General Plan. Adoption of the 2030 General Plan put these key strategies in place immediately and has begun to shape development as well as the activities of day-to-day living and move the City and the region toward a more sustainable future.

Because the actual effectiveness of all the feasible policies and programs included in the 2030 General Plan that avoid, minimize, or reduce GHG emissions could not be quantified, the impact was identified as a **significant and unavoidable cumulative impact.**

General Plan Consistency of the Curtis Park Village Project

The 2030 General Plan identifies a mix of Traditional Neighborhood Low Density (TNLD), Traditional Neighborhood Medium Density (TNMD) and Traditional Center (TC) on the Curtis Park Village site. These designations include detached and attached single-family homes, multifamily dwellings, commercial or mixed use development and compatible public and quasi-public uses. The Land Use and Urban Form Diagram designates TNLD for the northern portion of the site, TNMD for the central portion and TC in the southern portion. Each of the three designations permit residential and commercial development. The development program analyzed in the 2030 General Plan Master Environmental Impact Report (Master EIR) for this site included a mix of 549 attached and detached dwelling units and 200,000 square feet of commercial development.

The proposed Curtis Park Village project development program and mix of uses is generally consistent with the development program anticipated by the General Plan and the Master EIR. The proposal locates lower density single family homes to the north, higher density attached homes and apartments in the central area and commercial uses to the south. The proposed 522 dwelling units fall within the range anticipated by the General Plan (549). The 259,000 square feet of commercial space appears to be approximately 30 percent greater than was studied in the Master EIR. However, the commercial floor area ratio (FAR) of 0.37 is well within the range of 0.3-2.0 FAR permitted in TC. As a result, the land uses and their associated density and intensity are consistent with the General Plan.

In addition to determining consistency with the Land Use and Urban Form Diagram, goals and policies of the General Plan's ten elements are relevant.

Land Use and Urban Design Element:

LU 5 Traditional Center Urban Form Guidelines (2030 General Plan, page 2-68)

While the guidelines are not goals or policies, and are not mandatory or binding on the applicant, they do express the City's desired urban form vision. For Traditional Centers, the guidelines call for:

1. Small, rectangular blocks;
2. Small, narrow lots providing a fine-grained development pattern;
3. Building heights ranging from one to four stories;
4. Lot coverage not exceeding 80 percent;
5. Buildings sited at or near the sidewalk and typically abutting one another with limited side yard setbacks;
6. Building entrances set at the sidewalk;
7. Rear alleys and secondary streets providing service access to reduce the need for driveways and curb cuts on the primary street;
8. Parking provided on-street as well as in […] lots at the side or rear of structures;
9. Transparent building frontages with pedestrian-scaled articulation and detailing;

10. Moderately wide sidewalks; and
11. Public streetscapes serving as the center's primary open space, complemented by outdoor seating, plazas, courtyards, and sidewalk dining areas.

These guidelines provide the staff and applicant with guidance regarding project design, and support the City's identified goal of encouraging development by providing specific and enforceable standards for development.

LU 5 Traditional Centers Goals and Policies

Policy LU 5.3.1 Development Standards. The City shall continue to support development and operation of centers in traditional neighborhoods by providing flexibility in development standards, consistent with public health and safety, in response to constraints inherent in retrofitting older structures and in creating infill development in established neighborhoods.

Mobility Element

The following goals and policies are relevant to the design of the Curtis Park Village project. They primarily relate to the design of public and private streets and the desired relationships among buildings, streets and parking facilities.

Policy M 1.3.1 Grid Network. The City shall require all new residential, commercial, or mixed-use development that proposes or is required to construct or extend streets to develop a transportation network that provides for a well-connected, walkable community, preferably as a grid or modified grid.

Policy M 1.3.2 Private Complete Streets. The City shall require large private developments (e.g., office parks, apartment complexes, retail centers) to provide internal complete streets that connect to the existing roadway system.

Policy M 2.1.3 Streetscape Design. The City shall require that pedestrian-oriented streets be designed to provide a pleasant environment for walking including shade trees; plantings; well-designed benches, trash receptacles, news racks, and other furniture; pedestrian-scaled lighting fixtures; wayfinding signage; integrated transit shelters; public art; and other amenities.

Policy M 2.1.4 Cohesive Network. The City shall develop a cohesive pedestrian network of public sidewalks and street crossings that makes walking a convenient and safe way to travel.

Policy M 2.1.5	Continuous Network. The City shall provide a continuous pedestrian network in existing and new neighborhoods that facilitates convenient pedestrian travel free of major impediments and obstacles.
Policy M 2.1.6	Building Design. The City shall ensure that new buildings are designed to engage the street and encourage walking through design features such as placing the building with entrances facing the street and providing connections to sidewalks.
Policy M 2.1.7	Parking Facility Design. The City shall ensure that new automobile parking facilities are designed to facilitate safe and convenient pedestrian access, including clearly defined corridors and walkways connecting parking areas with buildings.
Policy M 2.1.8	Housing and Destination Connections. The City shall require new subdivisions and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as transit stops and stations, schools, parks, and shopping centers.
Policy M 3.1.12	Direct Access to Stations. The City shall ensure that projects located in the Central City and within ½ mile walking distance of existing and planned light rail stations provide direct pedestrian and bicycle access to the station area, to the extent feasible.
Goal M 4.3	Neighborhood Traffic. Enhance the quality of life within existing neighborhoods through the use of neighborhood traffic management techniques, while recognizing the City's desire to provide a grid system that creates a high level of connectivity.
Policy M 4.3.1	Neighborhood Traffic Management. The City shall continue wherever possible to design streets and approve development applications in such as manner as to reduce high traffic flows and parking problems within residential neighborhoods.
Policy M 5.1.8	Connections between New Development and Bikeways. The City shall ensure that new commercial and residential development projects provide frequent and direct connections to the nearest bikeways.

Buildings constructed as part of the project would be required to comply with current California building codes that enforce energy efficiency.

The City of Sacramento has adopted an approach that seeks to implement community development principles that encourage pedestrian-friendly, multi-use development that reduces vehicle miles travelled. The various goals and policies applicable to the project through the 2030 General Plan provides just such a framework, and are effective tools to mitigate climate change through reduction of GHG emissions. These goals and policies have accurately been described in the Master EIR as mitigation for such effects.

Ongoing Activities

The 2030 General Plan included direction to staff to prepare a Climate Action Plan for the City. Staff has continued work on this plan since adoption of the 2030 General Plan. The Climate Action Plan will provide additional guidance for the City's ongoing efforts to reduce GHG emissions for both the City's internal municipal operations, as well as the broader community within the City's jurisdiction. The tentative completion date for the Climate Action Plan is mid-2011.

Federal and State policy regarding climate change and reduction of GHG's continues to evolve:

1. On December 7, 2009, the US EPA issued two distinct findings[1] regarding GHG's under section 202(a) of the Clean Air Act:

    - **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed GHGs – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) – in the atmosphere threaten the public health and welfare of current and future generations.
    - **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

    These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the EPA's proposed GHG standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.[2]

2. The State of California announced its intent to reduce GHG's from passenger vehicles in 2002 with the passage of CA Assembly Bill 1493 (Pavley). The following summarizes recent changes in the implementation of the Pavley standards since publication of the MEIR:

[1] http://www.epa.gov/climatechange/endangerment.html
[2] http://www.epa.gov/oms/climate/regulations.htm

- The USEPA reversed its 2008 decision and granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks and sport utility vehicles on June 30, 2009.
- Most recently, the ARB adopted amendments to the "Pavley" regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments, approved by the Board on September 24, 2009, are part of California's commitment toward a nation-wide program to reduce new passenger vehicle GHGs from 2012 through 2016.
- ARB's September 2009 amendments finalized plans for enforcement of the Pavley rule starting in 2009 while providing vehicle manufacturers with new compliance flexibility. The amendments will also prepare California to harmonize its rules with the federal rules for passenger vehicles.

3. In October 2008, Governor Schwarzenegger signed SB 375, which requires the California Air Resources Board (ARB) to set regional targets for the purpose of reducing GHG emissions from passenger vehicles, for 2020 and 2035. If regions develop integrated land use, housing and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain review requirements of the California Environmental Quality Act. The targets apply to the regions in the State covered by the 18 metropolitan planning organizations (MPOs).

   Per SB 375, on September 30, 2009, the ARB-appointed Regional Targets Advisory Committee (RTAC) submitted to the ARB its recommendations on factors to be considered and methodologies to be used in the ARB's target setting process. Key recommendations were as follows:

   - Adoption of a uniform statewide target expressed as a per capita reduction below 2005 levels for each MPO region;
   - Each MPO can either set their own targets or seek an adjustment to the statewide target;
   - The SCS required for each MPO region should include all feasible measures to achieve the GHG targets;
   - A seven-step process for MPOs should be followed in setting each region's baseline for 2005, examining alternative planning scenarios, and then confirming these with ARB prior to September 2010.

   The ARB has taken action to approve the RTAC's recommendations on and will be working with MPO's in early 2010 to implement the recommendations. ARB must propose draft targets by June 30, 2010, and adopt final targets by September 30, 2010.

Some commenters assert the need for a project-specific analysis of the impact of GHG emissions. The Draft EIR discusses GHG emissions that would be generated by the project, and includes an inventory of such emissions. (See Table 5.3-6, page 5.3-18) The Draft EIR also includes a summary of the project components that would reduce GHG emissions, based on the Office of the Attorney General guidance. (See Table 5.3-8, page 5.3-21)

The City acknowledged that the sum of GHG emissions that could be generated by development under the 2030 General Plan would be cumulatively considerable, and has identified the goals and policies under the 2030 General Plan as the primary vehicle to mitigating such impacts. This programmatic approach achieves reductions in the two main emitting categories: motor vehicle emissions and energy used in buildings. By adopting measures that are applicable community-wide, the City has implemented a reduction strategy that is fair and can be implemented with confidence that emission reductions will actually occur.

The same cannot be said for mitigation suggested on a case-by-case basis. Mitigation requirements under the California Environmental Quality Act must be based on substantial evidence, and a reasonable relationship to the impact. None of the commenters has provided any substantial evidence that would identify specific impacts from the emissions of the project under review. In fact, global climate change is an inherently cumulative impact, and the City has identified it and treated it as such. The City's 2030 General Plan and Master EIR are the primary vehicles for that effort.

The City has identified GHG reductions goals as stated in AB 32 and other State guidance as relevant to the impact analysis. This is, the City believes, consistent with guidance provided by the Sacramento Metropolitan Air Quality Management District (SMAQMD). In its CEQA Guide, December 2009, the District suggests that local agencies properly consider adopting a threshold that considers whether an individual project's GHG emissions would substantially hinder the State's ability to attain the goals identified in AB 32. (CEQA Guide, page 6-11)

Conclusion

The Master EIR concluded that GHG emissions that could be emitted by development that is consistent with the 2030 General Plan would be cumulatively considerable and unavoidable (Errata No. 2, Page 12). The Master EIR includes a full analysis of GHG emissions and climate change, and adequately addresses these issues.

The project is consistent with the City's goals and policies as set forth in the 2030 General Plan and Master EIR relating to reduction of GHG emissions. The project would not impede the City's efforts to comply with AB32 requirements. The project would not have any significant additional environmental effects relating to GHG emissions or climate change.

3.1 RESPONSES TO COMMENTS

3.1 RESPONSES TO COMMENTS

The Responses to Comments chapter includes responses to each of the comment letters submitted regarding the Curtis Park Village DEIR. Each bracketed comment letter is followed by numbered responses to each bracketed comment. Where revisions to DEIR text have been made in response to a comment, new text is double underlined and deleted text is ~~struck through~~.

SRCSD

Wastewater Treatment

Letter 1

10545 Armstrong Avenue
Mather, CA 95655
Tele: [916] 876-6000
Fax: [916] 876-6160
Website: www.srcsd.com

April 6, 2009

Jennifer Hageman
City of Sacramento
Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

Dear Ms. Hageman:

Subject: **Notice of Availability (NOA) for the Draft Environmental Impact Report (DEIR) for the Curtis Park Village Project (P04-109)**

Sacramento Regional County Sanitation District (SRCSD) has reviewed the subject documents and has the following comments:

1-1 The proposed project includes approximately 260,000 square feet of commercial retail, 178 single-family home sites, an 80-unit senior multi-family housing complex, a 212-unit multi-family residential housing complex, and an 8.7-acre park. The project area is located east of Sacramento City College, north of Sutterville Road, south of Portola Way, and west of 24th Street in the City of Sacramento.

Please find below comments and advisories regarding the subject project.

SRCSD Comments:

Page 5.11-6: Wastewater Collection and Treatment, City of Sacramento Combined Sewer System, 5th paragraph

1-2
- Revise "Sacramento Regional Community Services District" to "Sacramento Regional County Sanitation District."
- Please remove the sentence "Approximately 20 to 30 mgd of dry weather sewer flows to the SRWTP from Sump 2."

Page 5.11-8: Wastewater Treatment

1-3 Revise the beginning of the second sentence to state "SRCSD operates all regional interceptors and the SRWTP…"

Page 5.11-26: Wastewater Collection and Treatment

1-4 All references to the Sacramento Regional Wastewater Treatment Plant should be referenced as "SRWTP," not "WWTP."

Sacramento Regional County Sanitation District

Letter 1
Cont'd.

SRCSD Advisories:

Local sanitary sewer service for the proposed project site will be provided by the City of Sacramento's local sewer collection system. Ultimate conveyance to the Sacramento Regional Wastewater Treatment Plant (SRWTP) for treatment and disposal will be provided via the City Interceptor. 1-5

Cumulative impacts of the proposed development will need to be quantified by the developer to ensure adequate wet weather and dry weather capacity within the City Interceptor. 1-6

In November 1980, the Operations and Maintenance Agreement between SRCSD and the City of Sacramento regarding the Combined Wastewater Control System (CWCS) was executed.

Section 3.F. Responsibilities of District in Operation of CWCS states:

1. *The District agrees to accept flows via the City Interceptor from the following City service areas up to the maximum instantaneous flow rates indicated:*

Service Area	*Maximum Flow Rate*
Sump 2	*60 MGD*

The parties to this Agreement acknowledge and agree that the 60 MGD maximum flow rate supersedes the 70 MGD figure specified in Section 29 of the Master Interagency Agreement. 1-7

Sump 21, 55 and 119	*38 MGD*
Gravity intercepts to City Interceptor at or downstream of the North Meadowview Intercept Structure	*10.5 MGD*
Total to City Interceptor	*108.5 MGD*

2. *Up to the design flow capacity limit of the City Interceptor upstream of the North Meadowview Intercept Structure, estimated at 98 MGD, the Wastewater Treatment Superintendent (or a designated representative) may authorize flows from Sump 2 for stipulated time periods in excess of the 60 MGD limit above noted. It is the intent here to accommodate higher levels of treatment for combined wastewater flows during periods when SRWTP secondary treatment capacity is available due to lag in receipt of inflow from other District service areas or when the City Interceptor influent flows from Sumps 21, 55 and 119 are less than 38 MGD.*

As stated in the table above the total amount of flow that can be discharged to the City Interceptor is 108.5 MGD. It is the City of Sacramento's responsibility to ensure that the additional flow from this project does not exceed the limits established for the three locations listed above. 1-8

Letter 1
Cont'd.

1-9 If you have any questions regarding this letter, please feel free to contact me at (916) 876-5608, or by e-mail at obonel@sacsewer.com.

Sincerely,

Elizabeth Obon
Sacramento Regional County Sanitation District

cc: SRCSD Development Services

LETTER 1: ELIZABETH OBON, SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT

Response to Comment 1-1

The comment is an introductory comment that summarizes the project description, and does not address the adequacy of the DEIR.

Response to Comment 1-2

For clarification purposes, the fifth paragraph on page 5.11-6 of the DEIR is hereby revised:

> Currently, the discharge rates to the SRWTP are restricted to 60 mgd peak flow from Sump 2/2A by a Master Interagency Agreement with the Sacramento Regional ~~Community Services~~ County Sanitation District (SRCSD). ~~Approximately 20 to 30 mgd of dry weather sewer flows to the SRWTP from Sump 2.~~

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 1-3

For clarification purposes, the "Wastewater Treatment" subsection located on pages 5.11-8 and 5.11-9 of the DEIR is hereby revised to read:

> Wastewater treatment within the City of Sacramento is provided by the Sacramento Regional County Sanitation District (SRCSD). SRCSD operates all regional interceptors and ~~wastewater treatment plants serving the City~~ the SRWTP. ~~except for t~~The combined sewer and storm drain treatment facilities~~, which~~ are operated by the City of Sacramento. The City provides wastewater collection to about two thirds of the area within the City Limits, which is comprised of two distinct areas: the area served by the combined sewer system (CSS), and the areas served by a separated sewer system. The project site is served by the City's CSS facilities.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 1-4

For clarification purposes, the third paragraph on page 5.11-26 of the DEIR is hereby revised to read:

Wastewater Collection and Treatment

The total projected dry weather wastewater treatment demand from the proposed project is 128,240 gallons per day (See Table 5.11-4). Currently, the SRWTP is permitted an average dry weather flow of 181 mgd, and current average dry weather flows are approximately 150 mgd; therefore, the ~~W~~SRWTP has a current excess capacity of 31 mgd.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

For clarification purposes, the second paragraph on page 5.11-27 of the DEIR is hereby revised to read:

The project's contribution of 128,240 gallons per day, or approximately 0.21 mgd, would be significantly less than the ~~W~~SRWTP's excess capacity of 31 mgd. Therefore, the existing ~~W~~SRWTP would have enough capacity to accommodate the proposed project. In addition, the project applicant would be required by the City to pay sewer connection fees. As a result, adverse impacts to wastewater collection and treatment would not result.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 1-5

The commenter is correct. As stated on page 3-15 of the DEIR, wastewater from the proposed project would be conveyed to the existing 114-inch Donner Sewer Line and Donner Interceptor. The ultimate conveyance would be treated at the Sacramento Regional Wastewater Treatment Plant.

Response to Comment 1-6

As stated on page 5.11-24 of the DEIR, the proposed project wastewater flow would be conveyed in an underground system of pipes eight to 10 inches in diameter and discharged in the Donner Interceptor. Due to the limited capacity available in the Donner Interceptor at peak flow conditions, the project's drainage flow will need to be mitigated. The project engineer estimated the existing project drainage flow to be 8.49 cfs. The proposed project would provide drainage storage through the construction of a detention basin that would limit project drainage run-off to pre-project levels.

The City's CSS project has undergone environmental review and would be constructed with or without the development of the Curtis Park Village project. If the City's CSS project is not constructed prior to the proposed project, the proposed project would pay appropriate CSS fees, and provide additional drainage detention to compensate for the project sewage generation until the Donner Interceptor could accept the flows. The private sewer storage facility would be reviewed and approved by the Department of Utilities, prior to its construction, in order to ensure

that facility is adequate for accommodation of the project's sewer flows. Implementation of City's CSS project or the proposed project's private sewer storage facility (if the City's CSS project is not built) would be sufficient to accommodate projected flows from the project site, and adverse impacts to stormwater collection would not result.

Response to Comment 1-7

As stated on page 5.11-27 of the DEIR, the project's dry weather contribution of 128,240 gallons per day, or approximately 0.21 mgd, would be significantly less than the SRWTP's excess capacity of 31 mgd. Therefore, as the DEIR concluded, a less-than-significant impact would occur. In addition, the total flow rate of the proposed project would be 208,800 gallons per day (See Table 5.11-5) which is less than the maximum allowed flow rate of 60 mgd for Sump 2; 38 mgd for sump 21, 55, and 119; 10.5 mgd for the intercept structure; and 108.5 mgd for the total to City interceptor. Therefore, the proposed project would not exceed maximum flow rates outlined in the agreement.

Response to Comment 1-8

The City will ensure compliance with the Operations and Maintenance Agreement between the SRCSD and the City of Sacramento regarding the Combined Wastewater Control System.

Response to Comment 1-9

The comment is a concluding comment that does not address the adequacy of the DEIR.

Letter 2

Regional Transit

Sacramento Regional Transit District
A Public Transit Agency and Equal Opportunity Employer

Mailing Address:
P.O. Box 2110
Sacramento, CA 95812-2110

Administrative Office:
1400 29th Street
Sacramento, CA 95816
(916) 321-2800
(29th St. Light Rail Station/ Bus 36,38,50,67,68)

Light Rail Office:
2700 Academy Way
Sacramento, CA 95815
(916) 648-8400

Public Transit Since 1973

www.sacrt.com

May 28, 2009

Jennifer Hageman,
Senior Planner
City of Sacramento, Development Service Department
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

NAME OF DEVELOPMENT: Curtis Park Village

CONTROL NUMBER: P04-109

TYPE OF DOCUMENT: Draft EIR

2-1 The Curtis Park Village project proposes to develop 72 acres into an urban infill development with a mix of land uses including 178 single family residential units, 212 units of multi-family residential units, 80 senior multi-family units, 260,000 square feet of commercial/retail, and an 8.7 acre park.

2-2 The site is currently contaminated with hazardous wastes from past use by the railroad. A 1995 Remedial Action Plan, approved by the Department of Toxic Substance Control which initiated remediation of the site. A revised remediation plan is needed due to the extent of contamination found on the subject site.

2-3 Regional Transit is supportive of the mixed-use development as it is an infill site with transit opportunities nearby. The location of the property to the railroad tracks provides opportunities, but also constraints. The light rail stations and bus lines provide an opportunity for the project's residents to rely on the abundant transit service that is nearby. The railroad tracks that separate the stations from the project, and the street configuration around the Wayne Hultgren/4th Avenue station create barriers and increase walking distance to the stations from the project site.

2-4 The City of Sacramento is conducting a study to determine the viability of a pedestrian bridge between City College and Curtis Village Park. Regional Transit staff recommend that the project proponent assist with the pedestrian bridge project to provide any necessary landing or funding as needed on a fair share basis.

Letter 2
Cont'd.

Regional Transit staff has reviewed the draft EIR and has the following comments:

- Please revise the description of the existing transit service with the following information:
  - Route 64 was eliminated
  - Route 62 provides 30 minute service Monday through Friday, hourly service on Saturdays and no service on Sundays
  - Route 63 only operates until 6:30pm on weekdays and has no weekend or holiday service
  - Route 83 only operated until 7pm on weekdays

2-5

RT also offers the following recommended conditions of approval:

- Contact Robert Hendrix, RT Facilities (916) 649-2759 to determine where major bus shelters will be located in the project area. If determined appropriate (by RT) provide bus shelter pads as directed.

2-6

- The developer within the community shall join or form a Transportation Management Association. A transit pass subsidy program for residents and employees should be initiated.
  - Employers shall provide a minimum of 50% discount off the monthly transit pass on an on-going basis.
  - Residents shall be offered transit passes at a 50% or greater discount for a period of six months or more after the initial sale of the home. The transit pass subsidy program shall be reviewed and approved by Regional Transit (Long Range) Planning Department prior to issuance of any building permit.

2-7

2-8

- Transit information shall be made available, through the TMA and homeowner's and business associations. Transit information such as route locations, service frequencies, nearby park and ride lots, bicycle routes, etc. shall be provided with real estate transactions. Transit information shall be displayed in prominent locations. These shall include places of employment, and within residential sales/rental offices. Please use the attached Request Form (also available on www.sacrt.com) to order transit information materials.

2-9

- Parking competes with transit usage. Therefore, parking should not exceed the required standards for the City of Sacramento.

2-10

- Retail/Commercial centers adjacent to existing or proposed transit stops shall include a minimum of twelve (12) park and ride spaces within 400± feet of bus stop(s) within the project. The parking spaces would best be provided in retail parking areas and shall be provided to the satisfaction of Regional Transit's (Long Range) Planning Department prior to issuance of any retail/commercial building permit.

2-11

- Provide bicycle parking facilities at building/store entrances in accordance with City of Sacramento requirements.

2-12

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Letter 2
Cont'd.

2-13 • Project construction shall not disrupt transit service or pedestrian access to transit stops/stations.

2-14 • Connectivity of pedestrian ways between transit and development is significant. Amenities such as pavers, vertical curbs, tree shading, lighting and trellises will be provided to encourage walking to transit.

2-15 • Project proponents shall consider the impact of project design on transit accessibility. Physical barriers such as walls, cul-de-sacs, circuitous street patterns and speed bumps all impede access to transit, and should be eliminated as appropriate.

2-16 Thank you for the opportunity to comment. Please send any subsequent documents and hearing notices that pertain to this project as they become available. Please contact me at (916) 556-0513 or tcanfield@sacrt.com.

Sincerely,

Traci Canfield
Planner

c: RoseMary Covington, AGM Planning and Transit Service Development, RT
Paul Marx, Planning Director, RT
Don Smith, Senior Planner, RT
Robert Hendrix, Facilities Supervisor, RT

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LETTER 2: TRACI CANFIELD, SACRAMENTO REGIONAL TRANSIT

Response to Comment 2-1

The comment is an introductory statement and does not address the adequacy of the EIR

Response to Comment 2-2

As stated on page 3-5 of the DEIR, additional volumes of contaminants were encountered on the project site in 2008, which required an update of the previously approved 1995 Remedial Action Plan (Dames & Moore, June 1995). The DEIR addressed potential impacts related to remedies that will be proposed in the updated Remedial Action Plan. Pursuant to the updated Remedial Action Plan, the remediation of the site will be completed prior to development of the proposed project.

Response to Comment 2-3

The comment outlines opportunities and constraints associated with transit in proximity to the project site. The comment does not include specifics regarding the adequacy of the DEIR.

Response to Comment 2-4

The comment is correct that the City is currently studying a potential pedestrian bridge between City College and the residential neighborhoods to the east. The City has reviewed the layout of the proposed Curtis Park Village project to ensure that the design does not preclude the City from constructing a bridge in the future. The potential financing of the bridge has not been determined, however, the comment will be forwarded to the decision-makers for their consideration.

As stated on page 3-19 of the DEIR, a pedestrian crossing is currently being planned by the City to connect Sacramento City College and the college's Regional Transit light rail station to the commercial portion of the proposed project site. The pedestrian crossing is currently undergoing a feasibility study and separate environmental review will be conducted for the crossing. The proposed project includes an easement which would accommodate a landing located adjacent to the commercial portion of the site, in anticipation of the City's future construction of the pedestrian crossing.

Response to Comment 2-5

For clarification purposes, the first paragraph on page 5.2-5 of the DEIR is hereby revised to read:

> The Sacramento Regional Transit District (RT) provides bus and light rail services near the project site. Three ~~Four~~ bus routes operate~~s~~ in the project area: Routes 62 (Freeport), 63 (24th Street-Hogan), ~~64 (24th Street-City College)~~, and 83 (14th Avenue). Route 62 provides ~~daily service between Rush River Drive and the downtown area in 30 minute intervals~~ 30 minute service intervals Monday through Friday, hourly service on Saturdays, and no service on Sundays. It

operates from about 6:00 am to 11:00 pm on weekdays, and 7:00 am to 10:00 pm on Saturdays~~, and 9:00 am to 10:00 pm on Sundays~~. Route 63 ~~and Route 64~~ provides service between Meadowview Road and the downtown area. Route 63 ~~While both routes~~ converges on 24th Street near the project site, ~~Route 63~~ and travels up Franklin Boulevard ~~and Route 64 up 24th Street~~ for much of the~~ir~~ route~~s~~. ~~Service on both routes is provided on 60- to 75-minute intervals from about 5:30 a.m. to 8:00 p.m. during weekdays.~~ Service on Route 63 is provided on 60- to 75-minute intervals between 5:30 a.m. and 6:30 p.m. on weekdays, but is not offered during the weekends or holidays. ~~Route 64 operates from about 7:00 a.m. to 6:30 p.m. on Saturdays.~~ ~~Route 63 has no Saturday, service and neither routes have Sunday and holidays service~~. Route 83 provides service between Riverside Boulevard and University/65th Street. In the project vicinity, it operates along Sutterville Boulevard at 30 minute intervals between 6:20 am and ~~to 8:00~~ 7:00 pm on weekdays. There is no service on weekends and holidays.

The above change corrects text due to recent Regional Transit route changes and does not alter any of the conclusions contained within the DEIR.

Response to Comment 2-6

The commenter requests that Regional Transit facilities be contacted regarding the location of bus shelters in the project area. The City routinely coordinates with Regional Transit in those matters and will continue to do so.

Response to Comment 2-7

A Transportation Management Association does not exist in the vicinity of the project site. The recommendation and suggested components of a transit pass subsidy program will be forwarded to the decision-makers for their consideration during project review.

Response to Comment 2-8

See Response to Comment 2-7.

Response to Comment 2-9

See Response to Comment 2-7.

Response to Comment 2-10

As presented in Table 5.2-15 (page 5.2-45 of the DEIR), the proposed project is predicted to have a deficit of 92 parking spaces for commercial/retail uses. The City's Zoning Code requires 1,075 parking spaces for the proposed project, but only 983 are included in the project design; resulting in a 92 parking space deficit in commercial/residential areas, and an 84 parking space deficit for residential areas. However, as stated in the Shared Parking Technical Memo prepared by Dowling Associates, Inc. on March 3, 2009, parking spaces provided in the southern portion

of the Curtis Park Village site would be shared among patrons of the businesses and services, as well as residents in the area, and patrons would be willing to park and walk within the southern portion of the site. With the inclusion of the shared parking spaces, the project would provide 1,356 parking spaces for the retail/commercial portion of the project. Based on the analysis results, the parking supply is sufficient to meet the anticipated parking demand at Curtis Park Village.

Response to Comment 2-11

The commenter suggests that retail and commercial centers adjacent to existing or proposed transit stops should include additional parking spaces, and the parking spaces should be provided in retail areas prior to the issuance of and retail and/or commercial building permit. The suggestion will be passed along to decision-makers for their consideration during project review.

Response to Comment 2-12

The City will ensure that the proposed commercial development comply with required bicycle parking facilities outlined in the City's Zoning Ordinance.

Response to Comment 2-13

As stated on page 5.2-46 of the DEIR, Impact Statement 5.2-9, a Traffic Management Plan (TMP) would be required as mitigation to impacts associated with construction. In regard to transit service and pedestrian access to transit stops/stations, the TMP would be required to reduce potential project-related impacts associated with construction, and would include the following: provision of a driveway access plan to maintain safe vehicular, pedestrian, and bicycle movements, efficient and convenient transit routes, provisions for pedestrian safety, and provisions for temporary bus stops, if necessary. Therefore, project construction would not disrupt transit service or pedestrian access to transit stops and stations.

Response to Comment 2-14

As stated on pages 5.2-41 and 5.2-42 of the DEIR, Impact Statements 5.2-5 and 5.2-6, all streets within the proposed site would be designed in accordance to the City's "Pedestrian Friendly Street Standards" that would provide for pedestrian needs and enhance connectivity with existing City streets. Furthermore, as stated on page 5.2-41 of the DEIR, impacts to pedestrian circulation and the transit system were found to be less-than-significant. Site design requirements are subject to final approval by the City of Sacramento. Recommendations for including amenities such as pavers, vertical curbs, tree shading, lighting, and trellises will be passed along to decision-makers for their consideration during project review.

Response to Comment 2-15

The commenter suggests that particular types of physical barriers be eliminated, as they would impede access to transit facilities. See Response to Comment 2-14 for discussion regarding

project design. Recommendations will be passed along to decision-makers for their consideration.

Response to Comment 2-16

The comment is a concluding statement that does not address the adequacy of the DEIR.

Letter 3

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Larry Greene
AIR POLLUTION CONTROL OFFICER

June 1, 2009

Ms. Jennifer Hageman
City of Sacramento
Development Services Department
300 Richards Blvd.
Sacramento, CA 95811

SUBJECT: **Draft EIR for the Curtis Park Village Project**
SMAQMD # SAC200400180
P04-109

Dear Ms. Hageman:

3-1 Thank you for providing the Draft EIR for the Curtis Park Village Project (Project) to the Sacramento Metropolitan Air Quality Management District (District). Staff comments follow.

5.3.1 Existing Environmental Setting

Attainment Plans:

3-2 The second paragraph on page 5.3-4 from the *Current Air Quality* section refers to the "1986 Sacramento Air Quality Plan" as a source of information on sources of air pollutants. This plan is outdated and should not be referenced in the final EIR. The District recommends that the DEIR reference the following plans and reports that contain more current data on the sources of air pollutant emissions in the Sacramento area:

- The 1994 Sacramento Area Regional Ozone Attainment Plan
- The Sacramento Area Regional 1999 Milestone Report
- The Sacramento Area Regional 2002 Milestone Report
- The 2006 Sacramento Regional Nonattainment Area 8-Hour Ozone Rate-of-Progress Plan, The 2008 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan

Air Quality Monitoring Stations:

3-3 The third paragraph on page 5.3-4 of the *Current Air Quality section* states that "... CARB has seven air pollution monitoring sites within Sacramento County..." This statement is incorrect; there are 18 ground-level ozone monitoring sites throughout the Sacramento Valley Air Basin (SVAB) federal non-attainment area. Twelve stations are operated by Local Air Districts, and six are operated by California Air Resources Board (CARB).

777 12th Street, 3rd Floor • Sacramento, CA 95814-1908
916/874-4800 • 916/874-4899 fax
www.airquality.org

**Letter 3
Cont'd.**

5.3.2 Regulatory Background

3-4 Please expand this section, and table 5.3-3 in particular, to note that the Sacramento Valley Air Basin is in non-attainment under the California Clean Air Act standard for particulate matter smaller than 2.5 Micrometers in aerodynamic diameter. The Attainment status for the Federal air quality standard for this pollutant is attainment/unclassified[1] at this time.

Section 5.3.3 Impacts and Mitigation Measures

Toxic Air Containment (TAC) emissions:

3-5 The last paragraph on page 5.3-8 describes a TAC threshold of 10 in 1 million. Please note that while the District recognizes this threshold for stationary sources, it has not set TAC threshold for mobile sources. The section goes on to state on pages 5.3-9 that a health risk assessment was conducted and screened using the SMAQMD *Recommended Protocol Evaluating the Location of Sensitive Land Uses Adjacent to major roadways* (Roadway Protocol). The District does not support this methodology and recommends that the emissions associated with the rail line be calculated by using a methodology such as the one described in the Roseville Railyards Study[2]. It is the District's position that the emissions from railroad operations are sufficiently different in composition from the emissions from motor vehicle operations to preclude direct conversion of railroad emission factors into motor vehicle emission factors. Consequently, the District cannot endorse the use of the Roadway Protocol to asses the emissions from the Rail line nor to determine the necessity of additional analysis. The District recommends that the DEIR include mitigation strategies to minimize the impact of railroad emissions on future project residents.

Operational Emissions:

3-6 Section 5.3-5 on page 5.3-15 describes the proposed mitigation for the impacts related to long-term increases of criteria air pollutants, which is the implementation of an Air Quality Mitigation Plan (AQMP) that reduce the projects anticipated emissions by a minimum of 15 percent or greater. The District notes that the project applicant has developed an AQMP that is anticipated to reduce the projects emissions by 17.3 percent. The District endorsed this plan on May 26, 2009 and recommends that the endorsed plan be included in the final EIR for this project.

Proximity to rail line:

3-7 Section 5.3-6 on page 5.3-17 describes the analysis of the impacts of placing new sensitive receptors in proximity of a rail line, a source of diesel particulate matter. As was stated earlier, the District cannot endorse the use of the Roadway Protocol to assess the emissions from the rail line nor to determine the necessity of additional analysis. Furthermore, the District cannot endorse the use of the Roadway Protocol to make a determination of significance of for the impacts associated with rail line emissions.

3-8 Greenhouse Gases/Climate Change

[1] For more information please visit the SMAQMD Air Quality Information page at: http://www.airquality.org/aqdata/index.shtml

[2] The methodology for calculating railroad emissions is available in the "complete report" document on the Roseville Railyards Study webpage on the California Air Resources Board website; http://www.arb.ca.gov/diesel/documents/rrstudy.htm.

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Letter 3
Cont'd.

3

3-8 cont.

The District recommends that the project revise the qualitative threshold for GHG described on page5.3-23. This qualitative threshold reads:

> "Conflict with or obstruct implementation of the goals or strategies of Executive Order S-3-05, the California Global Warming Solutions Act of 2006, or the Attorney General's suggested global warming mitigation measures."

It is the District's position that any findings of significance for the emissions of GHGs should be based on a project's potential global warming impacts, not on its lack of interference with a particular policy or mitigation strategy. Analysis of climate change impacts is not simply a technical exercise. If the analysis demonstrates that a project may have a significant impact, there are many practical climate change mitigation measures available to reduce or eliminate the project impacts. Moreover, avoiding feasible mitigation today will require other projects to implement more difficult and costly mitigation in the future, as GHG levels increase in the atmosphere.

3-9

The District recommends that the final EIR include an analysis of typical GHG reduction measures such as those described in the California Air Pollution Control Officers Association (CAPCOA) white paper on CEQA and Climate Change[3] and the California Attorney General's Fact Sheet on climate change mitigation[4] (AG Fact sheet). This section should include detailed explanations on why specific measures were found to be feasible or infeasible for the proposed project. Any measures that could be feasibly implemented should be included as mitigation for this impact.

Design & alternative analysis

3-10

Given the project site's proximity to two light rail stations and the Sacramento City College (SCC), the District recommends that the City approve the project alternative that has the highest density, lowest household trip rate, and lowest annual household VMT. The Sacramento Area Council of Governments (SACOG) has made the finding[5] that the Multi-family mixed used option for area 3, as described in the November 2008 Developer Site Plan, will have the minimum impact on regional air quality of all project alternatives under consideration. The District also concurs with the SACOG findings that this alterative is the most consistent with the Regional Blueprint.

3-11

This design alternative will also enhance the effectiveness of the planned pedestrian bridge between the project site and the SCC.

3-12

Lastly, the project would benefit from the inclusion of a an at-grade pedestrian/bicycle crossing at the North end of the project to connect the project to the 4th Avenue Light Rail Station.

3-13

The plan also contains two different options for roadway connections between the project site and the surrounding neighborhoods. The District strongly encourages the City to move the project forward with transportation option 1, the "neighborhood connection option" which continues both 5th avenue and Donner Way across 24th street into the site. This option maximizes connectivity and travel benefits for all modes of travel into and out of the project site.

[3] The CAPCOA White Paper on CEQA and Climate Change is available at: http://www.airquality.org/climatechange/CAPCOA/CAPCOA-CEQAandClimateChange.pdf.
[4] The California Attorney General's Fact Sheet on climate change mitigation is available at: http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf
[5] Per the SACOG comment letter on the Curtis Park Village DEIR dated 5/28/2009

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Letter 3
Cont'd.

4

SMAQMD Rules and regulations

3-14 All projects are subject to SMAQMD rules and regulations in effect at the time of construction. Please see the attached document describing SMAQMD Rules that may apply to this project.

If you have questions, please contact Joseph Hurley at 916.874.2694 or jhurley@airquality.org.

Sincerely,

Joseph James Hurley
Air Quality Planner/Analyst

cc: Larry Robinson SMAQMD

Enc: SMAQMD Rules and Regulations
SMAQMD Recommended Construction Mitigation

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Letter 3 Cont'd.

5

SMAQMD Rules & Regulations Statement (revised 1/07)

*The following statement is recommended as standard condition of approval or construction document language for **all** development projects within the Sacramento Metropolitan Air Quality Management District (SMAQMD):*

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. A complete listing of current rules is available at www.airquality.org or by calling 916.874.4800. Specific rules that may relate to construction activities or building design may include, but are not limited to:

Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the District early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration.

Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earth moving activities or any other construction activity to prevent airborne dust from leaving the project site.

Rule 417: Wood Burning Appliances. Effective October 26, 2007, this rule prohibits the installation of any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments.

Rule 442: Architectural Coatings. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.

Other general types of uses that require a permit include dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.

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Letter 3
Cont'd.

6

SMAQMD Recommended Mitigation
for Reducing Emissions
from Heavy-Duty Construction Vehicles

Apply only to projects with construction emissions above the CEQA Threshold of Significance.

Revised December 1, 2008

Category 1: Reducing NOx emissions from off-road diesel powered equipment

The project shall provide a plan, for approval by the lead agency and SMAQMD, demonstrating that the heavy-duty (> 50 horsepower) self-propelled off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction[6] compared to the most recent CARB fleet average at time of construction; and

The project representative shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

and:

Category 2: Controlling visible emissions from off-road diesel powered equipment

The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other SMAQMD or state rules or regulations.

and/or:

If at the time of construction, the SMAQMD has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with SMAQMD prior to construction will be necessary to make this determination.

---

[6] Acceptable options for reducing emissions may include use of newer model year engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

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LETTER 3: JOSEPH JAMES HURLEY, SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Response to Comment 3-1

Comment 3-1 is an introductory statement and does not address the adequacy of the DEIR.

Response to Comment 3-2

For clarification purposes, the third paragraph on page 5.3-4 of the DEIR is hereby removed:

> ~~In Sacramento, motor vehicles are the major source of reactive organic gases ROG, NO_x, and CO. In addition, the 1986 Sacramento Air Quality Plan identified motor vehicle emissions and evaporation of various organic compounds (solvents, fuels, etc.) as the major contributors to regional ozone problems.~~

The above change is for clarification purposes and does not alter any of the conclusions contained within the DEIR.

Response to Comment 3-3

To correct the text, the third paragraph on page 5.3-4 of the DEIR is hereby revised to read:

> The CARB has ~~seven air pollution monitoring sites within Sacramento County and three within the City of Sacramento~~ 18 ground-level ozone monitoring sites are located throughout the Sacramento Valley Air Basin (SVAB) federal non-attainment area. Twelve of the 18 monitoring stations are operated by the Local Air Districts and the remaining six monitoring stations are operated by CARB. The air quality monitoring stations measure hourly pollutants and record sufficient data to meet EPA and/or ARB criteria for quality assurance. The closest monitoring site to the project area is located at 13th Street and T Street. This monitoring site measures multiple pollutants. A summary of the annual air quality measurements from this monitoring site is shown in Table 5.3-2.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 3-4

For clarification purposes, Table 5.3-3 on page 5.3-6 of the DEIR is hereby revised to read:

Table 5.3-3 Attainment Status Designations - Sacramento County		
Pollutant	**National Designation**	**State Designation**
Ozone (1-hour)	No federal standard	Nonattainment/ ~~severe~~ serious
Ozone (8-hour)	Nonattainment/serious	Nonattainment/ ~~severe~~ serious
PM_{10}	Nonattainment/moderate	Nonattainment
$PM_{2.5}$	Attainment/unclassified	Nonattainment
CO	Attainment	Attainment
Nitrogen dioxide	Attainment	Attainment
Source: SMAQMD, http://www.airquality.org/aqdata/attainmentstat.shtml, 2009.		

The above change is for clarification purposes and does not alter any of the conclusions contained within the DEIR.

Response to Comment 3-5

The analysis performed for Curtis Park Village evaluated the potential health effects of emissions from the diesel-fired locomotives traveling along the main line tracks located west of the property. The methodologies used in the *Screening Health Risk Evaluation for Railway Diesel Emission Exposure*[1] (Risk Evaluation) for the Curtis Park project is consistent with the guidance provided by the City of Sacramento and approved by the SMAQMD. As requested by the SMAQMD, the screening evaluation was performed using methodologies utilized in a previous analysis and described in the *Sacramento Rail Yard Redevelopment Screening Health Risk Assessment of DPM from Freeway and Railway* performed by ENVIRON in 2007 for the Railyards EIR.

The commenter recommends that the diesel particulate (DPM) emissions associated with the rail line locomotives be calculated by using a "methodology such as one described in the *Roseville Rail Yard Study*". As stated in Section 2.1 of the Curtis Park Risk Evaluation, emission estimates from Union Pacific Rail Road (UPRR) freight locomotives were calculated using information obtained from the California Air Resources Board's (CARB) *Roseville Rail Yard Study*.[2] The calculated DPM emissions were then converted to equivalent peak-hour motor vehicle traffic. As described in Section 2.2 of the Risk Evaluation, the DPM emissions from UPRR locomotives were calculated to be equivalent to 1,559 vehicles per hour. Screening methodologies described in the *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways*[3] (SMAQMD Protocol) were then used to determine the potential health risks to future residents at Curtis Park Village. As shown in Figure 1 of the Risk Evaluation, Curtis Park Village is located to the east (downwind) of the north-south railroad tracks. Table 2 of the SMAQMD protocol projects DPM cancer risks at locations to the west of a north-south roadway.

[1] ERM. *Screening Health Risk Evaluation for Railway Diesel Emission Exposure*. February 2008.
[2] California Air Resources Board (CARB). *Roseville Rail Yard Study.* http://www.arb.ca.gov/ch/handbook..pdf. Accessed February 12, 2008.
[3] SMAQMD. *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways.* 2007.

According to the SMAQMD Protocol screening process, the peak-hour traffic is rounded up to 4,000, the lowest entry in Table 2 of the SMAQMD Protocol. Based on the information in this table, cancer risks at any location within Curtis Park Village, are less than the evaluation criteria of 446 per million (over a 70-year exposure period) selected by the SMAQMD; therefore, a site specific health risk analysis is not warranted.

The SMAQMD protocol was updated[4] in March of 2009 resulting in a revised evaluation criterion of 296 per million. The evaluation criterion differs from the previous versions and to more closely align with the California Air Resources Board's (CARB) methodology used in the Land Use Handbook.[5] This new evaluation criterion was calculated based on a 50 foot distance as opposed to the 10 foot distance as used in previous versions of the SMAQMD Protocol.[6]

Based on this revised evaluation criterion, estimated emissions are below the screening threshold, and a site-specific risk analysis is not warranted. In addition, the cancer risk estimates provided in Table 2 of the SMAQMD Protocol were developed using parameters and exhaust release heights typical for automobiles and various sizes of diesel trucks. Diesel-fired locomotives have higher exhaust release-heights than the typical highway traffic. A higher release-height results in more dispersion, thereby decreasing nearby ground level pollutant concentrations and decreasing associated cancer risks. The use of methodologies outlined in the SMAQMD Protocol present a conservative method for addressing cancer risks for future residents of Curtis Park Village.

Response to Comment 3-6

The Air Quality Mitigation Plan (AQMP) was submitted after the release of the DEIR. The commenter is correct that the Air Quality Management District endorsed the AQMP on May 26, 2009 (See Appendix C of the FEIR for the AQMP).

Response to Comment 3-7

See Response to Comment 3-5.

Response to Comment 3-8

The comment indicates that a project's impact should be based on its potential global warming impact, and not simply compliance with a particular policy or mitigation strategy. There is consensus that global climate change, as caused by greenhouse gas emissions, is an inherently cumulative impact. While the project's role in the City's efforts to achieve compliance with the various state-initiated efforts is discussed in the Draft EIR, the underlying and substantial effort implemented by the City is ensuring that new development is designed to reduce vehicle miles, which are one of the major sources of greenhouse gas emissions. Coordination with regional

[4] Sacramento Metropolitan Air Quality Management District (SMAQMD). *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways.* 2009
[5] Ibid.
[6] Ibid.

partners via the SACOG Blueprint is a major part of the City's strategy, as well as the preparation of a Climate Action Plan.

The comment seeks a statement of the project's potential global warming impacts. The City believes the analysis set forth in the Draft EIR, accompanied by the adoption and action strategies set forth in the 2030 General Plan and Master EIR, identify an action-oriented approach that will achieve real results. The City is unaware of, and the commenter provides no information regarding, any substantial evidence that would relate the greenhouse gas emissions of this project with any demonstrable and measurable global climate change. The City treats global climate change as a cumulative effect, and has adopted strategies consistent with that approach.

The City believes its stated threshold and approach are consistent with the District guidance. See, e.g., Chapter 6 of the District's CEQA Guide, which recommends that thresholds of significance for GHG emissions should be related to AB 32's GHG reduction goals. The Guide suggests that one possible threshold could be "[…] to determine whether a project's emissions would substantially hinder the State's ability to attain the goals identified in AB 32 […]" (CEQA Guide, page 6-11) The City believes that it is in agreement with the District regarding the goal of reducing GHG emissions, and that the City's reliance on the Master EIR and ongoing efforts to draft and implement a Climate Change Plan are meaningful steps in achieving that goal.

In addition, see Chapter 3 for a Master Response regarding GHG emissions.

Response to Comment 3-9

The Draft EIR includes specific references to the suggested strategies issued by the Office of the Attorney General. (See Table 5.3-8 on page 5.3-21 of the DEIR) As discussed in the Master Response, the City has initiated a very substantial effort to identify community-wide strategies to reduce greenhouse gas emissions, and the project would be subject to these strategies. In part, the City has adopted this approach due to the infeasibility of identifying specific global climate change impacts from individual projects, and the absence of substantial evidence that would support a finding of fairness in applying specific mitigation on such a basis.

In addition, see Chapter 3 for a Master Response regarding GHG emissions.

Response to Comment 3-10

The comment expresses a preference for the highest density and lowest household annual vehicle miles traveled. Site design alternatives are addressed and discussed in Chapter 7.0 of the DEIR. The Multi-Family Alternative was not chosen as the Environmentally Superior Alternative because, as compared to the Single-Family Alternative, the Multi-Family Alternative does not reduce impacts to aesthetics and public services and utilities. The Environmentally Superior Alternative would be expected to generate the least adverse impacts. The alternative preference will be forwarded to decision-makers for their consideration during the project review process.

Response to Comment 3-11

See Responses to Comments 2-14 and 3-10.

Response to Comment 3-12

The comment suggests an at-grade pedestrian/bicycle crossing at the north end of the project site. The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 3-13

The DEIR analyzes two access options for the Curtis Park Village project. The commenter is expressing a preference for Option 1, which continues 5th Avenue and Donner Way connections to the site. The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 3-14

SMAQMD rules will be complied with at the time of construction. The comment is a concluding comment and does not address the adequacy of the DEIR.

Letter 4

FW Curtis Park Village Project (SCH#2004082020).txt
>>> "Guenther Moskat" <gmoskat@dtsc.ca.gov> 06/01/2009 3:47 PM >>>
Ms Hagemen,

4-1 Thank you for the opportunity for the Department of Toxic Substances Control (DTSC) to review and comment on the draft Environmental Impact Report (EIR) for the Curtis Park Village Project (SCH#2004082020) dated March 2009 prepared for the City of Sacramento by Raney Planning and Management, Inc... As you are aware, as a Responsible Agency under the California Environmental Quality Act (CEQA), DTSC has been coordinating with the City to ensure that the draft EIR contains an analysis of potential impacts associated with activities to be contained in a proposed Remedial

4-2 Action Plan amendment (RAP) subject to DTSC approval that would address additional contamination found at the proposed project site. As a Responsible Agency, DTSC will consider the environmental effects of activities associated with the proposed RAP as shown in the final EIR prior to reaching a decision on the proposed RAP.

In recognition that a proposed RAP was not available at the time the draft EIR was being circulated for review and comment, DTSC evaluated the potential impacts from the following remediation methods that were identified in the draft EIR:

- Removing the impacted soil from the site by excavation;
- Hauling impacted soil by truck to an offsite disposal location;

4-3 - Treatment of the excavated soil;
- Encapsulation, by creating a barrier to prevent human contact by construction of a barrier or cap (provided groundwater is adequately protected and direct access is not possible, potential encapsulation locations include the proposed commercial areas and park); and
- In-situ treatment (chemical fixation/stabilization) or biodegradation.

Following are comments on various sections of the draft EIR that we request the City take into consideration prior to the development of final EIR for the overall development project:

CHAPTER 4 - LAND USE

4-4 Comment: This section should include a discussion related to the extent of contamination and the effect potential remedies may have on the proposed uses of the property. This section should also include an explanation of the intent of SB120 (Ortiz, Chap. 395 of 1999) to require that any cleanup of contamination of the property meet the Land Use Plan approved by the City of Sacramento.

CHAPTER 5.1 - AESTHETICS

Page 5.1-9, Section 5.1.1, Impacts related to the update of the Remedial Action Plan (RAP), 3rd Sentence. "It should be noted that the updates to the RAP remedies could result in more stockpiles of soil on the site, but the soil stockpiles would not be

4-5 any larger than the stockpiles currently on-site (due to implementation of the existing RAP), and these stockpiles would eventually be removed from the site and hauled to an appropriate landfill."

Comment: The purpose of updating the RAP is to evaluate other remedial technologies to address the remaining volume of impacted soils found at the Site. Because the revised remedy is being developed, it would be more appropriate to indicate that soil stockpiles would be managed in accordance with remedial alternative approved in the updated RAP.

CHAPTER 5.6 - CULTURAL RESOURCES

4-6 Page 5.6-9, Section 5.6-2, Project grading could unearth previously unknown archaeological resources. "The proposed project would not be allowed to proceed until the Department of Toxic Substances Control
(DTSC) deems the updated RAP complete. Thus, grading associated with the proposed project would occur after soil has been imported to the site consistent with the

Page 1

Letter 4

updated RAP."

4-6 cont. Comment: It is not clear what is meant by "complete." Development should be initiated after the revised RAP remedy objectives are met.

CHAPTER 5.8 - PUBLIC HEALTH AND HAZARDS

*** Page 5.8-8, Section 5.8, Impacts Specific to the update of the Remedial Action Plan, first paragraph.

4-7 Comment 1: This section should provide clarification that if additional information, data and remediation activities becomes available after certification of the final EIR, a re-evaluation will determine if the final EIR adequately assessed impacts related to the proposed RAP subject to DTSC approval or whether an addendum, amendment or supplement to the certified EIR would be required in order for DTSC
to meet its obligations under CEQA.

4-8 Comment 2: This section should include a map showing the areas of known and suspected contamination.

4-9 Comment 3: This section should state that the RAP is required to comply with the applicable mitigation measures from Table 2-1.

4-10 Comment 4: This section should include a detailed discussion of the Operations and Maintenance Plan requirements for caps and land use covenants and controls.

4-11 Comment 5: This section should state that drainage around caps will be reviewed by DTSC to ensure that cap integrity is not compromised.

*** Page 5.8-10, Impact Discussion of Excavation and Off-site Disposal Remedy. "It should be noted that the additional volumes of contaminants would be removed via truck, not rail: and "Furthermore, the additional hauling required under this remedy
4-12 would utilize the same haul routes and be subject to the same laws and regulations as the current site remediation."

Comment: The current remediation efforts require that excavated soils be removed from the site using railcars. Please revise accordingly.

*** Page 5.8-11, Impact Discussion of On-site Encapsulation and In-Situ stabilization remedies. "Because the fill is clean, restrictions
on
land use above the cap are not required. However, any excavation that would go deeper than the membrane would require workers trained in dealing with contaminated
4-13 soils, and excavated soils would have to be disposed of at an approved facility."

Comment: Land Use Covenant (LUC) applies to all areas with contamination left above the unrestricted land use levels. The LUC will place restrictions to limit land use and activities to be consistent with the cap remedy. Prohibitions against activities such as digging, scraping, or other types of cap disturbance would be included in LUCs.

*** Page 5.8-13, Exposure of future residents and construction workers to contaminated soil. "At that point DTSC would issue certifications of completion and record a deed restriction for the property."

4-14 Comment: Include clarification that DTSC would issue certification of completion after all components of the approved remedial action have been implemented including administrative activities (i.e., Operations and Maintenance Agreement, Land Use Covenant and etc.).

4-15 CHAPTER 5.9 - HYDROLOGY, WATER QUALITY, AND DRAINAGE

Letter 4

FW Curtis Park Village Project (SCH#2004082020).txt

4-15 cont. Comment: This section should include a description of current groundwater conditions and remediation systems at the Site to establish existing environmental baseline conditions. This section should also provide a more detailed description of the Operations and Maintenance Plan required under the existing Remedial Action Plan for treatment of contaminated groundwater.

4-16 As previously stated, since a proposed RAP was not available at the time the draft EIR was being circulated for review and comment, DTSC evaluated the potential impacts from the remediation methods identified in the draft EIR. If additional information and data pertinent to the

4-17 extent and nature of the contamination and proposed remediation activities identified in the draft EIR becomes available prior to approval of the final EIR, DTSC recommends that such information, data and remediation activities be analyzed and included in the final document certified by the City. Further, if additional information, data and remediation activities becomes available after certification of the final EIR, a re-evaluation should be conducted to determine if the final EIR

4-18 adequately assessed impacts related to the proposed RAP or whether an addendum, amendment or supplement to the certified EIR would be required in order for DTSC to meet its obligations as a Responsible Agency under CEQA.

4-19 Again, thank you for the opportunity for involving DTSC in the preparation and review of this important project and EIR. If you should have any questions, please contact me at the numbers liste below. Thank you.

Guenther W. Moskat
Supervising Environmental Planner
CEQA Program
Department of Toxic Substancecs Control
1001 I Street, 22nd Floor
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Page 3

LETTER 4: GUENTHER MOSKAT, DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Response to Comment 4-1

Comment 4-1 is an introductory comment and does not address the adequacy of the DEIR.

Response to Comment 4-2

Comment 4-1 is a background comment and does not address the adequacy of the DEIR.

Response to Comment 4-3

Comment 4-1 is a summary comment that describes the potential remedies outlined in the project description, and does not address the adequacy of the DEIR.

Response to Comment 4-4

Chapter 5.8, Public Health and Hazards, of the DEIR addresses the extent of existing contamination on the project site. In particular, the extent of contamination related to metals, petroleum hydrocarbons, and Semivolatile Organic Compounds (SVOCs), can be found on pages 5.8-8, 5.8-9, and 5.8-10, respectively.

SB 120 states that the DTSC cannot approve the updates to the RAP until the City has approved a land use plan for the project site. This regulation ensures that any areas cleaned to restricted standards coincide with the appropriate land use and are subject to long-term agreements with DTSC. Chapter 5.8 of the DEIR, Public Health and Hazards Chapter, pages 5.8-11 and 5.8-12 includes a discussion of SB 120 and requirements as they pertain to land use.

Response to Comment 4-5

For clarification purposes, the third paragraph on page 5.1-9 of the DEIR is hereby revised to read:

> It should be noted that ~~the updates to the RAP remedies could result in more stockpiles of soil on the site, but the soil stockpiles would not be any larger than the stockpiles currently on-site (due to implementation of the existing RAP), and these stockpiles would eventually be removed from the site and hauled to an appropriate landfill~~ soil stockpiles would be managed in accordance with remedial alternatives approved in the updated RAP.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-6

For clarification purposes, the sixth paragraph on pages 5.6-8 through 5.6-9 of the DEIR is hereby revised to read:

> The proposed project would not be allowed to proceed until the Department of Toxic Substances Control (DTSC) deems that the ~~updated~~ revised RAP ~~complete~~ remedy objectives are met. Thus, grading associated with the proposed project would occur after soil has been imported to the site consistent with the updated RAP.

The above change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-7

For clarification purposes, the first paragraph on page 5.8-8 of the DEIR is hereby revised to read:

> As described above, additional volumes of contaminated soil were discovered during supplemental investigations, completed in December 2008. The additional volumes of the remaining on-site chemicals would require an update to the existing RAP to reflect the additional volume and proposed remediation remedies. However, because specific remediation methods would not be determined in the updated RAP by DTSC until after approval of the DEIR, this section analyzes the impacts of all potential remediation methods. It should be noted that if additional information, data, and remediation becomes available after certification of the Final EIR, a re-evaluation by DTSC will determine if the Final EIR adequately assessed impacts related to the proposed RAP subject to DTSC approval or whether an addendum, amendment, or supplement to the certified EIR would be required in order for DTSC to meet the obligations under CEQA.

The above change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-8

The 1995 RAP and the 2002 RAD prepared by UPRR defined the areas known at that time to contain contaminants in excess of approved cleanup goals. Between 2002 and 2007, UPRR and Petrovich Development Company implemented the excavation remedy approved in the RAP to the areas known to contain arsenic, lead, asbestos, PAHs, and petroleum hydrocarbons. Upon completion of that work, confirmation samples reported no residual levels of VOCs, meaning that this class of chemicals has been successfully remediated from soil. In contrast, residual levels of metals (arsenic and lead), petroleum hydrocarbons, and polynuclear aromatic hydrocarbons (PAHs) have not been reduced to approved cleanup soil levels.

In 2008, PDC conducted a supplemental investigation of the property to better define the extent of remaining impact. The investigation examined areas of historic industrial use and areas that may not have been evaluated in the past. In total, 840 soil samples were collected at depths ranging from ground surface to 20 feet below ground surface or from soil stockpiles. Figure 5 illustrates the locations of soil sampling.

PDC reported the results of the analyses to DTSC in the May 2009 *Remedial Investigation, Second Addendum Report, Curtis Park Rail Yard.* Figure 7 illustrates the distribution of known contaminants remaining in soil in excess of the residential (unrestricted) cleanup goals.

The investigation found areas of high lead and arsenic concentrations were removed from the property by soil excavation between 2002 and 2007. In addition, the investigation did not detect asbestos or VOCs in the soil samples. In many locations, multiple contaminants occur together, while in other areas chemicals of concern do not exceed their respective cleanup goals. The shaded areas on Figure 7 indicate the presence of one or more of the remaining chemical of concern (arsenic, lead, TPH, or PAHs). The May 2009 report calculated that approximately 170,000 cubic yards of soil containing one or more contaminant remain at the site.

Response to Comment 4-9

For clarification purposes, the third paragraph on page 5.8-12 of the DEIR is hereby revised to read:

> Please refer to Impact 5.8-2 for further discussion of potential impacts during development of the Cutis Park Village project. <u>It should be noted that the implementation of the remedies in the RAP is required to comply with the applicable mitigation measures from Table 2-1 in the DEIR.</u> The updated RAP would not include placing any uses (the site would remain vacant) on the project site after remediation.

The above change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-10

The following paragraph is added to the top of page 5.8-12 of the DEIR to explain the Operations and Maintenance Plan.

> <u>After final remediation is complete, the long-term maintenance of any on-site barriers, caps, or other mechanical means of encapsulation of contaminated soils would be required by the DTSC. An Operation and Maintenance Plan is prepared. This plan would also include land use convenants and controls in order to control all future activities in the area that could disturb or compromise the integrity of any mechanical device used to encapsulate soil. Elements of the plan would include system operations, system maintenance, inspection criteria, replacement criteria, monitoring, and other such elements as necessary to ensure the longevity and integrity of any method used to encapsulate the soils.</u>

Figure 5

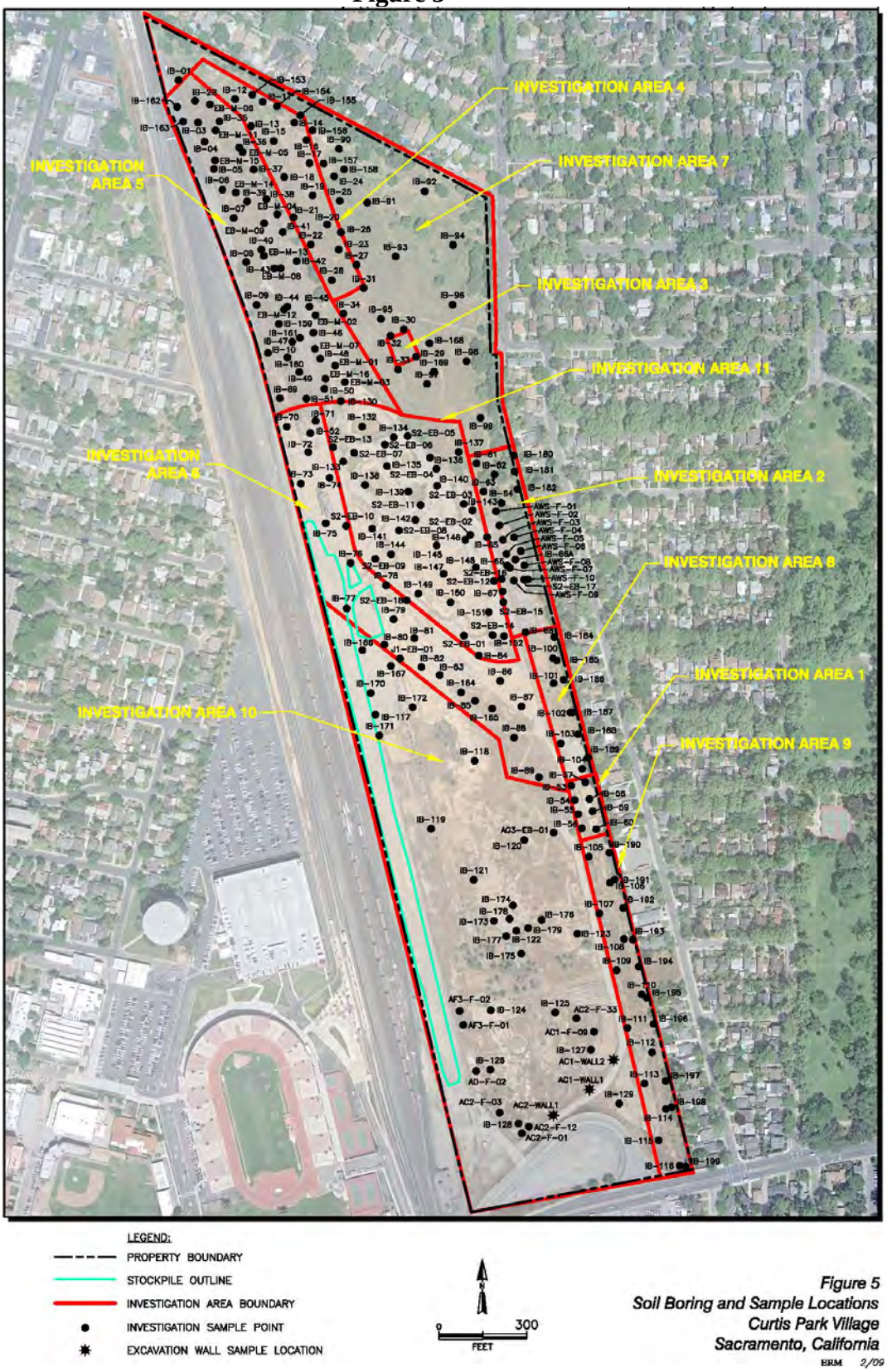
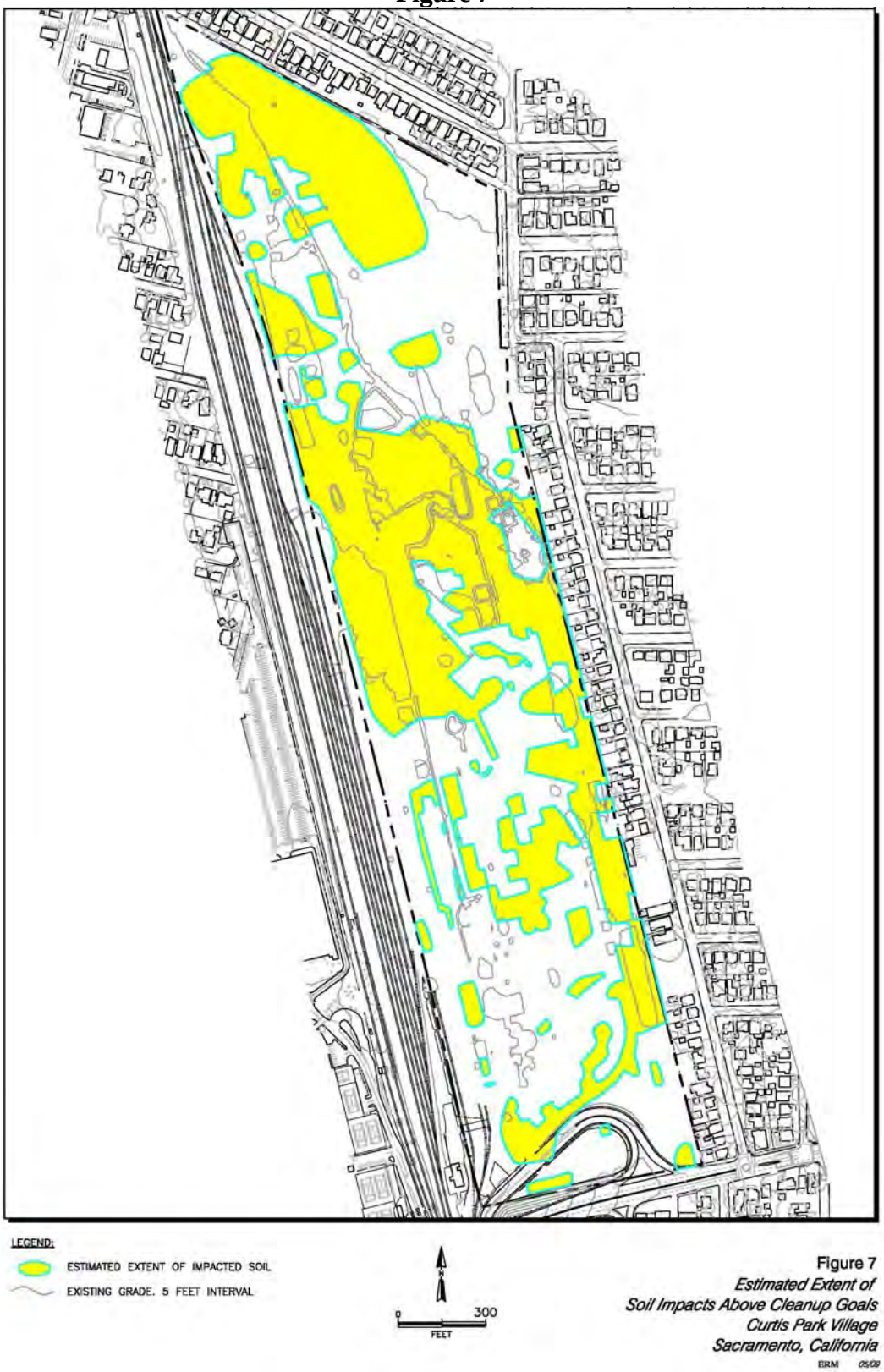

INVESTIGATION AREA 4
INVESTIGATION AREA 7
INVESTIGATION AREA 5
INVESTIGATION AREA 3
INVESTIGATION AREA 11
INVESTIGATION AREA 6
INVESTIGATION AREA 2
INVESTIGATION AREA 8
INVESTIGATION AREA 1
INVESTIGATION AREA 10
INVESTIGATION AREA 9
LEGEND:
PROPERTY BOUNDARY
STOCKPILE OUTLINE
INVESTIGATION AREA BOUNDARY
INVESTIGATION SAMPLE POINT
EXCAVATION WALL SAMPLE LOCATION
0
300
FEET
Figure 5
Soil Boring and Sample Locations
Curtis Park Village
Sacramento, California
ERM 2/09

Figure 7


LEGEND:
ESTIMATED EXTENT OF IMPACTED SOIL
EXISTING GRADE. 5 FEET INTERVAL
N
0
300
FEET
Figure 7
Estimated Extent of
Soil Impacts Above Cleanup Goals
Curtis Park Village
Sacramento, California
ERM 05/09

The above text addition does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-11

Based on Response to Comment 4-10, for clarification purposes, the following text is added to page 5.8-11 of the DEIR:

> Given that the site is currently under remediation, the on-site workers are currently working with contaminated soils and are required to comply with the Site Health and Safety Plan (as described above). Therefore, because the same regulations and training requirements for the on-site workers conducting the current remediation activities would be required for implementation of the encapsulation or in-situ treatment remedies, an increased risk of exposure to contaminated soils for workers would not result. In addition, because of the requirements of SB 120 and the required ongoing groundwater monitoring, these remedies would not result in an increase risk of exposure to contaminated soil for future occupants of the site. Drainage around encapsulated areas would be reviewed by DTSC to ensure that cap integrity is not compromised. Furthermore, these remedies would not result in an increase in transport of contaminated soil, as the soils would remain on-site. Given the above, impacts related to public health and hazards resulting from the encapsulation or in-situ treatment remedies would be *less than significant*.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-12

See Response to Comment 4-11.

Response to Comment 4-13

For clarification purposes, the first paragraph of page 5.8-11 of the DEIR is hereby revised to read:

> Consolidation involves excavation of target soils and placement in a designated location specifically designed to accommodate the soils. In-situ stabilization involves chemically treating the contaminated soils rendering the soils inert. The treatment of the soils would change the chemical makeup of the soil particles such that the contaminant of concern would be stabilized (i.e., cleaned) to DTSC standards. Encapsulation involves the placement of a membrane over the contaminated soils, which is then covered by clean soil, typically to a minimum of two feet thick. The design of the cap is determined through the scientific processes of DTSC as part of the approval of the updates to the RAP. ~~Because the fill is clean, restrictions on land use above the cap are not required. However, any excavation that would go deeper than the membrane would require workers trained in dealing with contaminated soils, and excavated soils would have to be disposed of at an approved facility.~~ As part of DTSC

review, Land Use Covenants (LUC) will be applied to all areas with contamination left above the unrestricted land use levels. The LUC would place restrictions to limit land use and activities to be consistent with the cap remedy. Prohibitions against activities such as digging, scraping, or other types of cap disturbance would be included in the LUC. As a result, such areas ~~containing encapsulated soils~~ require the establishment of long-term agreements with DTSC that identify the process for monitoring, conducting maintenance, and construction within the ~~encapsulated area~~ contaminated areas. The placement of encapsulated soils beneath either the proposed park site ~~or~~and/or the commercial portions of the project site is being considered.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-14

For clarification purposes, the first paragraph on page 5.8-13 of the DEIR is hereby revised to read:

Development of the Curtis Park Village project would not begin until the site has been cleaned to DTSC standards, pursuant to the updated RAP. All single-family residential areas would be cleaned to an unrestricted use standard. Unrestricted standards are intended to allow residents to eat plants grown in their soil, and for children to be able to come into contact with the soil on a daily basis without adverse effect. For areas that are not cleaned to the unrestricted land use standards, soils would be remediated to the construction worker (restricted use) DTSC Target Cleanup Level standards, which would include the non-residential uses. ~~At that point~~ After completion of all components of the approved remedial action have been implemented, including administrative activities (i.e. Operations and Maintenance Agreement, Land Use Covenant, etc.), DTSC would issue certifications of completion and record a deed restriction for the property. Any restricted use areas would be subject to DTSC deed restrictions intended to protect users from exposure to hazardous chemicals.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-15

For clarification purposes, the following text is included after the last paragraph on page 5.9-5 of the DEIR:

The general groundwater flow direction is to the southeast. Constituents historically detected in groundwater include chlorinated volatile organic compounds (1,1-DCA and 1,1-DCE above their MCLs) and metals (nickel above its MCL). Chlorinated volatile organic compound concentrations appear to be

stable or decreasing and recent metals concentrations remain comparable to historical detections.

Historical remediation at the site has included soil vapor extraction and groundwater extraction. Currently, only groundwater extraction is being performed as the soil vapor extraction system was granted closure by DTSC in 2004. Groundwater is extracted from on-site and off-site wells, conveyed via underground piping through the site, and discharged under permit directly into the Sacramento County sewer system. Monthly effluent samples are collected to confirm that constituent concentrations do not exceed County-mandated maximum levels.

The Operations and Maintenance (O&M) Plan presented in the existing RAP includes the following components related to the treatment of contaminated groundwater:

- Extraction system operation utilizing wells equipped with submersible pumps to extract groundwater;
- System operation 24 hours per day, with pumps scheduled for replacement every 5 to 10 years;
- Groundwater treatment options are provided in the Plan, but no longer apply due to low concentrations;
- Groundwater samples are to be collected from monitoring wells and from influent and effluent points within the extraction system; and
- An annual report detailing O&M and groundwater sample results is to be submitted annually.

The above change does not alter any of the conclusions contained within the DEIR.

Response to Comment 4-16

See Response to Comment 4-3.

Response to Comment 4-17

All available information will be provided to the decision-makers for their consideration of the EIR and project entitlements.

Response to Comment 4-18

See Responses to Comments 4-3 and 4-7.

Response to Comment 4-19

The comment is a concluding statement and does not address the adequacy of the DEIR.

Letter 5

SIERRA CURTIS
NEIGHBORHOOD ASSOCIATION

Comments in Response to the
Curtis Park Village Project
Draft Environmental Impact Report

Project #P04-109
State Clearinghouse #2004082020

Submitted June 1, 2009

Letter 5
Cont'd.

SIERRA CURTIS
NEIGHBORHOOD ASSOCIATION

June 1, 2009

Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Blvd
City of Sacramento, CA 95811

Dear Ms Hageman:

5-1 The Sierra Curtis Neighborhood Association (SCNA) offers the attached comments on the City of Sacramento's Draft Environmental Impact Report (DEIR) for the Curtis Park Village project This cover letter summarizes the major issues of concern A Comment Summary and Appendices including supporting details, references and citations are attached

5-2 The DEIR contains fundamental flaws with respect to its content and approach These flaws mean that critical information is missing or inconsistent, and this makes the DEIR an inadequate public presentation of the environmental impacts associated with the project **The DEIR should be revised and recirculated so that the issues can be fully addressed,** and so that the elected officials who will vote to approve or reject the project will be fully informed of the impacts and consequences of their decisions associated with this 72 acre Superfund site

5-3 SCNA's major concerns with the DEIR are as follows:

1 The DEIR fails to present the environmental impacts associated with the toxic contamination and the cleanup required at the project site

5-4 2 The DEIR fails to consider a reasonable range of alternatives to the proposed project

5-5 3 The DEIR fails to present an accurate and consistent project description

5-6 4 The DEIR fails to adequately analyze the traffic impacts of the project

5-7 5 The project descriptions contained in the DEIR are inconsistent with the land use designation for this parcel that is contained in the Sacramento General Plan

5-8 6 The DEIR contains a significant number of errors and omissions with respect to the analysis of air quality

5-9 7 The DEIR fails to adequately analyze the greenhouse gas emissions associated with this project

5-10 We strongly urge that the City, as lead agency, withdraw this DEIR and issue a revised DEIR that accurately describes the existing environment and the proposed project and clearly analyzes alternatives, impacts and mitigations To do otherwise would be to fail your responsibilities under CEQA

Thank you in advance for your consideration of our concerns We look forward to hearing from you regarding our request for a withdrawal and recirculation of a revised DEIR.

Sincerely,

Rosanna Herber
President
Sierra Curtis Neighborhood Association

Kathleen Ave
Chair
SCNA Neighborhood Concerns Committee

cc Sacramento Mayor & City Council
Sacramento Planning Commission
SCNA Board of Directors

2791 24th Street, Sacramento, CA 95818 (916) 452-3005

Letter 5 Cont'd.

Comment Summary

The Curtis Park Village Project Draft Environmental Impact Report (DEIR) contains fundamental flaws with respect to its content and approach. These flaws mean that critical information is missing or inconsistent, and this makes the DEIR document an inadequate public presentation of the environmental impacts associated with the project. **Thus the DEIR should be revised and recirculated so that the issues can be fully addressed.** The process should proceed with the recirculation of another DEIR so that the public has an opportunity to comment on the full range of environmental impacts, and the elected officials who will vote to approve or reject the project will be fully informed on the impacts and consequences of their decisions associated with this 72 acre development on a Superfund site. To proceed directly to the certification of a Final EIR, with so much critical information missing from the draft document, would be inconsistent with the California Environmental Quality Act (CEQA), Public Resources Code, section 21000 *et seq.*, which requires enough details to fully evaluate the impacts and mitigation measures.

5-11

1. **The DEIR fails to present the environmental impacts associated with the toxic contamination and the cleanup required at the project site.** The project developer has requested a revision to the Remedial Action Plan (RAP) for the site. In September 2008 at a community meeting, SCNA was informed by representatives from the Department of Toxic Substances Control (the "Responsible Agency" under CEQA with respect to the toxic cleanup required at the project site) that the DEIR for the project would be "coordinated" with the CEQA process for the revised RAP. However, the proposed revisions to the RAP are not described in the DEIR, although the DEIR specifically states that the revisions are part of the project and covered by the analysis in the DEIR: *"Therefore, the EIR will analyze potential environmental impacts that may be associated with proposed remedies that will be contained in the update to the previously approved RAP. All potential remedies that could be used to address the additional volume of contaminants on-site will be examined in this EIR for use by DTSC in their approval process (DEIR page 1-2)."* The impacts of the *potential* revisions to the RAP are presented in the DEIR, but because the revisions are not described, it is not clear what the baseline is, what the changes are, or what the impact assessment is based upon. Additionally, the difference between the approved and the revised RAP is not described or analyzed.

5-12

The release of the DEIR has not been adequately coordinated with the California Department of Toxic Substances Control (DTSC), leading to a significant time lag between the release of the DEIR and the initiation of the public process to approve a revised Remedial Action Plan (RAP) for the site, which has been requested by the developer] An EIR must describe the environmental setting for a proposed project to establish the baseline that a lead agency uses to determine whether project impacts are significant (*14 Cal. Code Regs. Sec. 15125*). The DEIR omits very basic information such as the type, extent and location of remaining toxic contamination of the soils on the site. The DEIR does not provide any specific information to establish a baseline site condition for the toxics, so it is not possible to evaluate the potential impacts of using various technologies to deal with the toxics.

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Letter 5 Cont'd.

In a public meeting with Curtis Park neighbors after the release of the DEIR, a representative of DTSC stated "hopefully the information contained in the DEIR will be enough for DTSC to complete the analysis required for the RAP."[1] This statement reveals a lack of required coordination between the two agencies on this project, and reveals the need for the withdrawal of this DEIR, so that the CEQA process for the development of the project and that of the RAP can be integrated. Lacking that process integration, the current version of the DEIR cannot be relied upon as a full accounting of the environmental impacts of the project.

5-15

Please refer to Appendix A for a full review of the issues associated with the toxics on the project site and the cleanup and mitigation issues.

5-16

2 **The DEIR fails to consider a reasonable range of alternatives to the proposed project.** The City has a duty to analyze an alternative that reduces or avoids the most harmful impacts that are caused by the project. Two of the alternatives that were considered are virtually identical. Because significant adverse impacts associated with this project are those impacts from traffic and incremental vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions, the City should have more fully considered alternatives that would substantially reduce or avoid those impacts. (See CEQA Guidelines § 15126.6)

5-17

A growing body of knowledge links land use patterns to energy use and greenhouse gas emissions.[2] In our response to the Notice of Preparation, SCNA requested a fully detailed "Transit Oriented Development" (TOD) option included as one of the alternatives studied in the DEIR. The DEIR incorrectly identifies the Single-Family Alternative as the "Environmentally Superior Alternative" overlooking the negative environmental impacts of incorporating this suburban-style development model into an urban infill site. A TOD alternative would feature medium-density housing, reduced number of parking spaces, mixed-use commercial, prioritized pedestrian and bicycle access throughout the project and maximized access to the light rail stations to the west of the project. Such an alternative would allow for reduced energy usage (for both buildings and transportation needs) over the life of the project and thus minimize greenhouse gas emissions, relative to a more auto-oriented development.[3] A SACOG analysis of the proposed project indicates that it results in higher vehicle trips and more vehicle miles traveled per household than a project alternative containing multifamily housing in place of commercial square footage.[4] Including a TOD alternative also supports the goals of the recently passed SB 375 that requires sustainable land use planning. The DEIR failed to include and analyze a TOD alternative.

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[1] Statement of Fernando Amador, DTSC Program Manager, to public meeting of SCNA, May 5th, 2009

[2] Energy Aware Planning Guide, June 1993, California Energy Commission

[3] Cool Spots, Carbon Footprint Reduction Through Community Planning, November 2008, Criterion Planners (crit.com). Presentation appears as Appendix D and includes examples of the reduction in emissions associated with modest changes in land use patterns.

[4] Letter from SACOG Executive Director Mike McKeever to Heather Forest, dated May 28, 2009, included in Appendix J

Letter 5 Cont'd.

In addition, in December 2007, SCNA submitted an alternative design proposal (the Corbett/McDermott plan, or the "Village Green Alternative" as it is referred to in the DEIR) to the City for consideration in the DEIR process. This option contains a more modest commercial component (126,000 sq. ft. compared to 260,000 sq. ft. in the developer's current plan), genuine mixed uses (including residential over retail as compared to the "adjacent uses" in the developer's plan), inclusion of a "village green" as a social gathering and activity center, and potential to support more density in the future as required. As such, the Village Green Alternative plan supports the City of Sacramento's Sustainability Master Plan (2007), the General Plan Update (2008), the Smart Growth Implementation Strategy (2001), as well as the UP Railyards Clean-up and Re-use Plan (1992) and SCNA's own Curtis Park Village development principles.

5-21

As an alternative proposal, the Village Green Alternative Plan was summarily dismissed on the assumption that it had a larger number of housing units than the developer's plan and would thus generate more traffic (DEIR Page 7-4). This assumption is not supported by any analysis. The extension of this assumption, also unsupported, is that in order to minimize traffic impacts the entire CPV development should be devoted to commercial development. The DEIR contains no evidence or analysis to suggest that this assumption is true. The other reason cited for the dismissal of this alternative was the resulting increase in the need for services such as fire and police, parks and schools. The DEIR contains no evidence or analysis to support the statement that commercial development requires less in terms of public service, particularly fire and police services. In addition, the commercial development brings with it the need for housing for the employees, which then generates additional need for fire, police, parks and schools. This impact is not addressed in the DEIR.

5-22

5-23

In addition, the DEIR takes the position that payment of school impact fees is considered full mitigation for any impacts that would result from a project (DEIR pg. 5.11-31). There is no discussion as to why that analysis applies to the proposed project, but not to the Village Green Alternative. With regard to the other services, the DEIR simply equates consistency with the General Plan as supporting the conclusion that impacts would be less than significant. (DEIR pg. 5.11-29 , 30). Again, there is no discussion as to how the Village Green Alternative is inconsistent with the General Plan, thus possibly causing significant adverse impacts.

5-24

Finally, the descriptions of Alternatives 2 and 3 are virtually identical (DEIR Page 2-9) The DEIR fails to explain the differences between these two alternatives. If Alternative 3 is stated incorrectly and is restated to be distinctly different from Alternative 2, then the analyses of impacts from Alternative 3 must be similarly restated and corrected. As it stands, the DEIR fails to analyze a reasonable range of alternatives to the proposed project.

5-25

3. The DEIR fails to present an accurate and consistent project description. An accurate project description is an essential element of an EIR *(County of Inyo v. City of Los Angeles (1977) 71 Cal. App. 3d 185)*. The project description presented in Chapter 3 of the DEIR is significantly different from the project description used in the Traffic section of the document. There are several other ways in which the project is

5-26

5-27

**Letter 5
Cont'd.**

5-27 cont.

inconsistently or inadequately described in the DEIR. As such, the analyses contained in this DEIR are based on different project descriptions, and this introduces uncertainty regarding which description was used in other sections of the document. The failure to present a consistent project description makes it impossible to state with certainty what the impacts of the proposed project will be.

The DEIR uses the Dowling Associates Trip Generation Comparison Memorandum, dated December 12, 2008, on page 415 in Appendix D to justify relying on a traffic study conducted for a prior project proposal. The justification presented in the DEIR for the inconsistency of the description in the Traffic section is that the project description used in that section is a more intensive use and would therefore generate more traffic than the currently proposed project. This explanation is simplistic and fails to consider the impact of different traffic patterns associated with the different project descriptions. Different land uses can have vastly different patterns of traffic impacts. The memo concludes, "Consequently, it is not likely that the revised land uses would result in transportation related impacts not already identified in the DEIR." (Emphasis added) This analysis fails to satisfy CEQA's requirements: to say it is not likely to change the impacts is not the rigor of analysis required by CEQA.

5-28

The differences in the project descriptions in each section are considerable and noted here:

Land Use	Project Description	Traffic Section
Area 1		
Retail	160,000 sq. ft.	53,000 sq. ft. grocery store
Area 2		
Retail/Commercial	16,000 sq. ft.	
Retail		15,800 sq. ft.
Single Family Dwelling	5	
Parking Spaces	63	
Senior Multi Family Dwelling	80	
Area 3		
Dinner Theater	38,000 sq. ft.	42,435 sq. ft.
Other Entertainment	38,000 sq. ft.	
Restaurant Pads	26,500 sq. ft.	2 x 6,500 sq. ft. = 13,000 sq. ft.
Single Family Dwelling		10
Multi Family Dwelling	212	
Health Spa		85,000 sq. ft.
Hotel		150 rooms
Area 4	Not Described	
Single Family Dwellings		146
Area 5	Not Described	
Single Family Dwellings		60
Area 6	Not Described	
Park	8.7 gross / 6.8 net acres	7.2 acres (Park/OS)
Single Family Dwelling Lots	178	(total 206 in "Areas 4 & 5")

5-29

There are extreme limitations in available access points to connect this project to the surrounding neighborhoods, which, without appropriate mitigation, will place an undue burden upon the streets that will have new connections. As such, the traffic impacts associated with the project are of great concern to the surrounding residents and business owners and need to be studied with the best available and most accurate information.

Letter 5 Cont'd.

There are other instances of inconsistency throughout the document. For example, (p 2-9, Alternatives Evaluated, 6th paragraph) Alternative 5 refers to " . . a reduction of the total commercial land use area of the proposed project from approximately 314,000 square feet to 194,400 square feet." Nowhere in the DEIR is there a project description referencing the commercial area to be 314,000 square feet. Please identify what project this refers to, how that project compares to the proposed project, and why all of the other alternatives refer to a project containing 260,000 square feet of commercial land use area.

5-30

In addition, the DEIR uses three different site acreages for the senior development. The senior site is listed as 1.7 acres in the tentative map, 1.4 and 1.7 acres in the text, and 1.32 acres in the Mixed Income Housing Plan – all for an 80-unit development. This makes it impossible to determine whether its density is compliant with the proposed designation of Traditional Neighborhood High Density land use, and consequently whether it is consistent with the General Plan. A full disclosure of the impacts is impossible to assess if the project description is inconsistent throughout the DEIR.

5-31

We consider these discrepancies in the project description one of the fatal flaws contained in the DEIR, which necessitates recirculation of a revised DEIR.

5-32

4. The DEIR fails to adequately analyze the traffic impacts of the project. In addition to the discrepancy of the project description, the DEIR fails to adequately describe the existing environment with respect to traffic circulation in the surrounding neighborhood. An EIR must describe the environmental setting for a proposed project to establish the baseline that a lead agency uses to determine whether project impacts are significant. (*14 Cal. Code Regs. Sec. 15125*) The date for establishing the existing environment is normally the time the Notice of Preparation is published. The Notice of Preparation for this project was released on November 13, 2008. The DEIR fails to take into account the changes to traffic flow as a result of changes at northern boundary of the project, the Freeport/21st St. two-way conversion. This traffic modification was implemented over eighteen months ago, has had a major impact to traffic patterns in the project study area, and should be reflected as part of the existing environment in the traffic study of the DEIR. However, it does not appear that any new traffic counts were conducted to gauge the effect of the 21st Street conversion. (pg. 5.2-8, 5.2-9). In discussing the baseline traffic conditions, the DEIR is at best confusing, "However, because traffic volumes were collected prior to the completion of the project, the Freeport Boulevard/21st Street Two-Way Conversion Project is included as a baseline project." (pg.5.2-32). "If the description of the environmental setting of the project site and surrounding area is inaccurate, incomplete or misleading, the EIR does not comply with CEQA." (*Cadiz Land Co., Inc. v. Rail Cycle, L.P.* (2000), 83 Cal.App.4th 74, 85 *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus, (1994) 27 CA4th 713*, 729). This DEIR clearly fails to meet this most basic of requirements.

5-33

In addition to the inconsistent project description, the inadequacy of the description of existing conditions and the flawed traffic study, we have a number of other comments

5-34

Letter 5 Cont'd.

regarding the proposed project's traffic impacts, which are attached as Appendix B to this letter.

5-34 cont. We also incorporate by reference the attached expert review of the Curtis Park Village EIR Traffic Analysis, from Mark Crane of the Crane Transportation Group, dated May 15, 2009. Mr. Crane is a specialist in the field of transportation and traffic analysis and mitigation of traffic impacts. This review is attached as Appendix C to this letter.

5-35 **5. The project descriptions contained in the DEIR are inconsistent with the land use designation for this parcel that is contained in the Sacramento General Plan.** The DEIR overlooks and ignores a number of land use issues and General Plan inconsistencies. The shopping center (commercial) zone in the proposed project is **not** compatible with the General Plan's designation of Traditional Center. 5-36 The four-story proposed senior development's location is inconsistent with the General Plan's land use designation. The DEIR's analysis omits a finding that all areas zoned Traditional Neighborhood High and Low Density should be cleaned up to an unrestricted use. 5-37 The misleading and incorrect definition of "commercial areas" as comprising the Traditional Center creates conflicting interpretations of whether residential areas will be cleaned up to unrestricted uses. 5-38 The DEIR's Alternatives Analysis does not consider the Alternatives' consistency with the 2030 General Plan's land uses. These are a serious deficiencies and omissions. A detailed discussion of each of these issues appears as 5-39 Appendix E to this letter.

5-40 **6. The DEIR contains a significant number of errors and omissions with respect to the analysis of air quality.** These issues were evaluated for SCNA by Earl Withycombe, an expert in the field of air pollution. Mr. Withycombe's qualifications and comments are listed in detail in Appendix F to this letter.

7. The DEIR fails to adequately analyze the greenhouse gas emissions associated with this project. Because greenhouse gas emissions have already created a severe adverse effect on climate change worldwide, even relatively small contributions to greenhouse gas emissions are cumulatively considerable. In this case, 5-41 the incremental contribution of this project is substantial. Accordingly, the inadequate analysis in the CPV EIR is more than just a technical flaw. By failing to adequately analyze and mitigate the very real impacts of the project on climate change, the City is consciously choosing to disregard one of the most serious issues facing California and the global environment. The DEIR fails to include indirect effects related to green house 5-42 gases associated with the development of the project; it establishes an incorrect 5-43 baseline; the thresholds of significance used in the DEIR are not applicable to the 5-44 effects of greenhouse gases as required by CEQA; and the DEIR does not analyze the 5-45 project's contribution to the cumulative effect of GHG emissions and climate change. These issues are discussed in detail in Appendix G.

5-46 Additional comments, related to various sections of the DEIR, are discussed in Appendix H.

Letter 5 Cont'd.

Appendices

Appendix A – SCNA Comments regarding toxic cleanup and associated impacts

Appendix B - SCNA Comments regarding CPV DEIR Traffic Study

Appendix C – Review of the Curtis Park Village DEIR Traffic Analysis, from Mark Crane of the Crane Transportation Group

Appendix D - Cool Spots, Carbon Footprint Reduction Through Community Planning, November 2008, Criterion Planners.

Appendix E – SCNA Comments regarding the Land Use section of the CPV DEIR

Appendix F – Review of the Curtis Park Village DEIR Air Quality Analysis (Letter and Resume from Earl Withycombe)

Appendix G – SCNA Comments regarding the greenhouse gas emissions analysis in the CPV DEIR

Appendix H – SCNA Comments regarding various sections of the CPV DEIR

Appendix I – Review of the Curtis park Village DEIR Geology & Soils Analysis (Letter and Curriculum Vitae from Keith Miles)

Appendix J – Additional correspondence referenced in SCNA Comments

Appendix K – Documents in support of SCNA Greenhouse Gas comments (in Appendix H)

Appendix L – Final Remedial Action Plan, Union Pacific Railroad Yard, June 1995

Letter 5 Cont'd.

Appendix A

SCNA Comments regarding toxic cleanup and associated impacts

I. There is no characterization of current toxic contamination conditions on the project site, therefore no information is provided on the significance of this adverse health risk.

On July 28, 2008, ERM Remediation and Construction Management West, Inc., (ERM) on behalf of Curtis Park Village, LLC (CPV) notified the California Department of Toxic Substances Control (DTSC) that the Remedial Action Plan (RAP) approved for the CPV project site in 1995 required revision to (1) recognize the larger extent of onsite soil contamination (200,000 cubic yards) than was understood in 1995 (90,000 cubic yards), and (2) to allow for onsite disposal of contaminated soil instead of complete removal and transshipment to an out-of-state landfill as stipulated in the 1995 RAP. On August 13, 2008, DTSC acknowledged receipt of this new information and offered preliminary guidance to CPV on the processing and substance of RAP revisions. With respect to CEQA, DTSC informed CPV that a new CEQA evaluation of the RAP revisions would have to be prepared in order to complete an administrative record similar to that prepared for the 1995 RAP. Copies of these two letters are attached in Appendix J.

5-47

In its letter of July 28, 2008, ERM proposed to submit a draft revised RAP to DTSC in the first quarter of 2009. The draft revised RAP was to summarize the results of further onsite investigations and report the full extent of soil contamination. To date, this goal has not been met. No results of further onsite investigations have been released for public review.

5-48

A. Consequently, there is **not an adequate environmental baseline** to use in determining whether the project may have significant impacts. [14 California Code of Regulations Section 15125] {DEIR pages 5.8-9}

5-49 B. This is also a problem because there is not enough detail to assess existing conditions, or what the level of clean-up will accomplish.

II. The lack of a current site characterization report, and the lack of a new RAP, means that there is not an adequate "project description.

5-50

Since this DEIR is supposed to assess the environmental impacts of both the development and the RAP, it provides an inadequate project description to show what the effect of the RAP will be. The project description must detail what both the project developer and DTSC will be doing

9

Letter 5 Cont'd.

5-50 cont. on the site to resolve the serious contamination. The questions that flow from this omission are:

5-51
- What is on the site that requires remediation?

5-52
- Have all of the volatile organic compounds, polycyclic aromatic hydrocarbons, asbestos, lead, and arsenic been removed from portions of the site?

5-53
- Do unallowable concentrations of any of these contaminants remain in portions of the site?
- If so, which portions?

5-54
- What are the volumes of contaminated soil in portions of the project site, by contaminant type?
- At what concentrations do these contaminants exist in the various contaminated portions of the site?

5-55
- What evidence do we have to show that untested portions of the project site are not contaminated?

5-56
- What actions will be taken to investigate contamination of untested portions under the revised RAP?

5-57
- What actions will be taken to remediate contaminated areas discovered during project construction subsequent to a DTSC finding which certifies site decontamination?

5-58
- Where will material stockpiles be located?
- How much contaminated soil will be contained in these stockpiles?
- How long will be stockpiles be in place?

5-59 The discussion of the excavation and off-site disposal remedy states that if this remedy is used, additional volumes of contaminants would be removed via truck, not rail (p. 5.8-10). Since no further discussion of this potential action in included, several questions remain unanswered:

5-60
- What routes onsite and offsite would the tracks traverse to remove this soil?
- What types of trucks and trailers would be used in transporting this soil?
- How many truck trips per day would be generated by this activity?

5-61
- How will blowing dust from contaminated soil be controlled in transit?

5-62
- What will the loss rate of contaminated soil be in transit?

5-63
- How will this truck traffic impact congestion of affected roadways?
- Why doesn't the DEIR traffic analysis include these truck trips?

5-64
- How will paved road trackout of soil from these trucks onto public paved roadways be controlled or remediated?
- What will be PM10 emissions from soil trackout from these truck trips be?
- How will these PM10 emissions impact local air quality?

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5-65 **III. There is not enough detail to assess whether the "thresholds of significance," or standards of significance (p. 5.8-7.) will be exceeded**. No quantification of thresholds of significant is provided. This absence raises the following questions:

5-66
- What are the thresholds of significant risk to construction workers from exposure to contaminated soils during site remediation activities by contaminant – a 1.0-in-a-million increased cancer risk? an acute or chronic health hazard index exceeding 1.0? a limit on ingestion, inhalation, or dermal absorption in units of total micrograms per kilogram of body weight, or micrograms per kilogram of body weight per day?
- What are the corresponding thresholds of significant risks to sensitive populations residing adjacent to the project from exposure to contaminated soils during site remediation activities?
- What are the corresponding thresholds of significant risk to future occupants of the project site from exposure to contaminated soil?

5-67 There is no analysis explaining why the project's public health/toxics impacts will not exceed the thresholds of significance. Questions that arise from this omission include:

5-68
- What are the estimated contaminant exposure rates by contaminant to construction workers during toxic remediation operations?
- How will construction workers be monitored during toxic remediation activities to determine levels of inhalation, ingestion, or dermal absorption of specific soil contaminants?

5-69
- What are the estimated contaminant exposure rates by contaminant to residents adjacent to the project during these operations?
- How will sensitive populations residing adjacent to the project during toxic remediation activities be monitored for risk exposure?

5-70 Without quantifications of the thresholds of significance and the estimated risk exposures, and a commitment to the monitoring of risk exposures, there is **no evidence to support the conclusion that the project's impacts will be less-than-significant**. CEQA requires evidence in the record to support these assertions. The DEIR should contain data and analysis of the sort presented in the 1995 RAP for the project site, a copy of which is attached as Appendix L.

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IV. There is a general approach that DTSC standards will be adequate to reduce any impacts to less-than-significant. The DEIR assumes that DTSC standards are already in place, and as a consequence the thresholds of significance will not be exceeded. This presents a conceptual problem. Using this assumption, they are saying that the thresholds will not be exceeded. Therefore, these impacts will be less-than-significant, and no mitigation measures are needed. However, this assumption is false, and therefore there is no substantial evidence to support their argument that the impacts are less-than-significant.

5-71 The DEIR states that DTSC standards will be met. This is not enough if there is no evidence in the record that the existing standards will be sufficient to reduce impacts to less-than-significant. (*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099).

In addition, these standards may not be sufficient to reduce risks to levels below the thresholds of significance to less-than-significant, and thereby avoid requirements for mitigation. Because the DEIR fails to discuss these issues, the City, DTSC, and the public do not know whether the standards are sufficient. To the extent the DTSC standards are supposed to be mitigation measures, there is not enough information to make this determination.

5-72 There are also references in the DEIR to using the same remediation requirements as are contained in the 1995 remediation RAP. This RAP, however, did not undergo a CEQA review, and there is no environmental evaluation of the provisions in the existing RAP, particularly compared to the existing conditions.

5-73 Simply complying with regulatory standards for toxic clean-up is not enough to provide substantial evidence that there will be no environmental impacts if there is a fair argument that, nevertheless, there remains a significant adverse effect. (*CBE v. Resources Agency* (2002) 103 Cal.App.4th 98, 113).

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5-74 **V. Treatment of contaminated soils is not detailed enough to allow an adequate analysis and opportunity to comment on what it will mean for the public health of current Curtis Park and future Curtis Park Village residents.** This issue is addressed in 3 short paragraphs (P. 5.8-10 and 11, and there is nothing contained in the language there that is site specific. The information presented in this section could apply to half the brownfields in California.

5-75 In addition, the DEIR contains inconsistent statements regarding encapsulated soils beneath park and residential areas (last sentences of 1st and 2nd paragraphs on p. 5.8-11).

5-76 Ben Leslie Boles of ERM, the environmental remediation consultant for the developer, stated at an SCNA public meeting on May 7th, 2009 that the plastic black liner cap remedy was not available at time of EIR publication. CEQA requires the discussion of details which are omitted from this DEIR. Questions that arise from this omission include:

- Is ¼ inch thick plastic thick enough to ensure permanent enclosure of the contents? Has it been used in other, similar applications with success? How many years of testing and monitoring has this remedy undergone?
- How much soil will cover the plastic? Will there be more soil covering the cap in certain areas, for example children's playgrounds?

5-77

- Does it mean that there will be no trees planted in the capped area?
- How will the integrity of the cap be maintained while under many years of standard park maintenance? Does the cap require any special monitoring and maintenance procedures? Who will be responsible for that required maintenance and monitoring?
- Is there adequate space available in the park and roadways to encapsulate all the contaminated soil on the site?

5-78

- How will storm water runoff patterns, groundwater and surrounding soils be impacted by this proposed remedy?

5-79 Recirculation of the DEIR is required to evaluate details of the proposed remedies.

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5-80 VI. **In summary, the DEIR's analysis of site contamination and remediation is flawed due to circular reasoning:**

5-81 1. A revised RAP will not be produced until after the project FEIR is approved.

5-82 2. The project DEIR purports to satisfy CEQA requirements for the revised RAP.

5-83 3. The project DEIR does not contain enough detail to evaluate site baseline conditions or the public health impacts of remediation measures. The DEIR say the RAP that hasn't been prepared will "include detailed descriptions of the remedial actions (p.5.8-7) which are not included in the project DEIR but, instead will be deferred in release to decision makers and the public. It is impermissible to defer descriptions and imposition of mitigation measures until after project approval. (*Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296.)

5-84 4. So how can *this* DEIR be adequate to address the environmental impacts of a RAP that has not yet been prepared?

5-85 5. Likewise, decision makers and the public can't tell whether the adverse effects from contamination remaining on-site have been adequately mitigated, because the DEIR does not indicate how much contaminated soil is on the project site and where it is located. Additionally, no specific mitigation measures have been selected for reduction of risk from contaminated soils, nor is there sufficient information in the DEIR to allow the described measures to serve as "performance standards". Performance standards are only permissible as mitigation measures when the evidence demonstrates the effectieness of the standards. This DEIR does not contain enough information to satisfy evidentiary requirements as to whether the described measures will be effective.

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Appendix B

SCNA Comments regarding CPV DEIR Traffic Study

1. THE INFORMATION IN THE TRAFFIC STUDY IS INCOMPLETE AND DATED.

In order to reach the conclusion that impacts were not likely to change, it appears that Dowling Associates conducted an analysis of the new project, but none of the Trip Generation Tables or project descriptions in Section 5.2 were updated. The Dowling memorandum states "to determine if the revised land uses would generate significantly different amounts of trips from those fully analyzed by the DEIR, a trip generation analysis was performed for the revised land uses using the same methodologies described in the transportation section of the DEIR." Only

5-86 two Traffic Circulation Tables in Appendix D were updated with the new traffic numbers. As it appears a new analysis has already been conducted by Dowling Associates, that information should be used in Section 5.2 and all Tables should reflect the new project description and traffic counts. One of the basic purposes of CEQA is to inform the public and decisionmakers about the potential significant effects of a project (14 Cal.Code Regs. Sec. 15002(a)(1). This DEIR fails that purpose when it includes hundreds of pages of traffic numbers for an outdated project proposal and only two summary sheets for the current proposal.

One final example of the fact that the Traffic & Circulation section of the DEIR seems dated is that in the Memorandum supplied by Dowling Associates, it acknowledges that a more up-to-

5-87 date version of data published by the Institute of Transportation Engineers regarding trip generation was available to them when they did their analyses, but they chose not to use it (for various stated reasons). We would like to see the trip generation estimates for both land use sets using the more recently published trip generation data. Additionally, other manuals are

5-88 referenced throughout the DEIR that seem relatively dated; for example, on p. 5.2-13, two chapters are referenced from the Highway Capacity Manual, which was published in 2000.

Additional Comments:

5-89

What happens if a planned commercial use devolves to another because the original plan is later found to be "economically infeasible"? A 38,000 square foot dinner theater is slated for this

Letter 5 Cont'd.

5-89 cont. project. Let's assume the shell for a dinner theater is constructed and the actual use of the space ends up as a multi-screen facility. The latter would generate much more traffic than a dinner theater. We expect the consultant to evaluate the impacts of a multi-screen theater on traffic patterns in Curtis Park Village and adjacent neighborhoods.

5-90 It appears that the 24th Street/ Sutterville Road level of service analysis continues to show this intersection as being controlled by a signal, even though the project proposes to remove the signal. This is a major discrepancy. The level of service of this intersection without a signal must be disclosed and the impacts on traffic from removing this signal must be identified and mitigated if necessary.

5-91 Another intersection that is inaccurately described is the northwest access point to the project. The DEIR states that "Northbound left-turn from Portola Way is currently prohibited at the intersection of Portola Way, Marshall Way and 4th Avenue because of potential safety issues due to its close proximity to the 21st Street intersection; however, illegal turns can still physically be made." (DEIR p. 5.2-43) Yet, in fact, there has been a designated northbound left turn lane from Portola Way for over a year.

5-92 Confusion abounds in the various discussions of the northwestern access. The trip distribution figure (Figure 5.2-6, Pg. 5.2-29) indicates that there will be no traffic exiting at the Portola Way location. Yet, on page 5.2-22, the text states: "Project traffic exiting the site at the Portola Way connection would be prohibited from making a left turn onto 4th Avenue." (Emphasis added). The DEIR must contain a detailed description of this access point in the project description.

5-93 Further, which scenario was included in the traffic study – only ingress or two-way traffic at Portola Way? If two way traffic is the project proposal and making a left turn at 4th Avenue is prohibited (thereby denying access at that point to 21st St.), the DEIR must contain an analysis of not only where the project traffic will spread on Portola Way, Marshall Way, 4th Avenue, 3rd Avenue, 22nd Street and 23rd Street, but also where the existing traffic that uses Portola Way to access 21st Street will travel.

5-94 The proposed project includes angled parking along Road A. Did the traffic flow studies

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5-94 cont. account for the angled parking – which significantly slows down traffic and increases accidents? Would the angled parking impede the flow through the intersection at Sutterville Rd. and Road A?

5-95 Would the angled parking on Road A, and the resulting congestion, result in increased cut-through traffic to West Curtis Drive and 24th Street and the connecting streets as drivers traveling north attempt to avoid Road A?

5-96 Has angled parking previously been endorsed by police and fire departments and Regional Transit?

5-97 Angled parking on Road A is inconsistent with the City's general criteria that limits angled parking to roads with less than 4,000 average daily trips (page 15-24 of the Design and Procedures Manual, Street Design Standards, Section 15, City of Sacramento, Development Services Department, May 2004).

5-98 The DEIR must contain an analysis of the parking requirements and traffic flow within the project and outside of it, both with and without angled parking.

5-99

Another issue regarding traffic flow within the project itself is that on p. 5.2-43 of the DEIR, it states: "The layout of these roadways (within the project) would not comply with City design standards or normal traffic engineering practices. Therefore, the sharp roadway curvatures are considered a ***potentially significant impact***." Further down on the same page, under "Mitigation Measures," #5.2-7(a) it states: "The design plans for the project shall be consistent with City standards," and a couple of ideas for how to do this are tossed out. No analysis seems to have been conducted to assess the impact that these non-standard roadways would have on traffic flow both within Curtis Park Village and within Curtis Park. If the roadways within Curtis Park Village are designed in a non-standard way that makes travel by vehicle more difficult than in the surrounding neighborhoods, this will push Curtis Park Village traffic onto neighborhood streets in Curtis Park even more.

5-100

5-101 Additionally, no evaluation of the proposed mitigation measures has been conducted.

5-102 Assuming the residents of the single-family homes will not need any on street parking (p. 5.2-45) because they are assumed to have garages with the capacity for one car (p. 5.2-44), is an erroneous assumption. Most of the single-family homes in this neighborhood have at least two drivers and two cars, if not more people/cars.

5-103 Moreover, the DEIR brings in the concept of "shared driveways." (DEIR, pg 3-13) We are not aware of any other project anywhere that utilizes shared driveways, and don't fully understand

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5-103 cont. how this is supposed to work. It seems that this would lead to more on-street parking, so that people don't have to move their car when the neighbor wants to get out. The DEIR should describe this concept in more detail and analyze its impact on on-street parking.

Map and Figures

5-104 Many of the Maps and Figures are at a reduced scale and not legible and therefore they cannot be commented on; i.e., the Tentative Subdivision Map Figure 3-3(page 3-6) and the Reduced Commercial Alternative A Figure 7-2(page 7-11). All maps and figures should be available to the public at their real size and scale in a legible format. They should be included on the DEIR disks and posted as PDFs to a website.

Traffic Circulation and Design Narrative

5-105 While the DEIR contains numerous charts, graphs and technical language examining the Curtis Park Village design, what is missing is a clear traffic narrative understandable to the layman. The overall traffic design and flow cannot be ascertained by piecing together information from throughout Section 5.2 Transportation and Circulation. The DEIR needs to clearly explain in one section the overall design and assumptions about traffic flow, controls, impacts on intersections, etc.

2. EXISTING ENVIRONMENT

5-106 The physical environmental conditions at the time the Notice of Preparation is published "will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." (CEQA Guidelines, § 15125.) However, this DEIR predates the second revised Notice of Preparation for the project and uses a traffic study that predates

5-107 significant changes in north/south traffic to downtown (19th/21st Street 2 way conversion). In addition to this flaw, the DEIR contains a number of other errors in describing the existing road

5-108 network.

5-109 The traffic counts used to determine Existing Traffic Volumes are too old to be meaningful (Chapter 5.2, pages 5.2-8 and 5.2-9). Most of the traffic counts were taken from March to

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5-109 cont.

September 2005, making them 3-1/2 to 4 years old. Previously, the 2005 study included: 30 Intersections, 17 Street Segments, 2 Freeway Ramps and 2 Freeway Merge/Diverges. In 2007, only 12 Intersections were retested, only 4 Street Segments were retested and no Freeway Ramps or Freeway Merge/Diverge locations were retested. Out of 51 study areas tested in 2005, only 16 were retested in 2007 (32%).

5-110

Even the current traffic counts are at least 1-1/2 years old and do not include the impact of the recent 21st Street conversion from one-way to two-way traffic. The 21st Street changes have resulted in major traffic impacts in the immediate Curtis Park area and any traffic count analysis needs to reflect the real, current conditions. Anyone who uses these streets, as well as some other streets in our neighborhood, realizes that traffic flows are not the same as they were when the streets were one way. The consultant needs to make observations of traffic that reflect current conditions and the DEIR's analysis must be based upon existing conditions, not outdated and unreliable traffic counts.

5-111

Likewise, significant changes have been made to Sutterville Road at Sacramento City College. At the same time, the community colleges in California have experienced a recent surge in enrollment due to the increasingly high cost of other venues of higher education. Apparently in response, Sacramento City College has increased the amount of parking available to students, instructors and staff and has secured access to the College with better access roads and two traffic signals. Both of these factors make it easier and less stressful to drive to City College than in the past, and this has significantly impacted traffic all along Sutterville between SR 99 and Freeport Boulevard. New data needs to be gathered on this stretch, as the current information does not reflect the conditions that drivers now experience on this section of roadway.

5-112

The description of the Existing Roadway Network reveals some errors. They include the number of lanes on segments of certain streets (24th Street in Midtown north).

5-113

There is even a claim that the converted streets serve as an alternative route to I-80/I [sic] 50, when they are north-south streets and the freeways run in an east-west direction.

5-114

The Existing and Planned Pedestrian and Bicycle Facilities section states "sidewalks are provided... except for the elevated section of Sutterville Road." Although the sidewalks on Sutterville Road may be less than adequate and

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5-114 cont.

should be considered for an upgrade in connection with the Cutis Park Village project, they are used by both cyclists and pedestrians. While these errors may be excused as sloppiness, they may result in skepticism about other data and some of the report's conclusions.

5-115

Did the traffic study include the effect of the existing freeway entrance meters? There are occasions under existing conditions when the northbound Highway 99 ramp at 12th Avenue is full.

5-116

What is the impact of the additional traffic attributable to Curtis Park Village?

3. PROJECT IMPACTS

A. FREEWAY CONNECTIONS

Both the section of Sutterville Road between 24th Street and SR 99, and the freeway on and off ramps to SR 99, are currently operating at LOS D, E or F conditions for some travel times, and there is no feasible way to mitigate this. In fact, those of us living in the Southern part of Curtis Park and frequently using those road sections can tell you that the Curtis Park Village DEIR does not accurately represent all of the times that these areas are highly congested.

5-117

In addition, not only are these negative traffic impacts "significant and unavoidable," but also the report fails to note that they are also dangerous. When the queue to get off of SR 99 and onto 12th Avenue exceeds the ramp capacity, the cars that are stuck back in the mainline of traffic run a serious risk of being rear-ended. With just slightly more traffic in the area, the queue of cars waiting to get onto SR 99 will start backing up the hill created by the Sutterville Road overpass, and these vehicles will be in serious danger of being rear-ended by cars whipping over the crest of the overpass. Because no feasible way exists to mitigate this, the only solution is to opt for a development plan that causes the least amount of additional traffic as possible.

B. TRAFFIC IMPACTS

5-118

a. DONNER WAY/ 5TH AVE

It is not clear how residents of Curtis Park Village who live in the northern section are going to travel to the east without highly impacting neighborhood streets in Curtis Park that weren't

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5-118 cont.

designed for such a high volume of traffic. Donner Way and 5th Avenue, in particular, will be hard-hit by Curtis Park Village residential and retail traffic as well as by trucks and delivery vans headed to and from the project. The DEIR does not adequately address this issue.

b. 10TH AVE. AND STREETS WEST OF CURTIS PARK VILLAGE

5-119

An access to Curtis Park Village via 10th avenue would cause eastbound Curtis Park Village traffic backed up on Sutterville Road to cut through Curtis Park by turning right onto West Curtis Drive, left onto 10th Avenue and into the project. This would cause these sections of those neighborhood streets to be heavily impacted during peak travel times. The DEIR does not adequately address this issue.

c. 24th Street NORTH OF CURTIS PARK VILLAGE

5-120

The DEIR claims that intersections on 24th Street north of Curtis Park Village would be at LOS B in the morning commute and LOS C in the evening commute. This seems possible to believe only with this proposed project changes focused on moving the maximum amount of traffic on 24th Street in the shortest amount of time – by adding a light at 2nd Ave. and removing the stop sign at Portola Way. What is the increase in traffic on 24th Street? Did the traffic study take into account that the stretch of 24th Street between Marshall and 4th Avenue is completely residential with driveways for most of the residences? How will these residents be able to back out of their driveways during the commute hours? The DEIR does not adequately address these issues.

d. EXISTING STREETS WEST OF 24TH Street.

5-121

The DEIR claims that there would not be a single additional vehicle traveling on 4th Ave or on 3rd Avenue between 24th Street and 21st Street. How could this be true? Why would all of the traffic attempting to reach 21st St. travel down 24th Street to use 2nd Avenue (with its attendant speed bumps) to reach 21st Street? The DEIR does not adequately address this issue.

C. PEDESTRIAN SAFETY

5-122

The emphasis on levels of service is too focused on vehicles and ignores pedestrians, cyclists and the general tranquility of neighbors in their homes. This preoccupation with the movement of vehicles is inconsistent with the EIR's charge that the **"public agency's obligation is to balance**

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a variety of public objectives, including economic, environmental and social issues." Curtis Park is a walking community, with attractions present on both sides of 24th Street – the Sierra 2 Community Center and the park on the east side; the light rail line and the commercial areas surrounding Crepeville and Taylor's Market on the west side.

5-122 cont.

Impacts to pedestrian circulation are considered significant if the proposed project would: "Result in unsafe conditions or create a hindrance for pedestrians, including unsafe pedestrian/bicycle or pedestrian/motor vehicle access." The DEIR claims that there are less than significant impacts to pedestrian circulation under baseline plus project conditions. Yet there is no analysis of pedestrian movement in the area to be impacted by the project and thus no acknowledgement of the impacts associated with the proposed project.

The proposed project would have a significant negative impact on pedestrian safety in the existing Curtis Park area. The DEIR states that under cumulative conditions the intersection at 24th Street/ Portola Way will have level of service of F, which is the worst-case scenario. Therefore, "[t]he project applicant shall pay a fair share contribution to convert the intersection from all-way stop control to two-way stop control with stop signs only for the Portola Way approaches to the intersection. This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a less-than-significant level." While accommodating project vehicle traffic, this "mitigation" has a significant adverse impact on pedestrians and existing vehicle traffic.

5-123

The 24th Street/Portola Way intersection is a major pedestrian crossing for residents of Curtis Park. Students living in both the southeast portion of Curtis Park and Oak Park enroute to and from California Middle School and McClatchy High School use this controlled intersection to safely cross 24th Street. Removal of the stop signs on 24th Street will imperil their safety. The stop signs on 24th Street at Portola Way provide the only designated pedestrian crosswalk on 24th Street between 4th Avenue and 6th Avenue, a distance of 2,540 feet (10 cross streets). To remove the stop sign on 24th Street at this location would eliminate a major pedestrian crossing in this portion of Curtis Park on a main arterial.

Moreover, vehicles from both directions on Portola Way would have difficulty either crossing this intersection or merging onto 24th Street during peak periods. The status quo should be

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5-123 cont.

maintained by keeping all four stop signs. This would be superior to the idea put forth by the DEIR, which seems only concerned with the throughput of traffic on 24th Street and ignores both pedestrian safety and east/west vehicle traffic.

5-124

Another example where the DEIR ignores pedestrian safety is at the southern edge of the project. The existing signalized intersection at 24th Street and Sutterville Road, which is eliminated under the proposed project (yet not analyzed as such – see comment above), is used by a large number of pedestrians, most notably students and people coming to recreate in the park. Pedestrian movement across Sutterville Road would be expected to increase if, as the project proponent suggests, the Curtis Park Village commercial area will serve the Western Pacific Addition and Hollywood Park neighborhoods south of Sutterville Road. The proposed project includes a new signalized intersection at Sutterville Road and Road A. There is no indication that this proposed intersection is designed with pedestrian safety in mind. The project traffic causes a significant impact at Sutterville Road and Road A. As mitigation for the significant impact, the DEIR proposed (1) allowing right turns from Road A to Sutterville Road at the same time Sutterville Road east traffic is turning left on to Road A and (2) adding a center left-right lane. This configuration appears to add a significant safety hazard for pedestrians attempting to cross Sutterville Road at the western side of the intersection. Indeed, the City's Pedestrian Safety Guidelines indicate that barring right turns on red lights might be needed (pg. 33, Pedestrian Safety Guidelines, City of Sacramento, adopted by Sacramento City Council, January 9, 2003).

5-125

The analysis of the northwest corner of Curtis Park Village - Road J at Portola Way is woefully inadequate. To say the extension of Road J from CPV "would potentially add traffic to this intersection" is flat wrong, because opening a road to CPV at this juncture has to add traffic, unless there are plans to seal off Portola Way (DEIR. Pg. 5.2-43). Even if this were the case, there almost certainly will be much more traffic on 21st Street as a consequence of Road J. The DEIR fails to include an adequate analysis of this intersection, the impacts on existing streets from the project traffic and mitigation measures.

5-126

The intersection of Portola Way, Marshall Ave. and Fourth Ave. that feed into 21st Street where (and just before) the Union Pacific Railroad and Regional Transit light rail cross 21st are already part of a complex condition that poses significant danger for pedestrians and cyclists in

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particular, as well as, although to a lesser degree, motorists. As a consequence, this area deserves thorough attention

This is the primary pedestrian and bike entry to and from Curtis Park to Land Park. There are major destinations in Land Park that attract many pedestrians and cyclists at this intersection. Students at McClatchy High School and Cal Middle School who reside in Oak Park and Curtis Park almost exclusively use this crossing to access their respective schools. Many Curtis Park residents also cross these tracks to get to the 4th Avenue/Wayne Hultgren Light Rail Station, and the popular Taylor's Market and Freeport Bakery, as well as other close by and heavily patronized businesses

5-126 cont.

One of the most dangerous approaches is when pedestrians and cyclists enter the approach to this intersection from Portola Way. There is no sidewalk adjacent to the sound wall next to the railroad tracks at the light rail station. Pedestrians coming from Oak Park or the southeastern portion of Curtis Park who use Portola Way walk on the south side of the street. When they approach 21st Street next to the sound wall they generally walk in the street rather than cross over to the other side of the street where there is a sidewalk. This can be very dangerous if a car is on the street heading eastbound on Portola, especially if there is another vehicle coming in the opposite direction.

The only thing the DEIR addresses with regard to this intersection concerns motorists' ability to make a left turn from Portola Way. Pedestrians use of the street was ignored, as were all other matters pertaining to non motorists. With additional traffic from CPV on 21st St. at Portola Way, the danger to pedestrians and cyclists would increase substantially. The statement on 2-4 that "mitigation would not be required for the proposed project or any of the access scenarios for baseline plus project or cumulative impacts to bicycle or pedestrian circulation" is patently false, as conditions at the 21st Street railroad crossing clearly indicate. By concentrating only on an irrelevant motorist movement to the exclusion of everything else the authors of the DEIR ignore their own statement on 5.2-31 regarding Pedestrian Circulation. "For the purposes of this EIR, impacts to pedestrian circulation are considered significant if the Proposed Project...would: Result in unsafe conditions *or create a hindrance for pedestrians*, including pedestrian/bicycle or pedestrian/ motor vehicle access."

5-127

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Cont'd.**

The crossing of Light Rail and Union Pacific Railroad tracks on 21st Street near Marshall Avenue, Fourth Avenue and Portola Way creates one of the most challenging and dangerous situations in the City of Sacramento for pedestrians, cyclists and motorists alike.

5-128 Since there is no western access to Curtis Park Village, the planned entry, or egress and entry (the DEIR is contradictory on this point) at the northwest corner of Curtis Park Village will considerably worsen conditions at this grade crossing, especially for nonmotorists who wish to go from Curtis Park Village and Curtis Park to Land Park. The construction of a grade separated pedestrian crossing at the 4th Avenue /Wayne Hultgren Light Rail Station platform would be a viable mitigation measure. This would help to integrate Curtis Park and Curtis Park Village. It will also significantly improve the safety of students and other pedestrians/cyclists from all over

5-129 Curtis Park and Curtis Park Village who will have to negotiate this complex crossing in order to get to Light Rail at the Fourth Avenue/Wayne Hultgren Station or Land Park. The DEIR's failure to address mitigation for this crossing is a serious omission. We strongly disagree with the assertion that "no mitigation would be required for the Proposed Project at any of the access scenarios." This access point in particular requires mitigation, as described in this paragraph.

5-130 The increased traffic on 24th Street will further endanger pedestrians attempting to cross 24th Street at Castro Way. This frequently used crossing is hazardous under existing conditions. It would only become more so as the traffic increases especially as motorists speed up in attempting to catch a green light at the new signal at 24th and 2nd Ave.

D. TRANSIT

5-131 Sacramento does not have a mass transit system; Sacramento has a commuter transit system. Thus, while some a.m. and p.m. commuter traffic may be mitigated by the bus routes noted on page 5.2-5, anyone who wishes to patronize the businesses in Curtis Park Village, or any resident who wishes to travel outside of the project, will probably need to drive unless it's during regular commuter hours.

5-132 The Pre-Census Travel Behavior Report: Analysis of the 2000 SACOG Household Travel Survey was conducted before the RT South Line was constructed.

Letter 5 Cont'd.

Residents of Curtis Park should be surveyed to discern their perceptions of light rail service. If they view the service in a more negative light than those using the original light rail line, for
5-133 example, then the predictions of light rail use in this study are overstated (the converse would be true if the neighbors had a more positive view of light rail than those reported in the earlier study).

3. MITIGATION MEASURES

The impacts of the mitigation measures must also be considered. The project proposes roads and
5-134 intersections that do not meet City standards. These substandard roads are then considered potentially significant impacts. The mitigation measure proposed is to bring the roads into compliance with the City standards. What is the impact of this mitigation measure?

5-135 Has the traffic study been conducted to determine that the mitigation measures proposed would reduce the impacts to less than significant levels? Do the mitigation measures themselves result
5-136 in additional significant impacts?

4. CUMULATIVE IMPACTS

In Chapter 5.2 page 47, the DEIR states the Cumulative Conditions model reflects approved land use changes in the project area, but does not state what those land use changes are and when they
5-137 were approved. The DEIR should be clear on what upcoming building projects and models are used to support this assumption. It should be clear what the cumulative forces are that change the residential street traffic counts. For example, 24th Street changes from a LOS E (No Project) to a LOS F (Proposed Project) in Table 5.2-16. The DEIR fails to identify what land use changes are causing this.

Letter 5
Cont'd.

Letter 5 Cont'd.

Appendix C

Review of the Curtis Park Village EIR Traffic Analysis, from Mark Crane of the Crane Transportation Group

Letter 5 Cont'd.

CRANE TRANSPORTATION GROUP

2621 E. Windrim Court
Elk Grove, CA 95758
(916) 647-3406 *phone*
(916) 647-3408 *fax*

6220 Bay View Avenue
El Sobrante, CA 94806
(510) 236-9375 *phone*
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MEMORANDUM

TO: Kathleen Ave, Sierra Curtis Neighborhood Association

FROM: Mark D. Crane, P.E.

DATE: May 15, 2009

RE: **PEER REVIEW OF CURTIS PARK VILLAGE EIR TRAFFIC ANALYSIS BY DOWLING ASSOCIATES**

5-138 Crane Transportation Group has reviewed the 2008 Curtis Park Village Draft EIR Circulation Analysis. Our work has uncovered a variety of erroneous assumptions and omissions which should require revised and/or additional analysis. More importantly, some of the new work items may potentially lead to the reporting of new significant impacts which, at a minimum, will require recirculation of the EIR. We have consolidated our comments/review findings into two major categories: A) analysis missing from the draft EIR that may lead to findings of new significant impacts, and B) questions regarding the analysis provided in the draft EIR.

A. ANALYSIS MISSING FROM THE DRAFT EIR THAT MAY LEAD TO FINDINGS OF NEW SIGNIFICANT IMPACTS

1 ***No Freeway Evaluation.*** There is no evaluation of near or long term horizon project traffic impacts to the S.R.99 freeway. Caltrans' December 4, 2008 comment letter specifically requests freeway mainline operation be evaluated in the DEIR.

5-139 The EIR text occasionally makes reference to freeway operation without the project, but includes no analysis, no determination of impacts and no listing of impact significance criteria. The report mentions in the text that the S.R.99 freeway is now operating at an unacceptable level of service F in the southbound direction during the weekday evening commute. Therefore, based upon typical Caltrans evaluation, any increase in traffic by a project would be considered significant and require mitigation. The EIR fails to mention freeway mainline operation for other time periods and other segments.

Freeway evaluation may potentially lead to new significant impacts.

5-140 2. ***No 95th Percentile Queuing Evaluation.*** There is no evaluation of 95th percentile vehicle queuing along Sutterville Road-12th Avenue, particularly between and including

27a

**Letter 5
Cont'd.**

5-140 cont.

Franklin Boulevard and the S.R. 99 interchange. In addition, the more sophisticated Synchro software program has not been utilized to determine the coordinated operation of closely-spaced intersections at the freeway interchange and Franklin Boulevard. Use of the Synchro program would also allow determination of more realistic (poorer) levels of service rather than those of the more optimistic TRAFFIX program, which has been utilized in the DEIR. The TRAFFIX program does not fully take into account operating conditions and vehicle queuing from nearby intersections. The lack of queuing analysis on City streets also includes the lack of minimum acceptable City street queuing standards and queuing impact significance criteria.

Queuing evaluation along Sutterville Road-12th Avenue may potentially identify new significant impacts.

5-141

3. ***No Neighborhood Street Safety Impact Evaluation.*** There is a failure to identify potential safety impacts to pedestrians and bicycle riders within the residential neighborhoods north and east of the project site. The study has failed to use the Neighborhood Thresholds of Significance criteria for minor streets as well as an valuation of safety conditions along 24th Street north of the project, including the ability of residents to safely back vehicles from their garages onto 24th Street with significantly increased volumes. No pedestrian or bicycle rider counts have been conducted on local roadways to determine the magnitude of any potential problems.

Safety evaluation along 24th Street as well as other residential streets may potentially identify new significant impacts.

5-142

4. ***No Ramp Metering Evaluation.*** The impacts of ramp metering at the Sutterville Road-12th Avenue interchange during commute periods has not been taken into account for the ramp operation, vehicle queuing or intersection level of service analysis.

B. QUESTIONS REGARDING THE ANALYSIS PROVIDED IN THE DRAFT EIR

5-143

1. ***Project Trip Generation*** – Estimates of passby capture by project retail development from traffic along Sutterville Road are too high. The trip generation projections estimate that 33 percent of the project's retail traffic will be attracted from traffic already on Sutterville Road. This projection is based upon data from the *Traffic Engineering Handbook*, 2nd Edition, by the Institute of Transportation Engineers (2004) which relates percent passby capture in relation to the square footage of retail development. However, this publication also presents data showing the relationship between the percent passby capture and the level of PM peak hour traffic on the adjacent street system. This chart shows that for a street with the same volume as Sutterville Road (± 2,500 two-way trips/hour), the average passby capture rate for retail development should be no more than 25 percent. Use of a 25 percent passby capture rate would increase net new peak hour project traffic on the local roadway network by 4 to 6 percent, depending upon the specific peak hour.

This additional traffic could lead to additional or more severe significant impacts.

**Letter 5
Cont'd.**

2. ***Project Trip Distribution.***

5-144 a. The project percent traffic distribution shown on page 5 2-6 and Figure 5 2-6 does not add up to 100 percent of total traffic

5-145 b. The projected distribution of project traffic potentially has too little traffic using 24th Street to/from the north. Peak period travel time surveys need to be conducted to determine the quickest routes between the project and all nearby freeway interchanges

5-146 c. The traffic study does not seem to have taken into account the shift in local neighborhood traffic due to the elimination of the traffic light at the Sutterville Road/24th Street intersection

5-147 3. ***Update Traffic Counts & Analysis to Reflect Recent Changes in Directional Flow.*** A series of traffic counts should be conducted to determine the exact impact the recent changes to sections of Freeport Boulevard and 21st Avenue from one-way to two-way flow. If there is a significant change surveyed in the traffic flow on these two streets or 24th Street from the theoretical projections developed in the EIR traffic analysis (before the two-way conversion), then the traffic analysis needs to be redone

5-148 4. ***Near Term Horizon Evaluation.*** A near term horizon analysis should be conducted for the earliest year of potential full project construction and occupancy. This is more realistic and should replace the "Existing + Project" evaluation presented in the DEIR.

5-149 5. ***Rights-of-Way.*** Are rights-of-way available for all listed mitigations requiring roadway widening?

5-150 6. ***Freeway Ramps.*** Freeway ramp flow rates (capacities) presented on page 5 2-17 are not realistic for two-lane ramps. It would be impossible to almost double the capacity of single-lane ramp operation (as shown in the EIR) given the limitations of accepting this almost doubling of on-ramp traffic into the flow of a single lane on the freeway mainline; or almost doubling off-ramp traffic from a single lane on the freeway mainline. The freeway mainline could neither accept nor deliver this amount of traffic unless auxiliary lanes were also provided along the freeway to specifically accommodate traffic from the second on- or off-ramp lane

7. ***Mitigations.*** The mitigation discussion has several issues of concern

5-151 a. The DEIR indicates that the project should provide "fair share contributions" towards many mitigation measures. However, the problem with this approach is that the City may not have the remaining funding to allow construction of one or all of the "fair share" measures in a timeframe needed to mitigate the project's impact(s). Additional language should be provided for each "fair share" mitigation indicating that if the remaining funding is not available when needed to fully construct the mitigation, the project applicant will be fully responsible for funding the mitigation and then receive reimbursements from the City when funding is available

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**Letter 5
Cont'd.**

5-152

b. The design of the proposed Sutterville Road/Road A signalized intersection may have some operational issues. A recommendation is made that the southbound A Street approach be striped with an exclusive right turn lane, a shared left/right turn lane and an exclusive left turn lane. In conjunction with this striping, the southbound right turn movement would have a right turn arrow for overlap (simultaneous) movement in conjunction with the eastbound left turn movement from Sutterville Road.

It is highly unusual to consider overlap operation for an intersection approach where the movement being considered for efficient operation (the southbound right turn) is mixed in a lane with vehicles that may want to turn in the opposite direction (i.e. a combined left/right turn lane). Other examples of such striping and safe operation should be provided to the City to justify this proposal.

5-153

c. The project applicant has indicated a willingness to provide right-of-way for a pedestrian bridge connecting the project site with the nearby light rail station. A fair share contribution to the bridge would also seem appropriate, as the bridge would have significant use by project residents, employees and customers.

5-154

8 ***24th Street/Sutterville Road Level of Service Results.*** All intersection level of service result tables show future operation of the 24th Street/Sutterville Road intersection as if signalized, even after removal of the traffic light in conjunction with the signalization of the new Road A/Sutterville Road intersection. Unsignalized results should be presented and significant impacts identified, if any.

5-155

9 ***Parking.*** The discussion of project parking on pages 5.2-44 & 45 indicates an acceptable number of on-site parking spaces being provided, yet this is not supported by the findings in Table 5.2-15 nor the remaining text on page 5.2-45. Also, there is no discussion regarding the impacts of or advisability of angle parking along Road A.

5-156

10 ***Intersection Level of Service Worksheets.*** Evaluation of the intersection level of service worksheets indicates that a simplistic assumption regarding peak hour factor (PHF) input has artificially improved all level of service results. The peak hour factor represents the consistency of traffic volumes by 15-minute period over the entire peak traffic hour. Data for existing PHF conditions is easily attainable from the intersection traffic counts. A value near 1.00 indicates each 15-minute volume is similar, while values in the .7 to .9 range indicate different to significantly different volumes during each 15-minute period. PHF values near 1.00 provide much better operating results than lower PHF results.

A PHF of 1.00 has been utilized for all intersection evaluation in the DEIR, for all horizon years and for all time periods. Existing count data has not been utilized to determine the specific peak hour factors pertinent to each intersection. While it is appropriate to assume that peak hour factors will increase over time as volumes grow, the assumption that all peak hour factors will be at optimum levels for each analysis scenario is extremely overly optimistic.

Surveyed peak hour factors should be used for all existing condition intersection level of service analysis, with moderate increases assumed for future conditions.

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**Letter 5
Cont'd.**

5-157

11. ***Project Alternative Description.*** The description of project alternatives 2 & 3 is the same.

5-158

12. ***Revised Project Description.*** The project analyzed in the DEIR is not the project currently being proposed by the applicant. A trip generation study was conducted by the applicant showing that the project analyzed in the Draft EIR would have more traffic than the currently-proposed project. Hotel and spa uses have been replaced by more residential development as well as more commercial development. While trip generation numbers may be similar for the two proposals, traffic distribution patterns for the new uses will not be the same as for the eliminated uses. More commercial/residential uses should result in a larger number of trips on local residential streets serving the project as compared to the hotel/spa trips, the majority of which would likely be on Sutterville Road. These impacts have not been evaluated.

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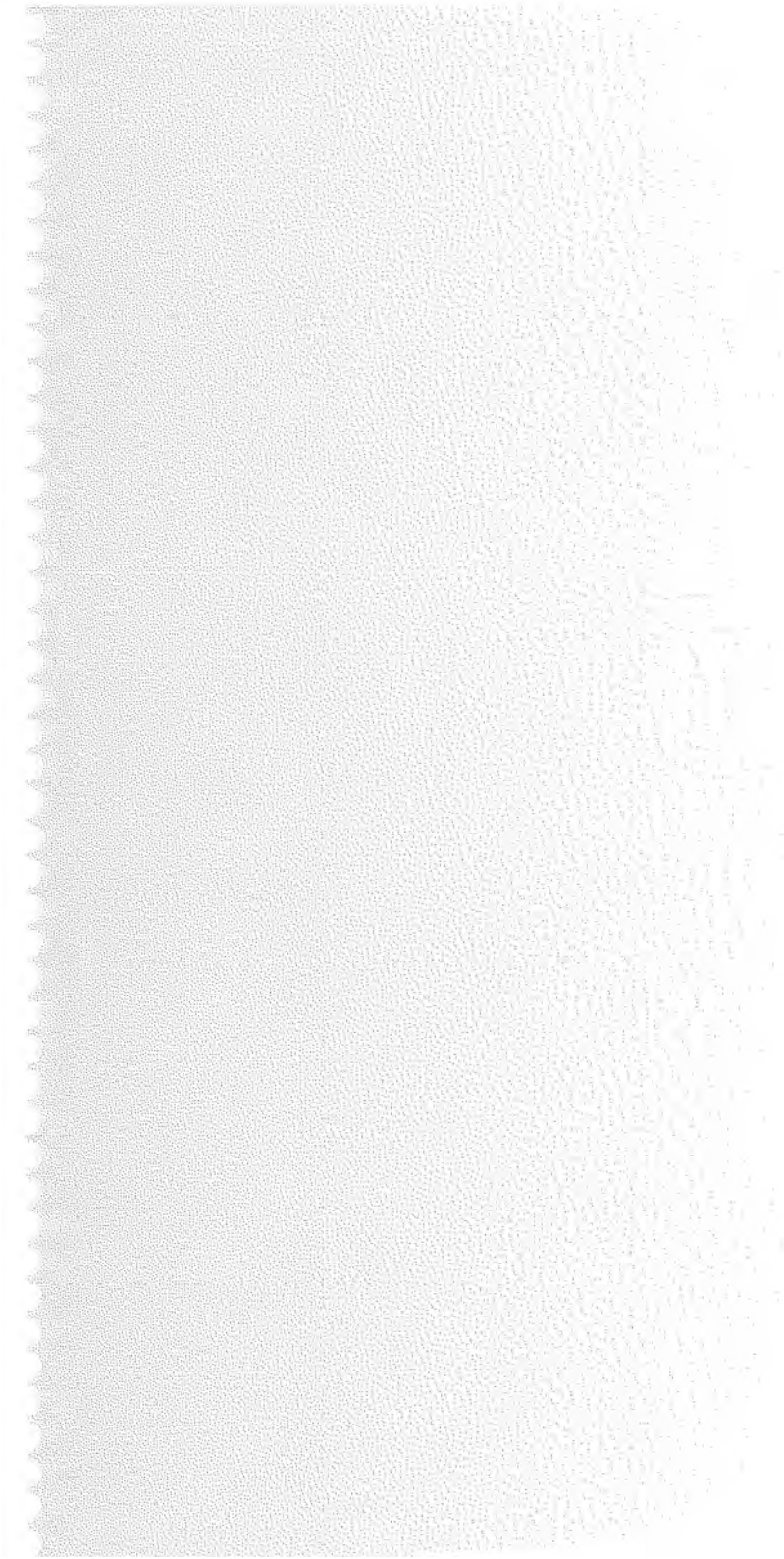

Letter 5 Cont'd.

Appendix D

Cool Spots, Carbon Footprint Reduction Through Community Planning, November 2008, Criterion Planners (crit.com).

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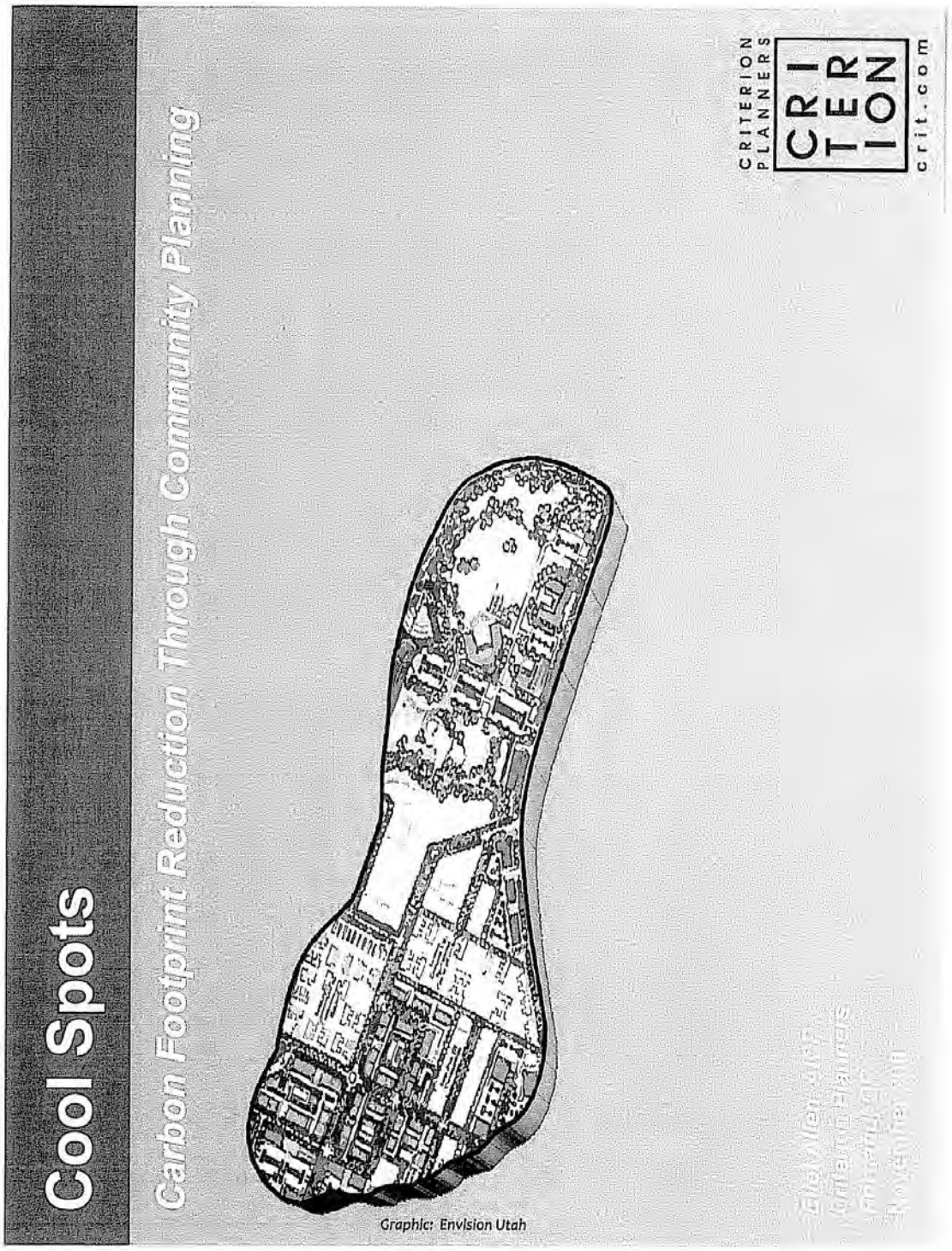

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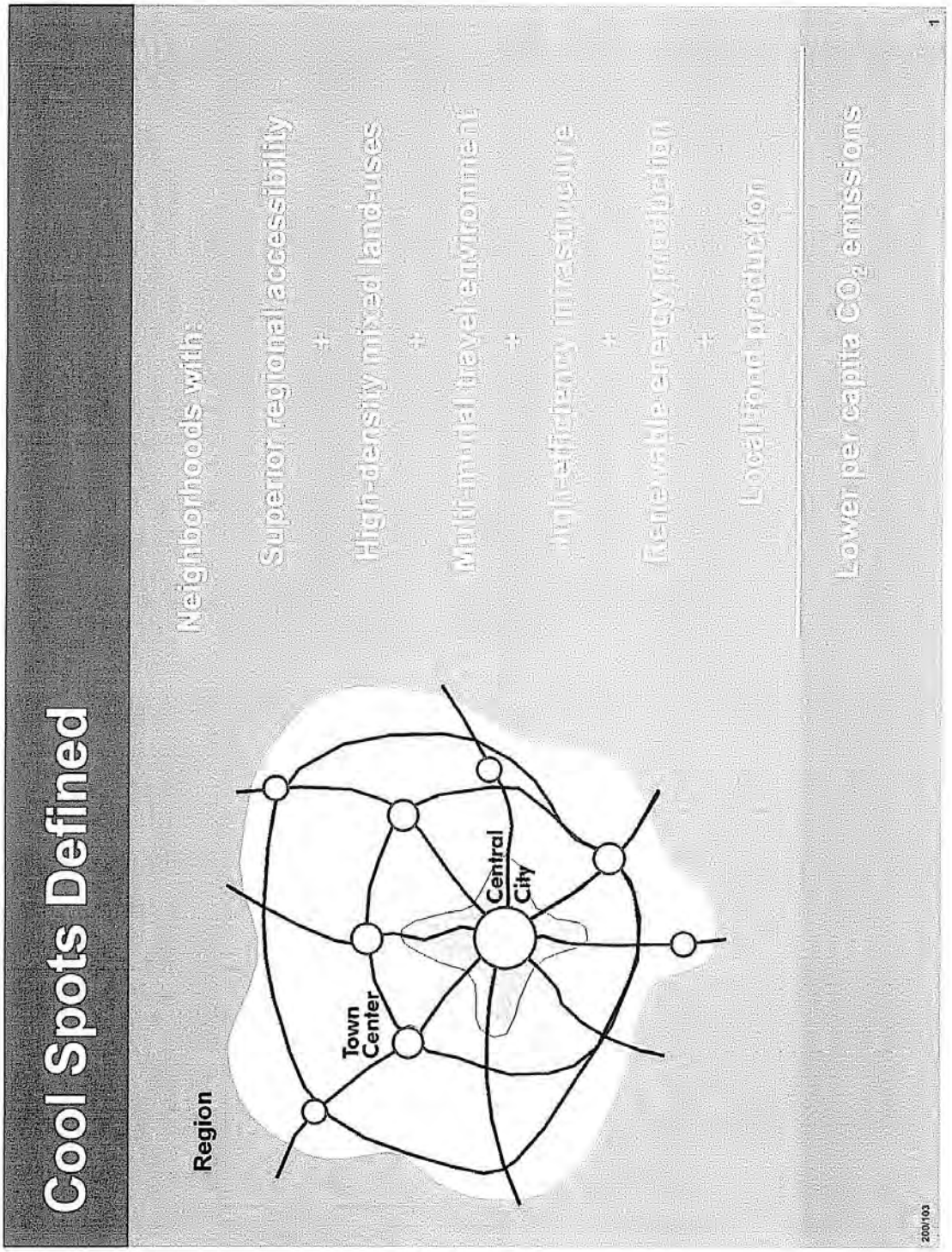

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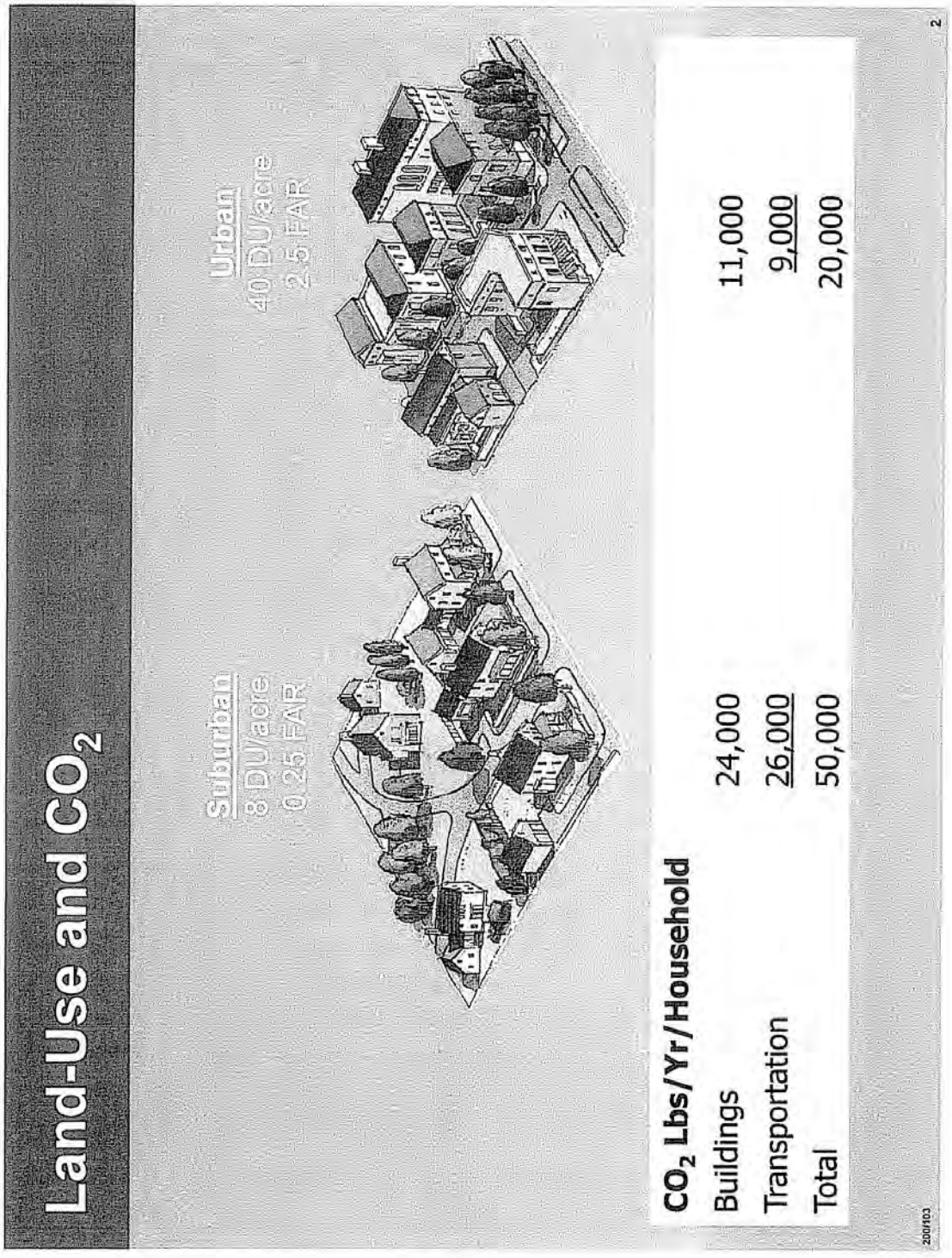

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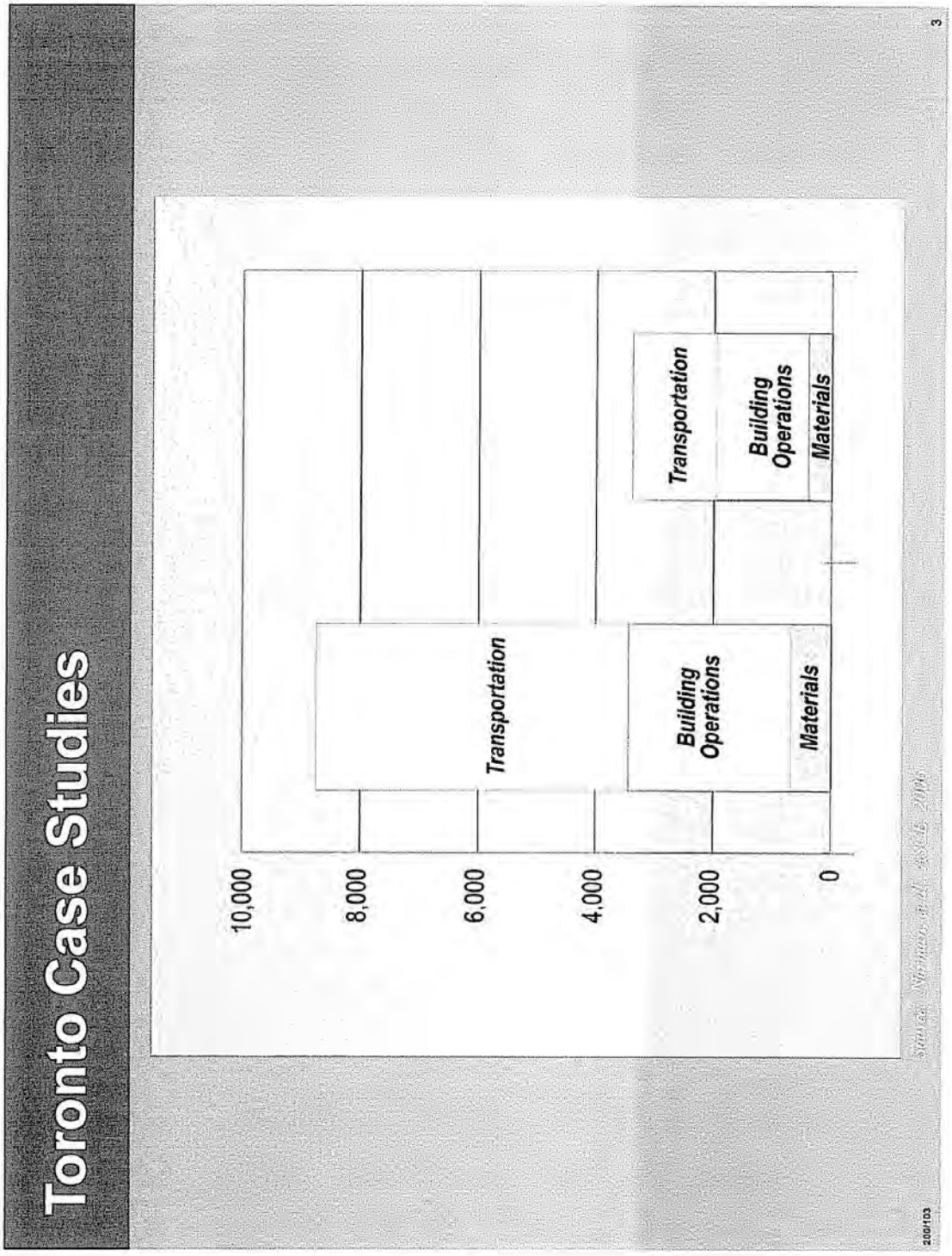

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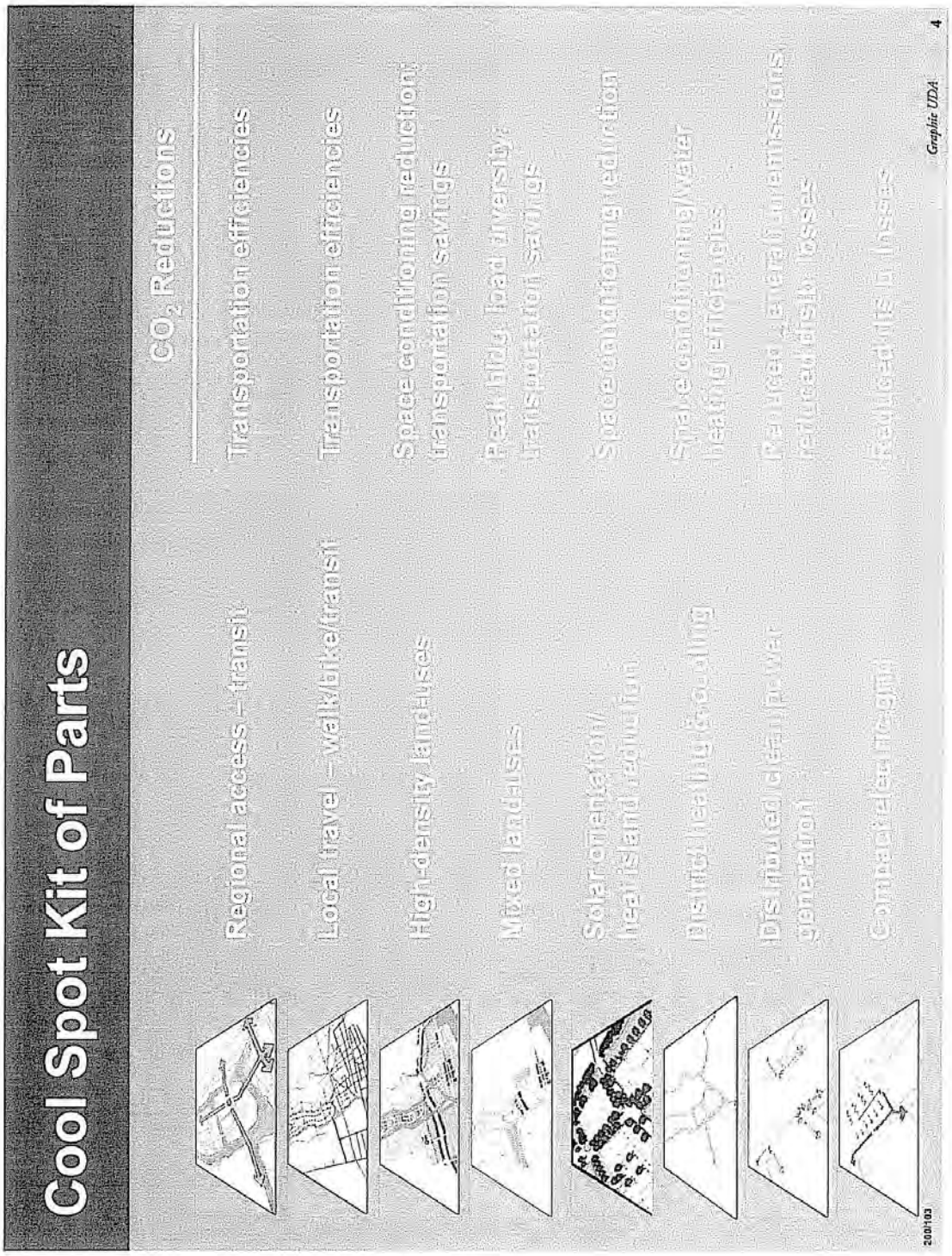

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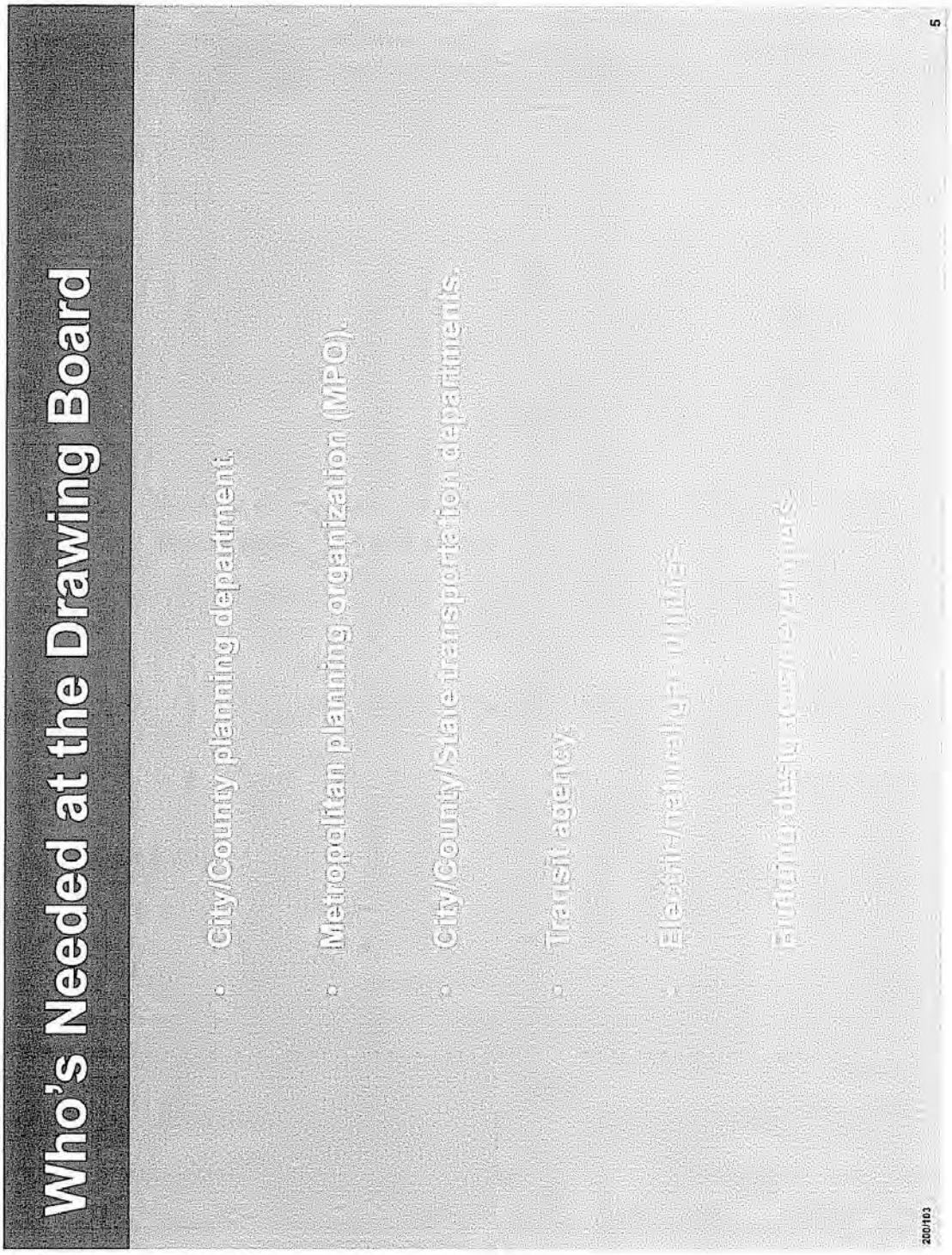

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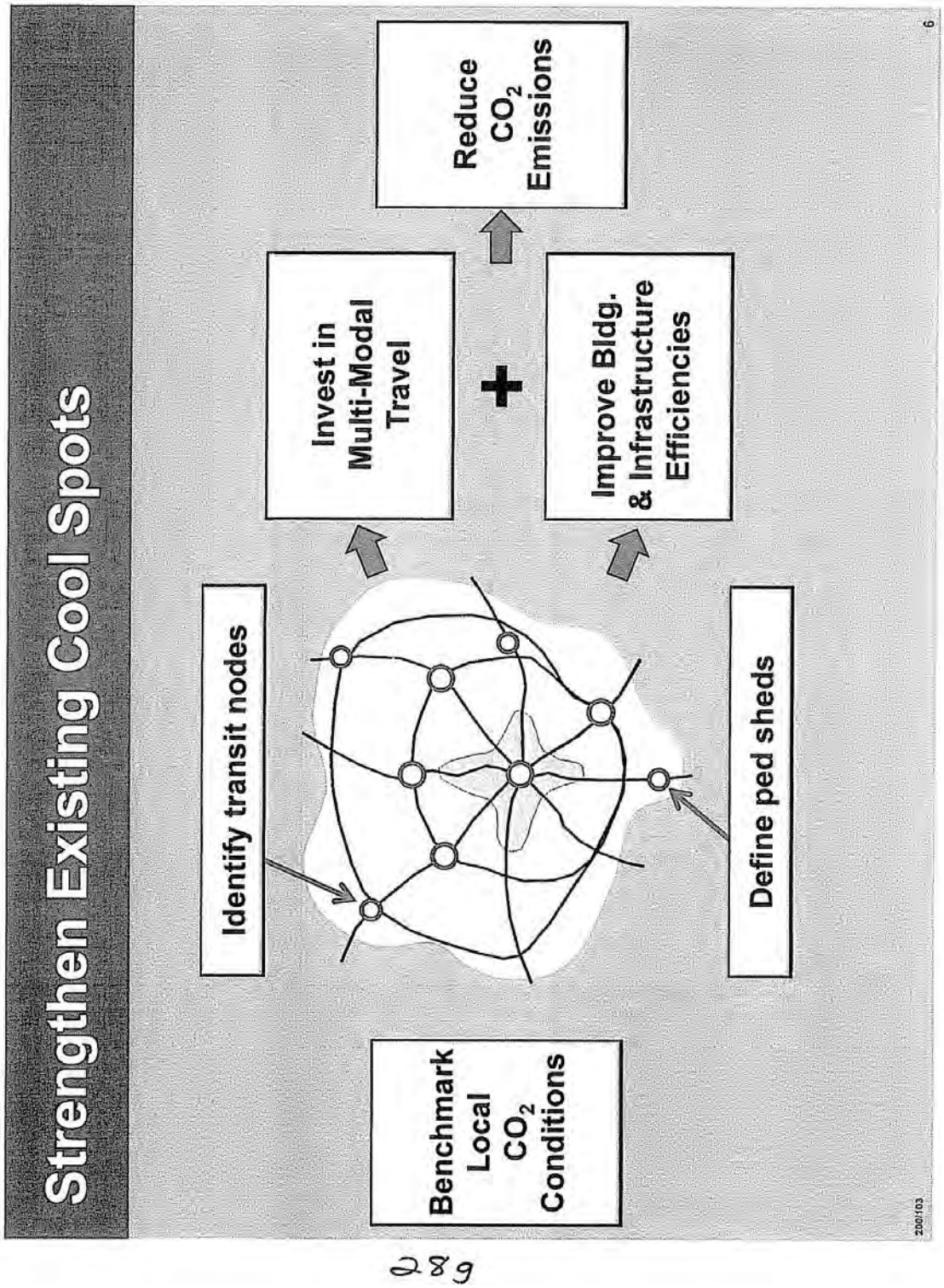

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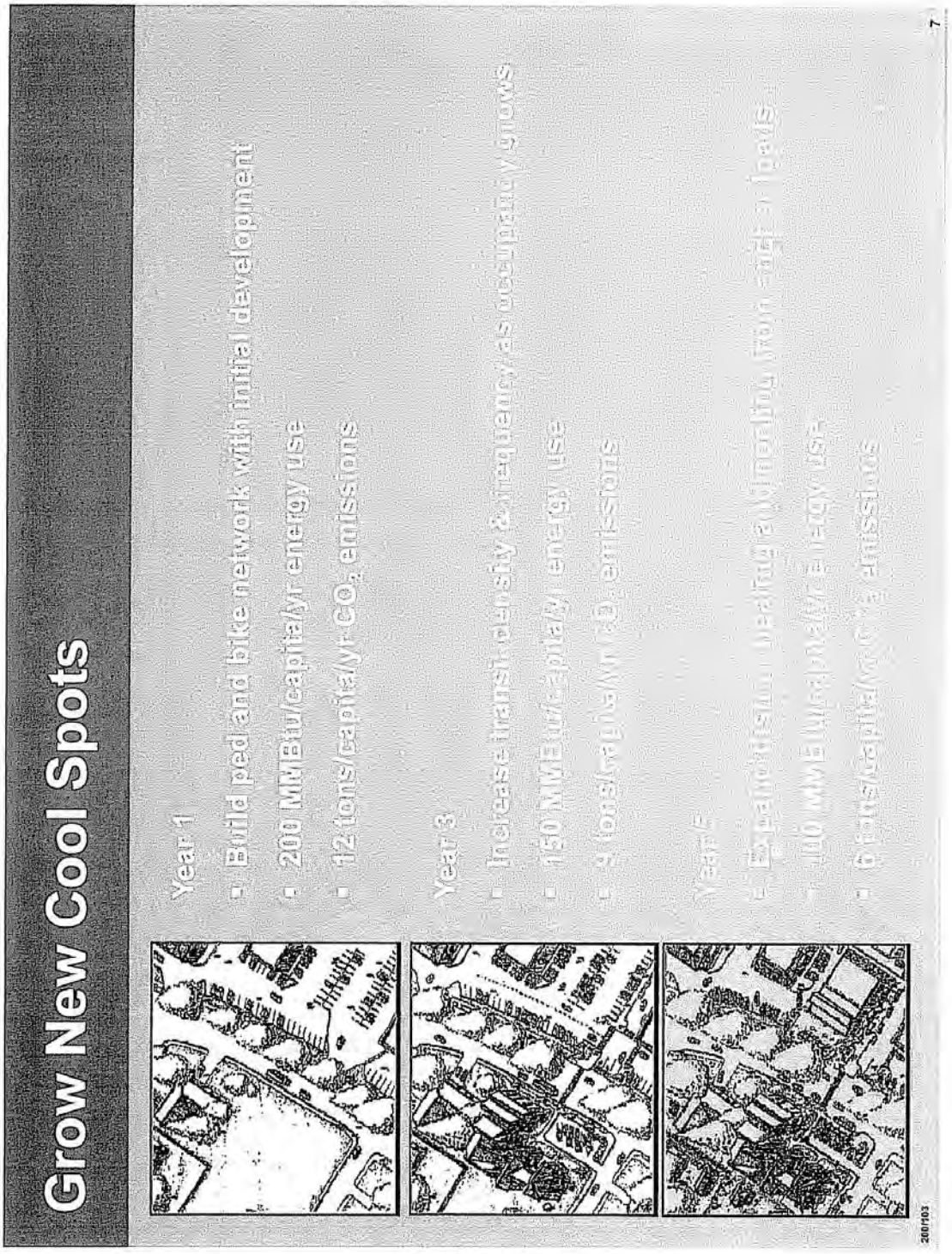

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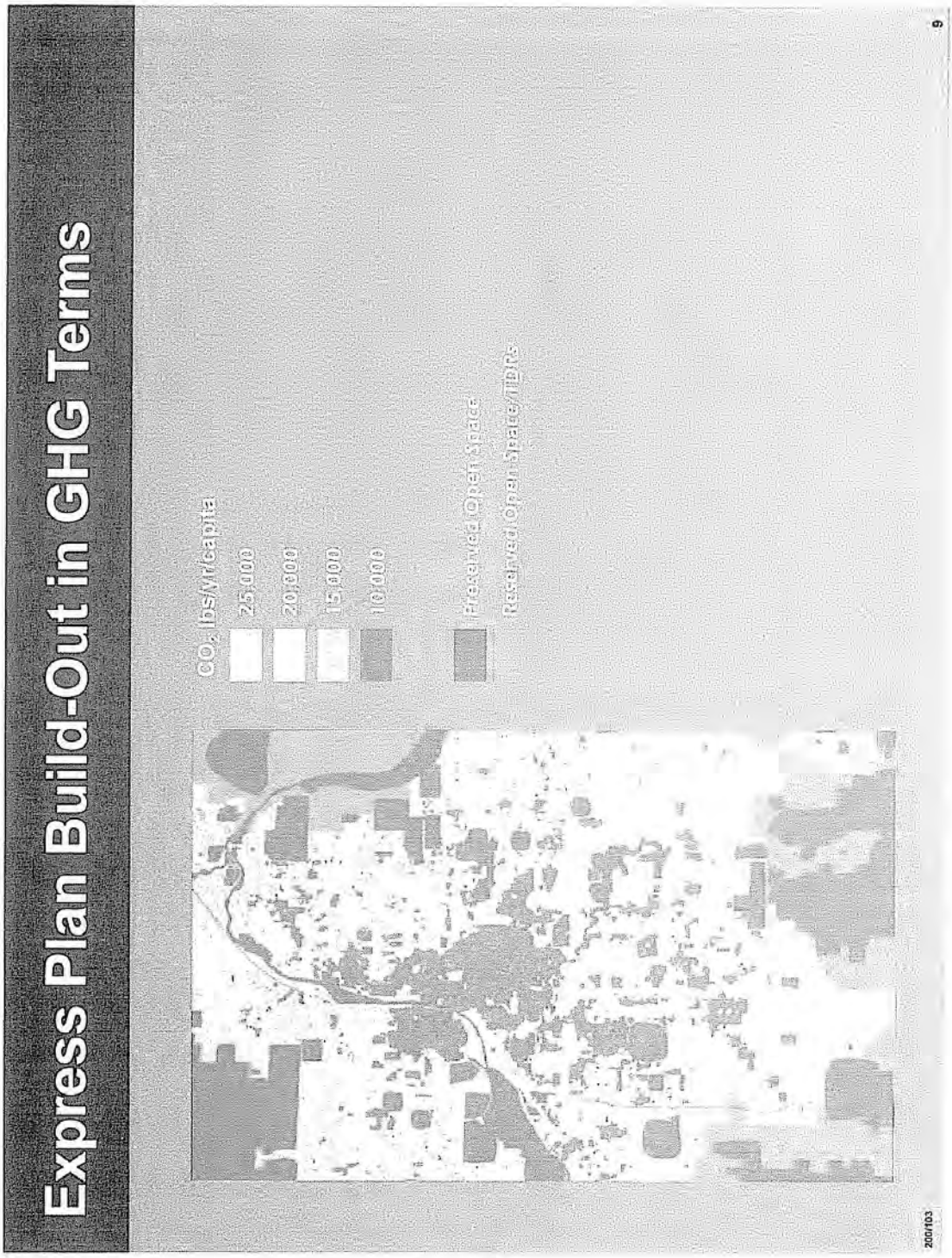

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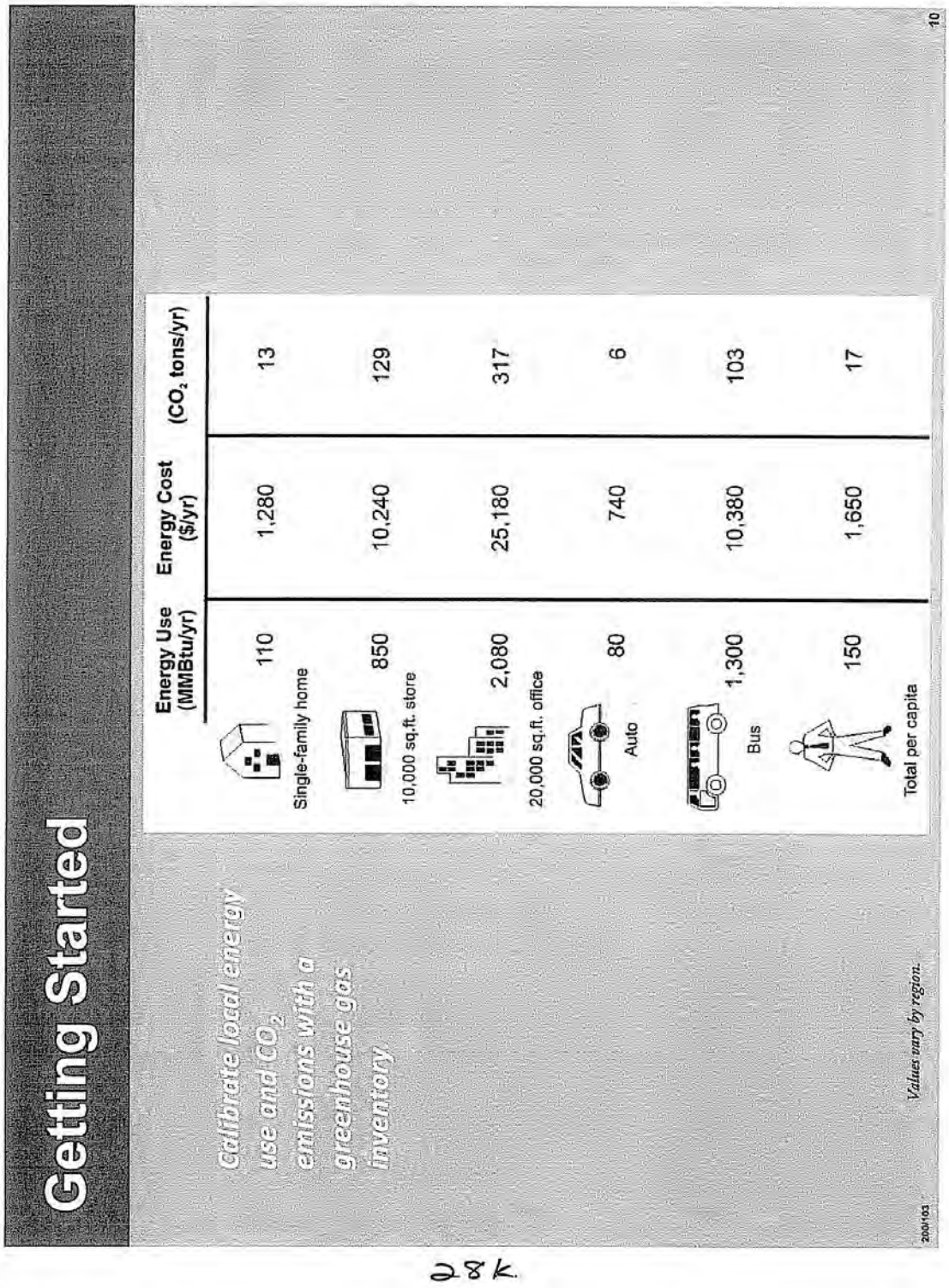

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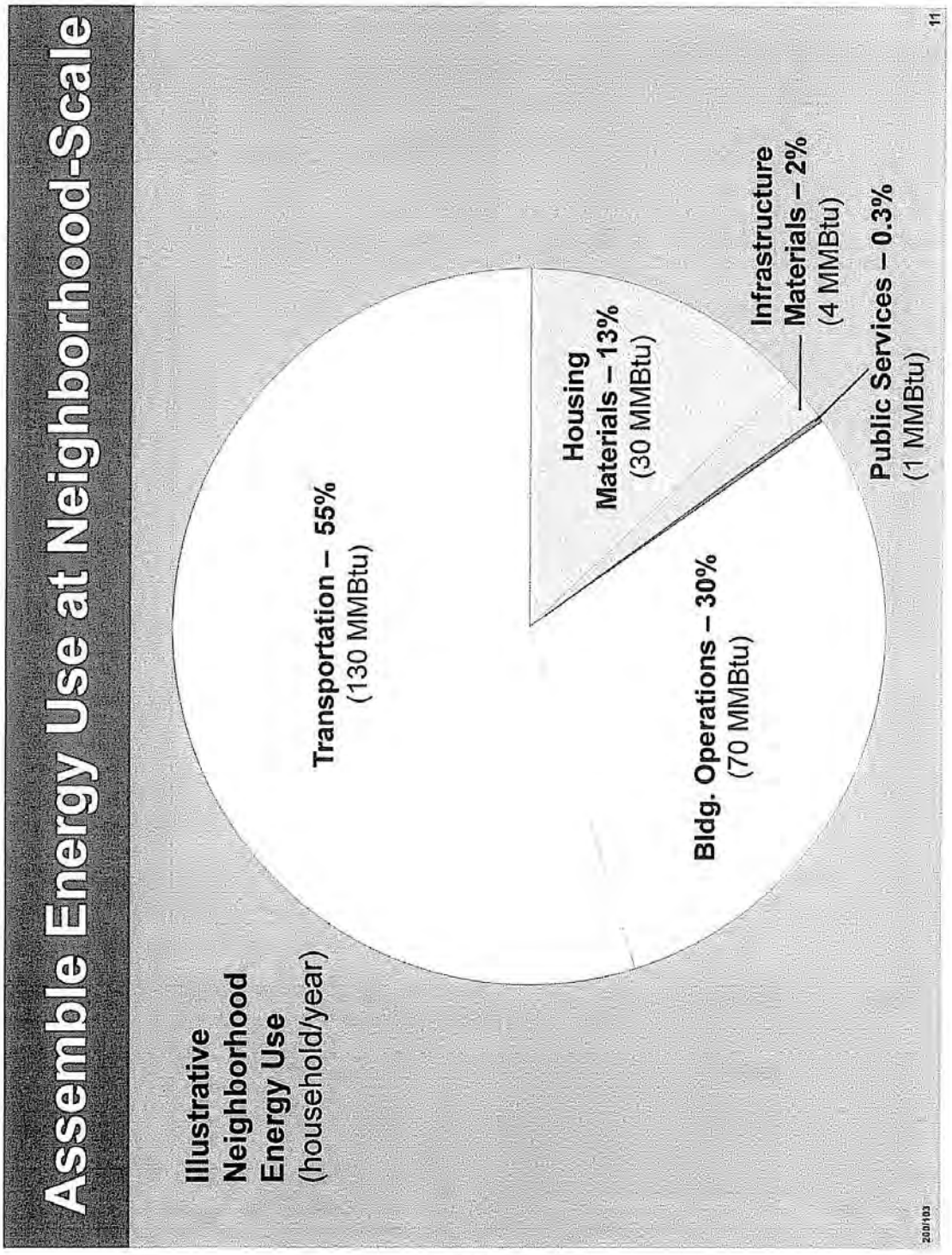

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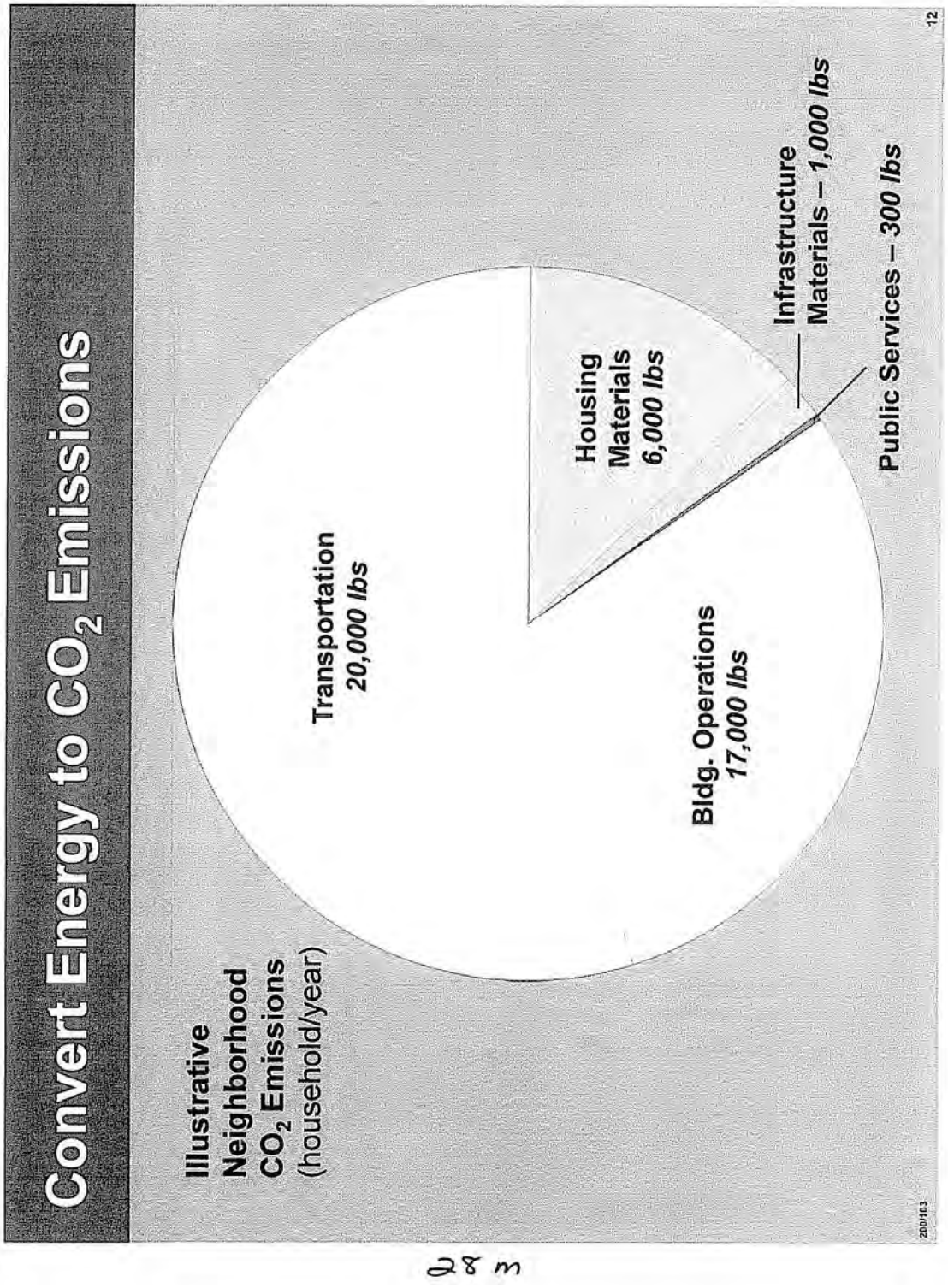

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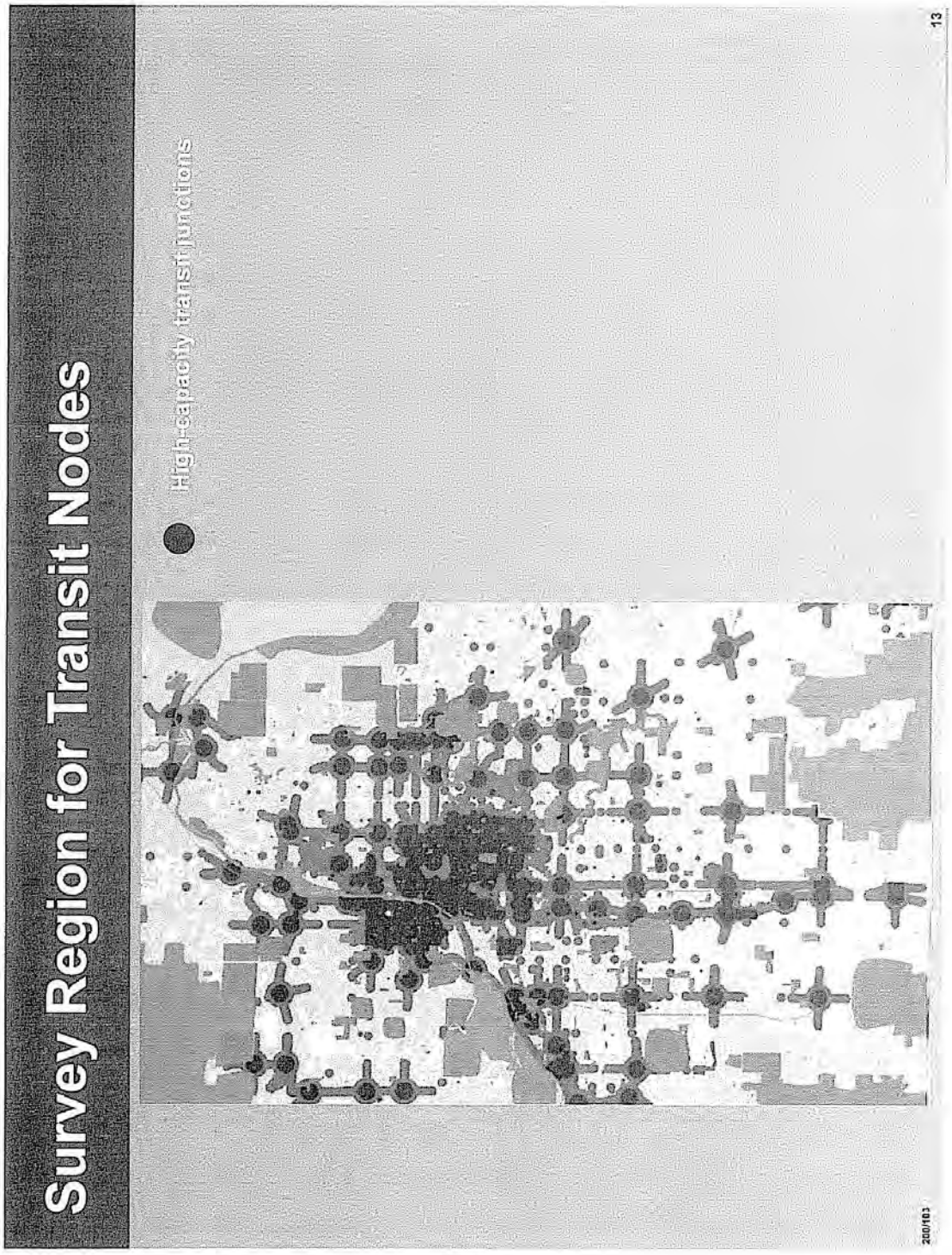

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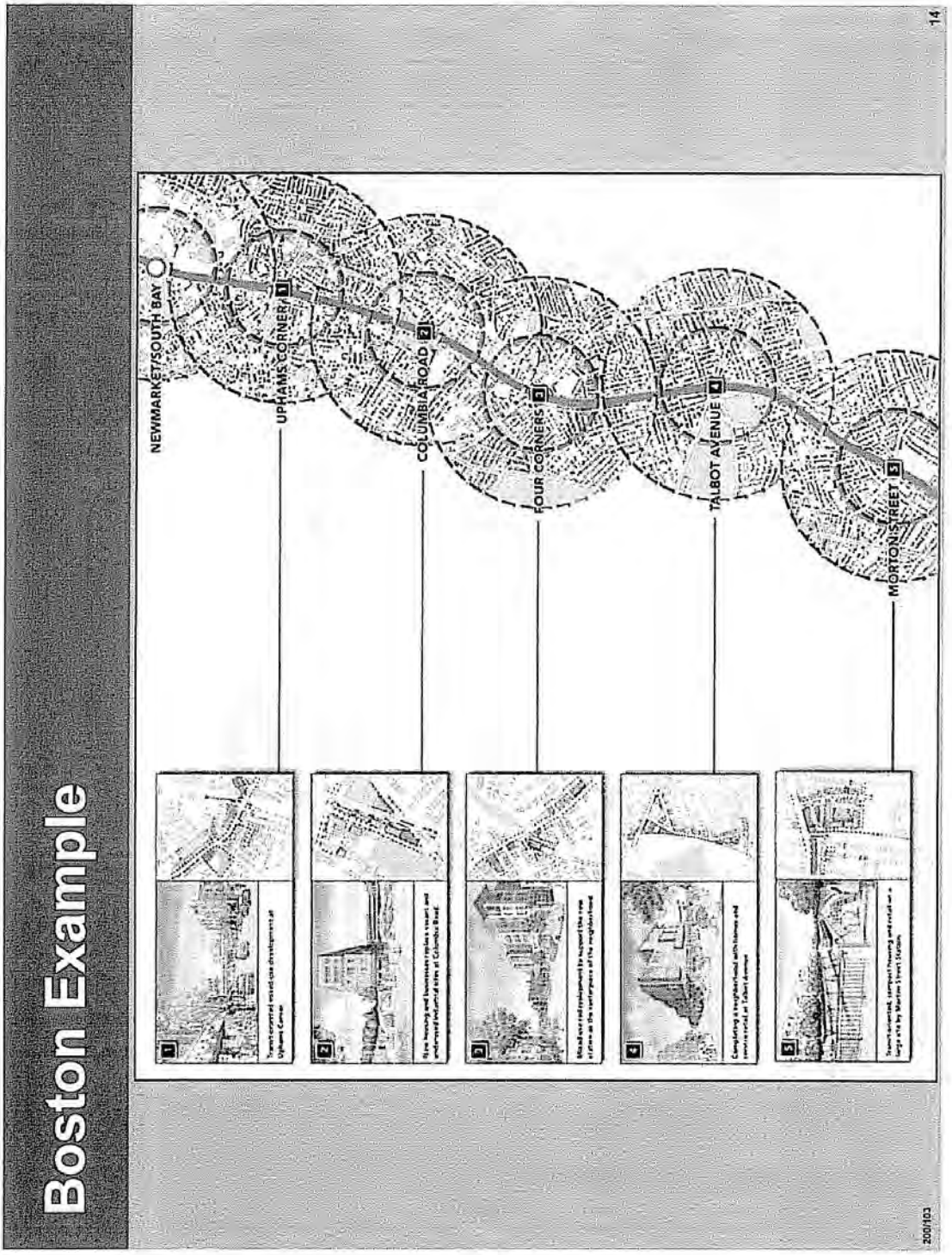

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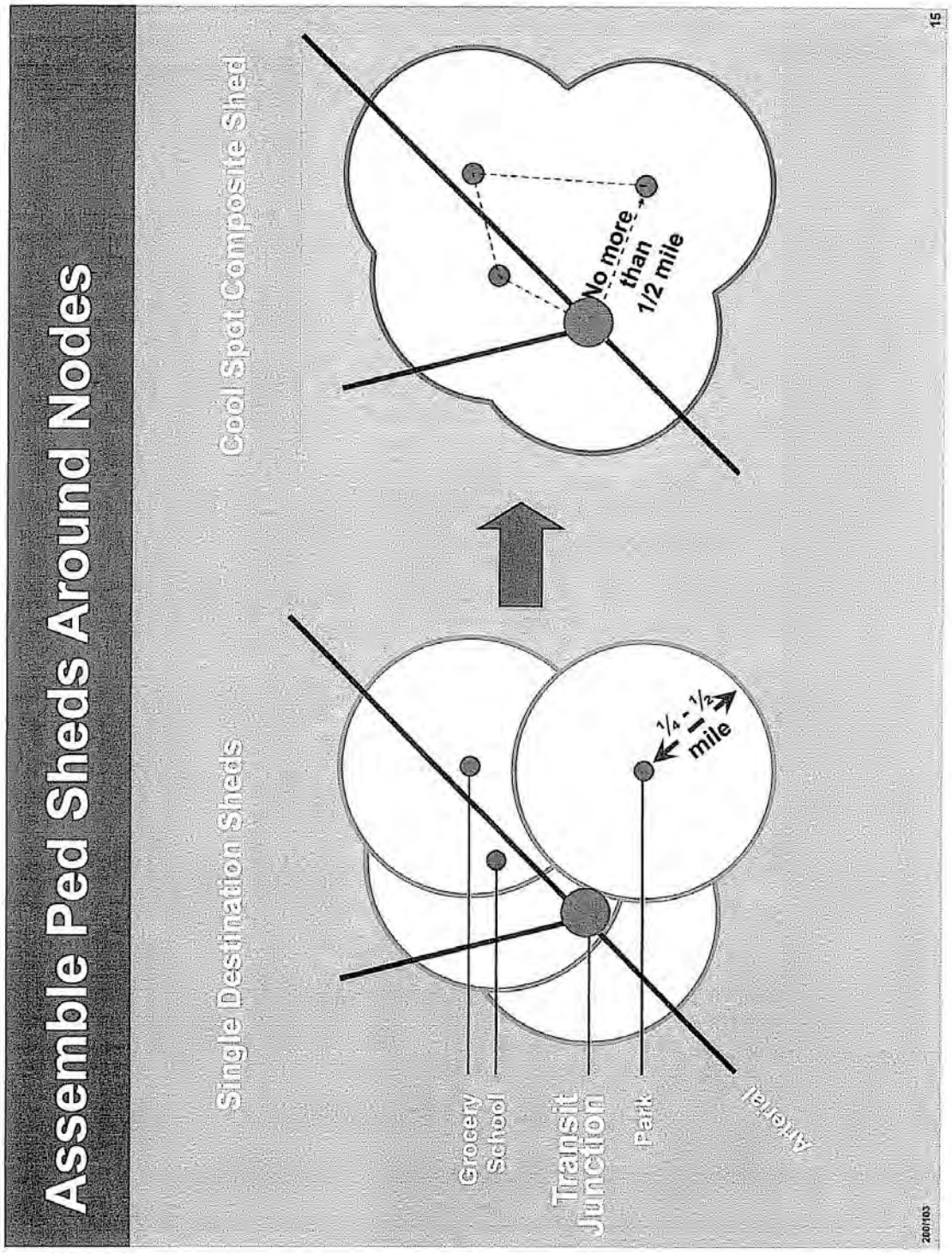

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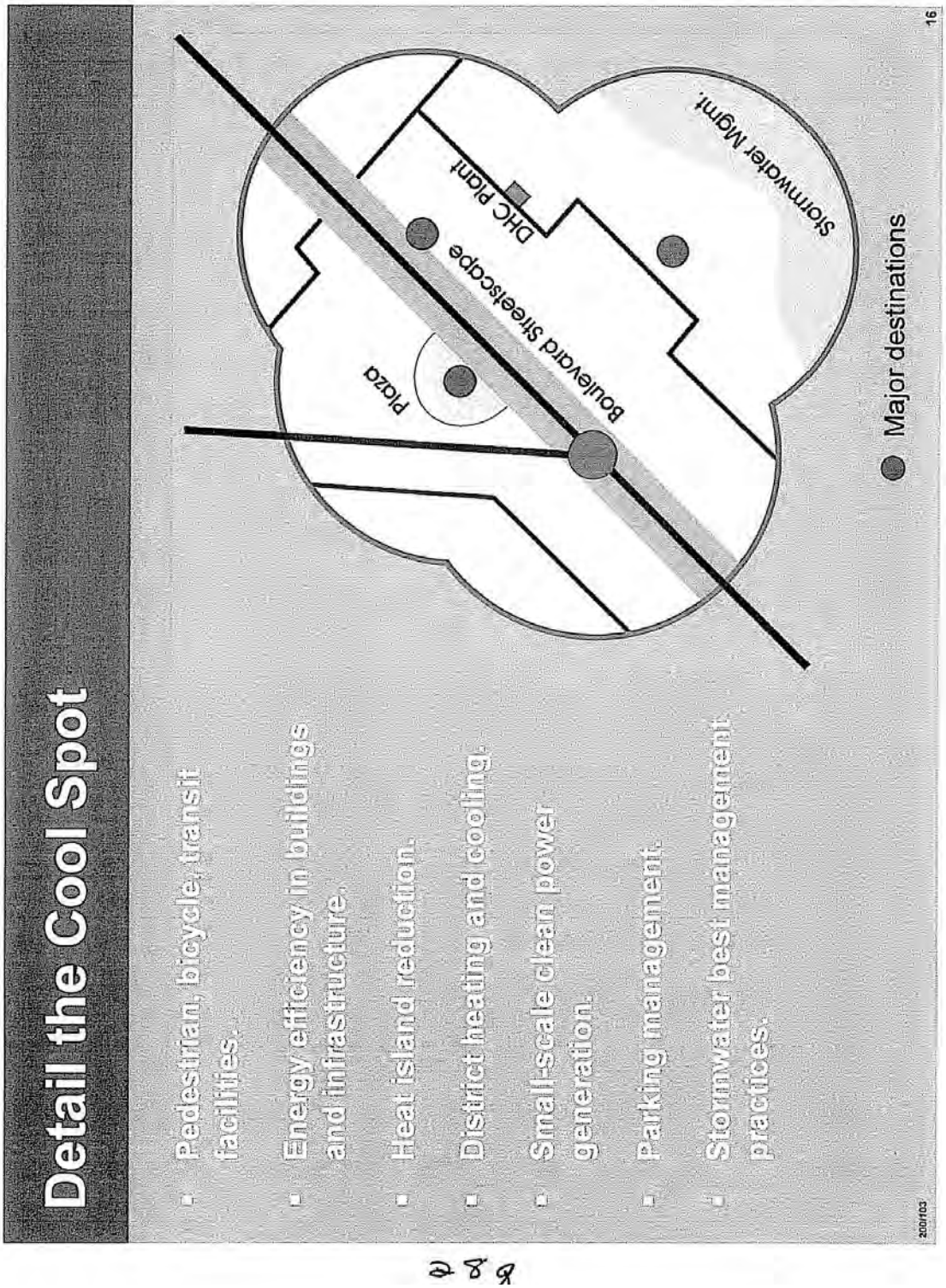

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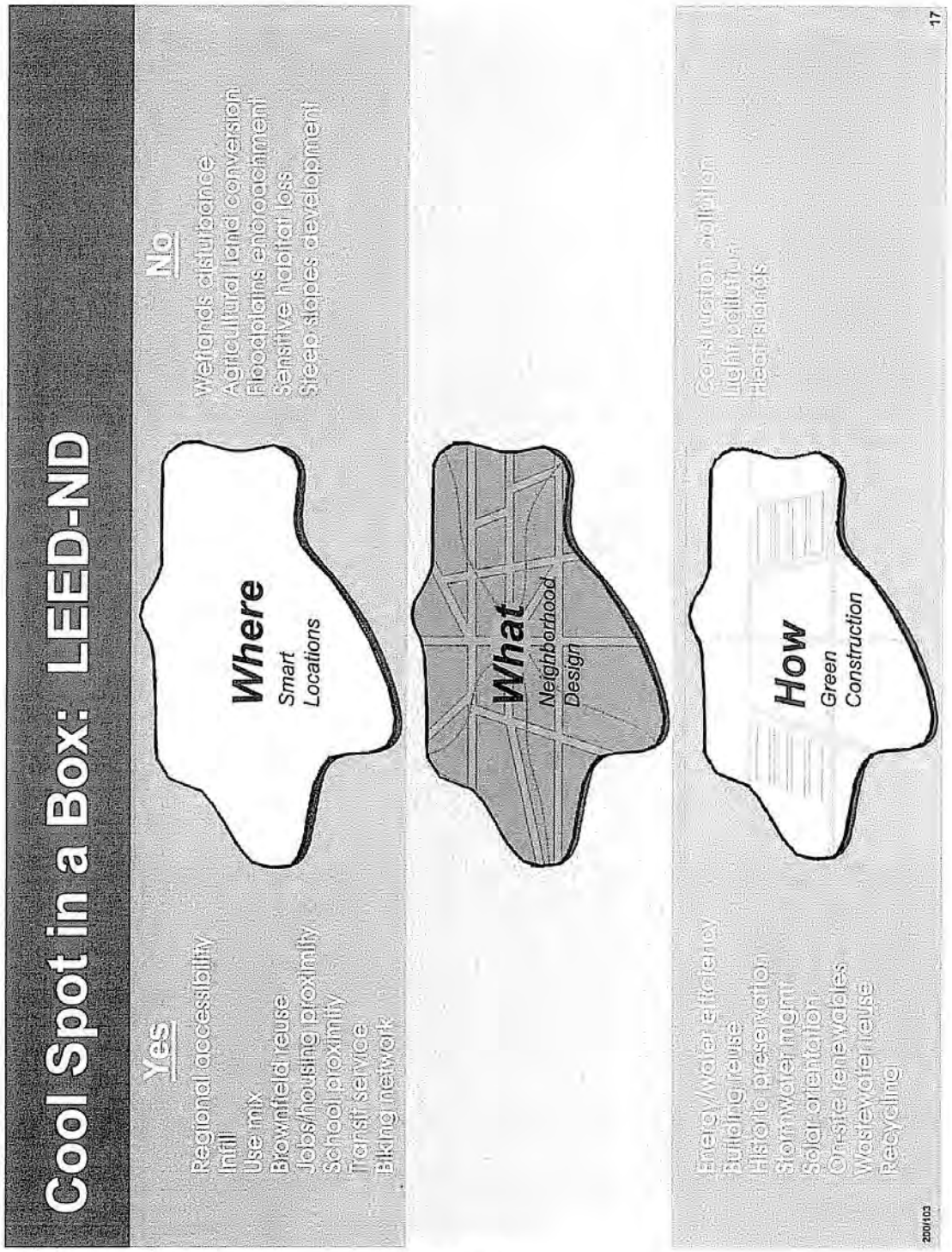

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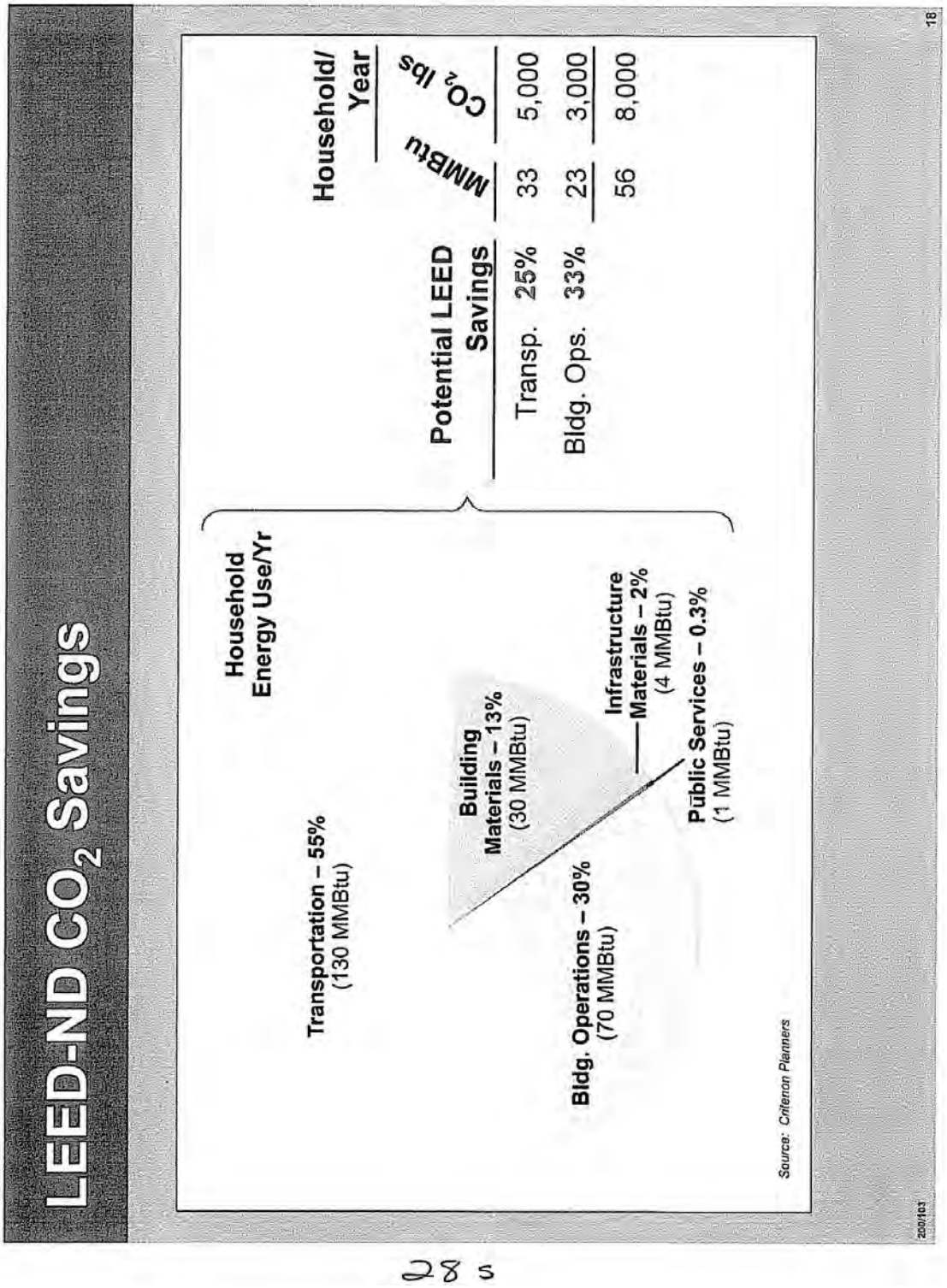

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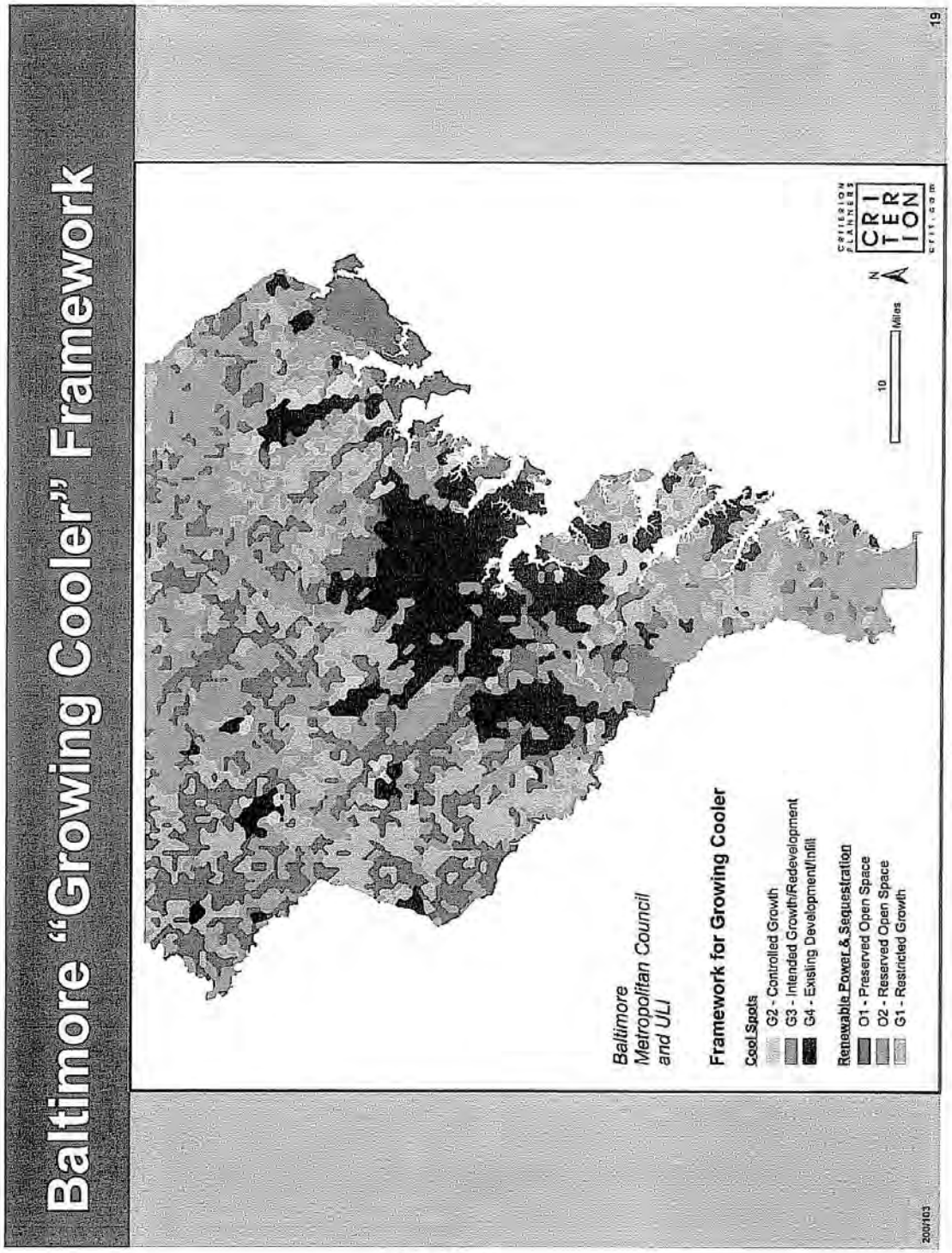

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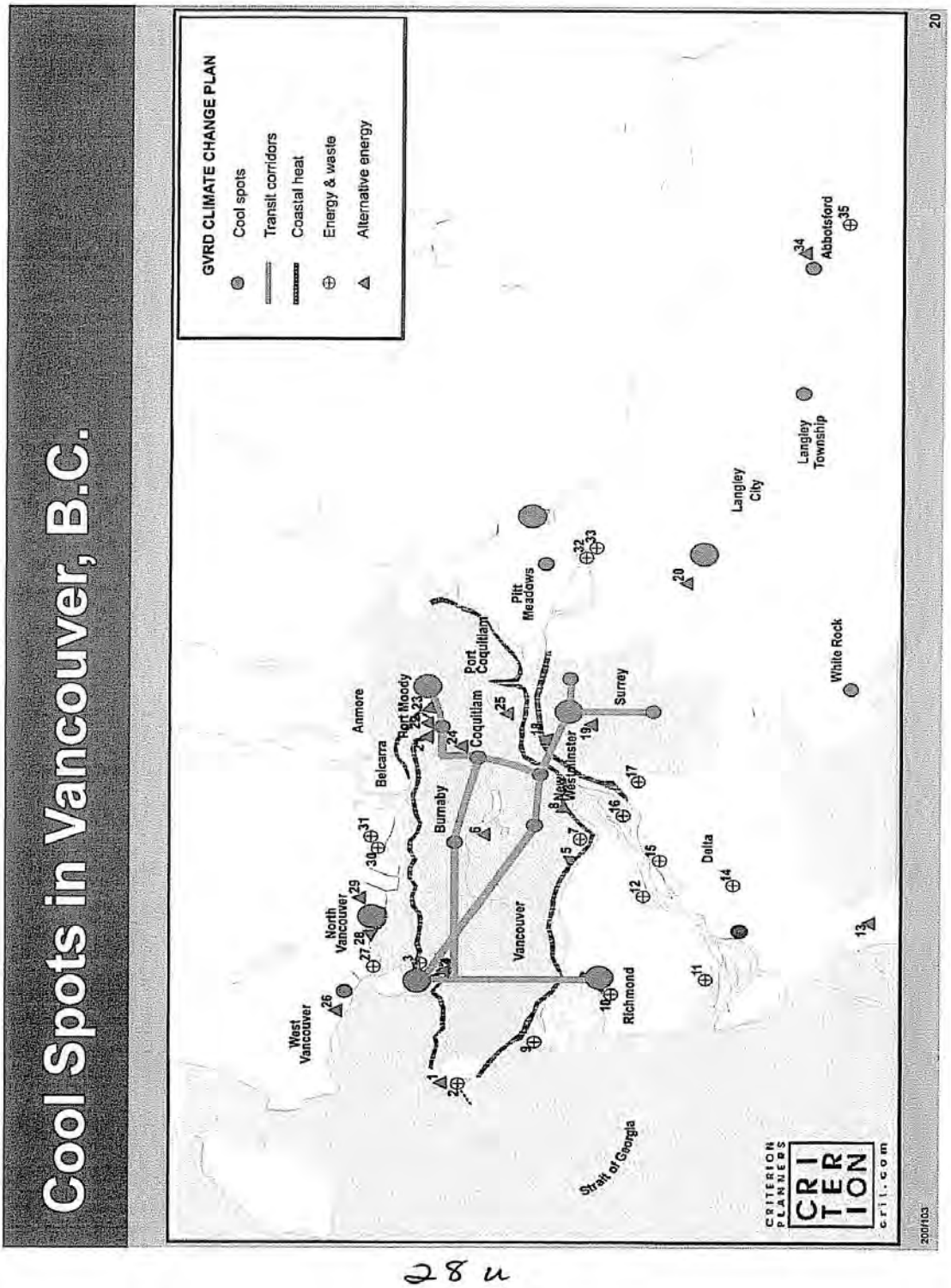

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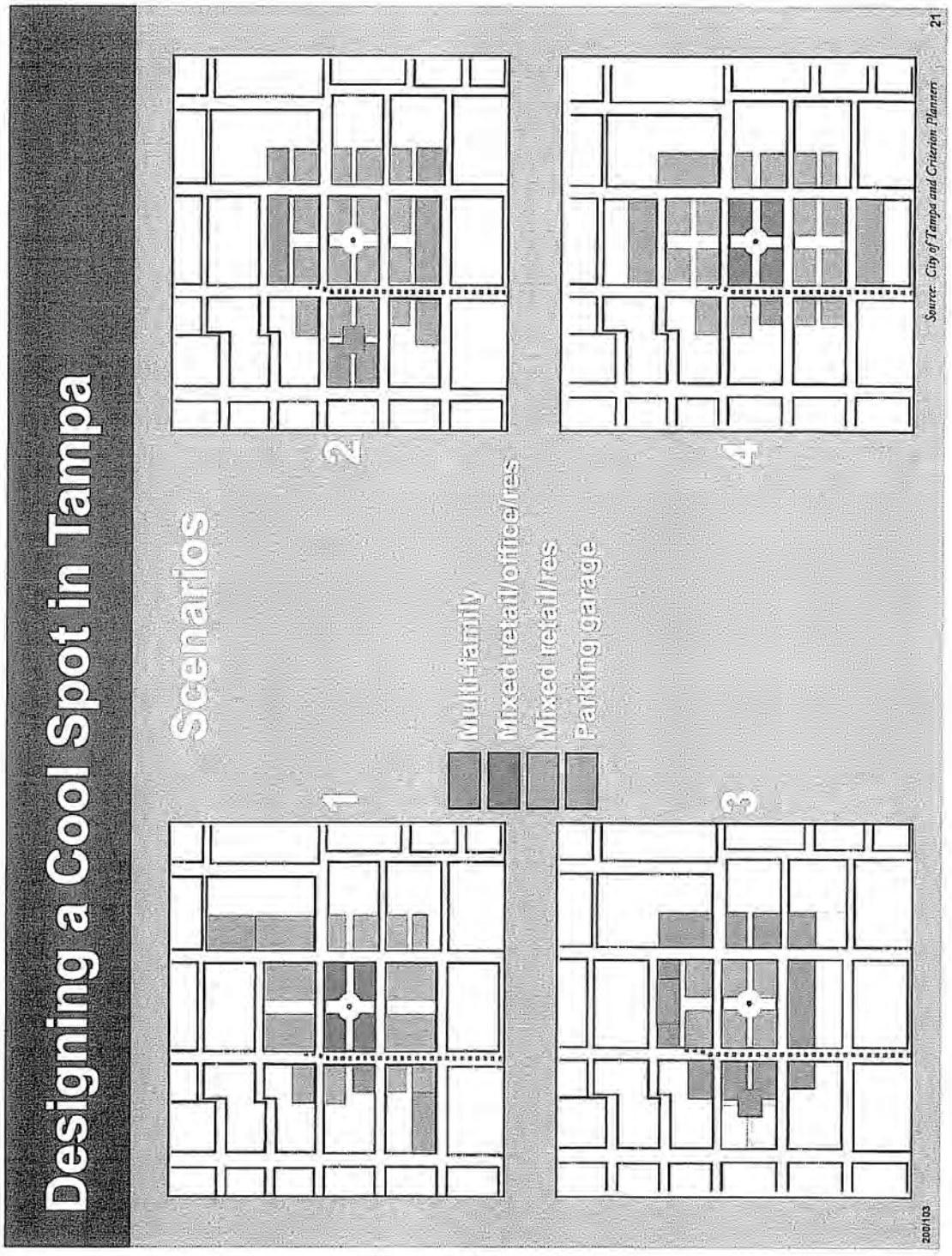

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**Letter 5
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Tampa Cool Spot Scores

INDEX Indicators	Units	Existing Conditions	Goals	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Demographics							
Population	residents	817	open	2,256	1,752	1,367	2,267
Employment	employees	513	open	1,215	971	608	1,316
Population Density	residents/gross acre	7.07	open	19.54	15.17	11.84	19.64
Land-Use							
Use Mix	0-1 scale	0.37	0.50 or more	0.54	0.50	0.44	0.54
Use Balance	0-1 scale	0.73	0.80 or more	0.72	0.75	0.72	0.71
Development Footprint	net acres/1000 residents	95.1	60.0 or less	33.9	44.1	57.1	33.6
Housing							
Dwelling Density	DU/gross acre	3.00	5.00 or more	8.28	6.43	5.02	8.32
Dwelling Unit Count	total DU	346	none	956	742	579	961
Amenities Proximity	avg walk ft to closest grocery	1,244	800 or less	975	934	979	875
Transit Proximity to Housing	avg walk ft to closest stop	622	500 or less	483	479	509	453
Employment							
Jobs to Housing Balance	jobs/DU	1.48	0.90 to 1.10	1.27	1.31	1.05	1.37
Employment Density	emps/net acre	21.44	25.00 or more	41.91	35.46	26.62	40.89
Transit Proximity to Employment	avg walk ft to closest stop	553	500 or less	480	458	523	442
Recreation							
Park/Schoolyard Space Supply	acres/1000 persons	3.8	4.0 or more	1.5	2.0	2.5	1.5
Park/Schoolyard Proximity to Housing	avg walk ft to closest park/schoolyard	1,306	800 or less	893	921	978	880
Travel							
Home Based Vehicle Miles Traveled	mi/day/capita	18.0	15.0 or less	13.8	14.2	14.9	13.6
Environment							
Carbon Dioxide Emissions	lbs/capita/yr from HB VMT	8,395	7,000 or less	6,415	6,644	6,933	6,361

Source: INDEX

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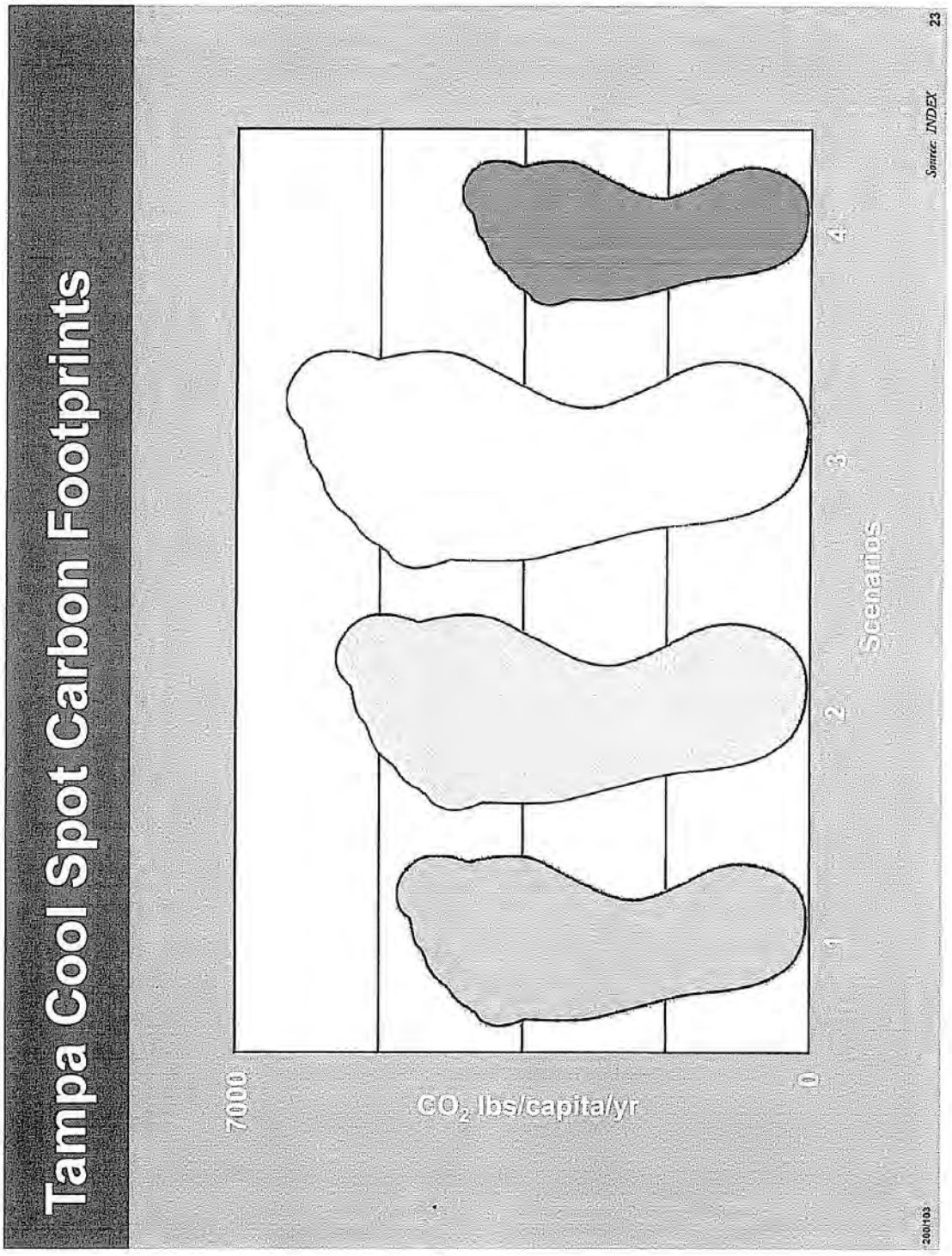

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Cool Spot in Lafayette CA for SB375

Downtown Action Measures	CO2 Reduction Targets @ % Downtown Emissions by End-Use					
	Buildings					
	Space Conditioning	Water Heating	Power	Transportation Fuels	Infrastructure Power	
Buildings						
LEED building certification	10	10	10			
Solar thermal		5				
Solar power			5		5	
Land-use density	5			3		
Land-use mix	5	2		3		
Increased housing	3			5		
District cooling/cogen	5	5	5			
Heat island reduction	2					
Transportation						
Pedestrian facilities				2		
Bicycle facilities				2		
Transit service				2		
Parking management				2		
Infrastructure						
Lighting/pumping efficiency					10	
Total	**30**	**22**	**20**	**19**	**15**	

200/103

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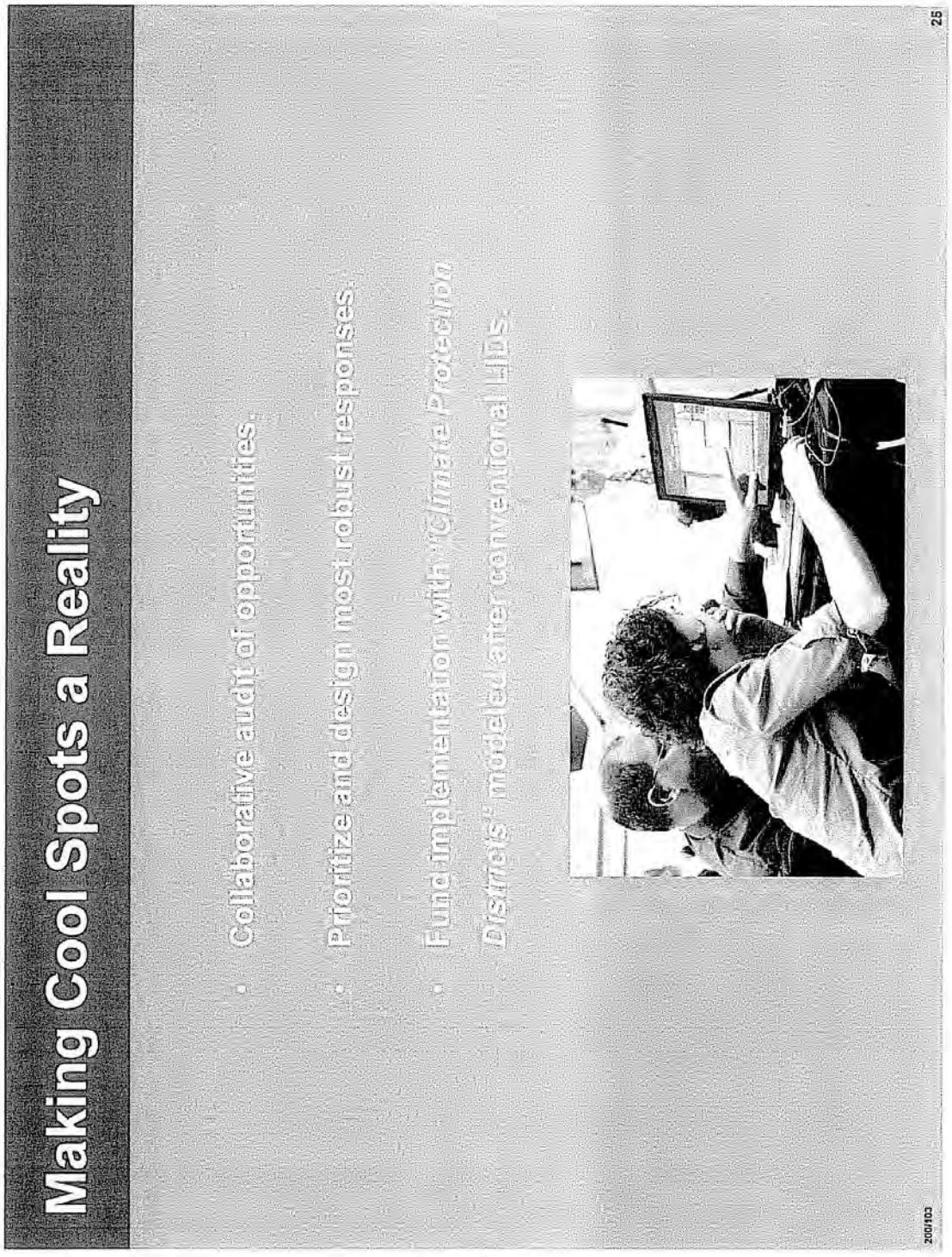

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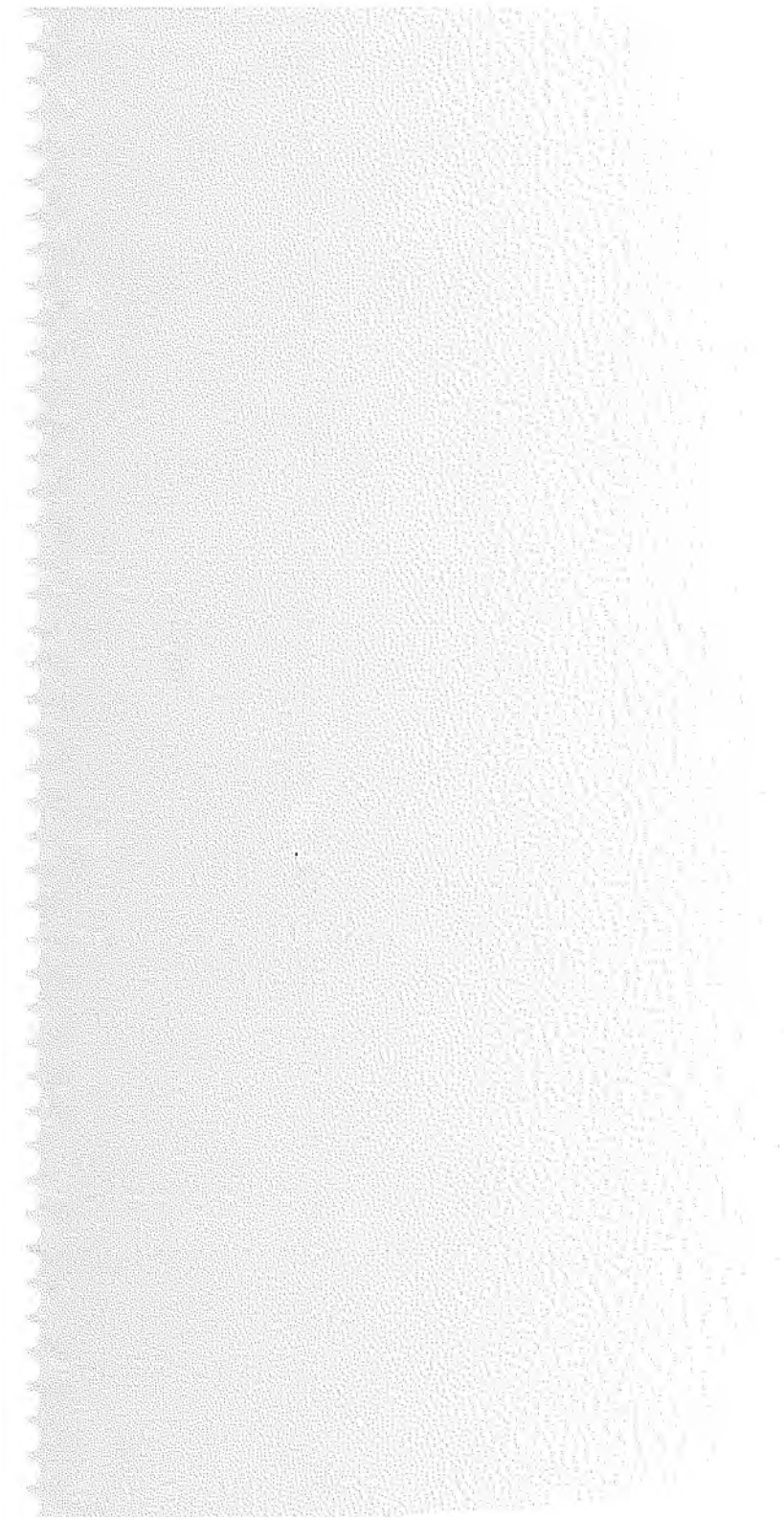

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Appendix E

SCNA Comments regarding the Land Use section of the CPV DEIR

The project, as described, is not consistent with the 2030 General Plan's land use designations.

1. The Shopping Center (commercial) zone in the proposed project is NOT compatible with the General Plan's designation of Traditional Center, and as a result, is incompatible with adjacent land uses.

5-159 The 2030 General Plan reflects three types of land uses for the project (pages 4-2 – 4-4): Traditional Center, Traditional Neighborhood Low Density (3-8 dwelling units/acre) and Traditional Neighborhood High Density (18 – 36 du/A). The DEIR incorrectly identifies PUD as a land use designation; it is not. The underlying land use zones are not eliminated by creating a PUD overlay.

5-160 The DEIR incorrectly and artificially identifies three separate and distinct Commercial Areas then proceeds to analyze compatibility and impacts of the proposed project using these three separate commercial areas (pages 4-13 and 4-14). This is misleading because there is, in reality, one commercial area based on the project's proposed Tentative Map and Zoning described in the DEIR. The artificial and arbitrary line drawing of the " three" commercial areas leads to many false conclusions including most importantly, that the proposed project is compatible with the Traditional Center zone set forth in the 2030 Sacramento General Plan.

5-161 The failure to accurately identify the commercial shopping center and adjacent commercial parcels in the proposed project in a fashion consistent with the project's proposed zoning makes it impossible to identify and analyze all of the potential impacts as required by CEQA. The DEIR fails to identify potentially significant impacts of the commercial zoning as a direct result of its use of the arbitrarily drawn lines around the Areas 1, 2 and 3 in the Land Use section.

5-162 In addition, Chapter 4, page 4-11, misstates the General Plan zoning definition of Traditional Center. It claims the Traditional Center encompasses three Commercial Areas described in the DEIR that include single family housing, multifamily housing, and senior apartments. These residential uses are not found in the GP designation of Traditional Center. The area of the proposed project referred to as the project's "Traditional Center" is in fact exclusively a shopping center.

5-163 The project proposes single family housing and brownstones in the General Plan's Traditional Neighborhood Low Density zone. The senior apartments on the GP map are proposed to be located in the General Plan's Traditional Neighborhood Low Density zone and the GP zoning for the project's multifamily housing is Traditional Neighborhood High Density. It is incorrect and misleading to artificially combine these separate zoning uses under the heading of Traditional Center or any of the artificially created Commercial Areas 1, 2 or 3 as outlined in the DEIR. The CEQA analysis incorrectly concludes that the CPV shopping center is a

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5-163 cont. Traditional Center and the proposed project is consistent with the 2030 General Plan. Both of these conclusions are wrong.

5-164 The Traditional Center designated in the proposed project's land use map, Tentative map, and the Zoning map comprise 20.7 acres; this area is also designated as "shopping center" (Table 3, page 3-11). The three artificial Commercial Areas, capturing residentially designated land in the General Plan, are not consistent with the project's tentative map (page 3-6) or its zoning map (page 3-7) in the DEIR, since they grab land uses and acreages designated in the General Plan as Traditional Neighborhood Low and High Density residential.

2. The Sacramento 2030 General Plan Designation of Traditional Center for the Project Area Is More Compatible with Adjacent Neighborhoods than the Suburban Center Reflected in the Proposed Project and a Traditional Center Would Potentially Avoid Significant Impacts of the Proposed Suburban Center Which Were Not Correctly Identified.

5-165 The Traditional Center designation for the southern commercial portion of the proposed project was selected precisely because the Urban Form Guidelines and Allowed uses of a Traditional Center are much more compatible with adjacent neighborhoods than a Suburban Center. (See Table below). A Traditional Center would reduce potentially significant visual and aesthetic impacts compared to those imposed by a suburban shopping center complex in the proposed project.

5-166 The DEIR fails to identify the visual and aesthetic impacts of the proposed Suburban Center since it fails to properly identify the type of shopping center described in the proposed project. By incorrectly identifying the correct zoning designation for the proposed project's shopping center complex, it fails to evaluate any of the potential impacts. The more consistent General Plan land use designation for the proposed project's commercial zoning is Suburban Center. (See 2030 General Plan p 2-66). Had the correct type of Center been identified in the DEIR, the evaluation of potential impacts might have followed. The DEIR completely omits an evaluation of potential impacts of the shopping center by miscategorizing its type.

5-167 The parking lot design of the proposed project is entirely consistent with a Suburban Center but entirely inconsistent with parking for a Traditional Center. The parking lot design of the proposed project creates a traffic hazard because it is too large and its design impedes safe pedestrian and bicycle access. By contrast, a Traditional Center features smaller rectangular blocks and includes roads, with sidewalks, that run through a Traditional Center leading to and from the various stores facilitating bicycle and pedestrian access.

5-168 The adverse impacts of the proposed Suburban Center, had these impacts been properly identified and evaluated, could possibly be avoided by simple land use changes. The most obvious change needed to avoid these significant impacts and bring the proposed project's shopping center a little closer to compliance with the Traditional Center designation is creation of a street bisecting the 20.7-acre-shopping zone, connecting Road A to Road C. This road is shown on maps distributed by the developer in public meetings as a 30-foot roadway/utility easement. This street would accommodate two-way vehicular traffic, provide moderately wide

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5-168 cont.

sidewalks for pedestrian use, and increase modes of accessibility. The new street would just barely begin to bring the proposed project's shopping center a bit closer to the required General Plan Traditional Center by attempting to replicate the traditional street grid called for in the Traditional Center Urban Form Guidelines and found in the adjacent neighborhood. Other land use changes should be considered to help the proposed project more closely match the General Plan designation of Traditional Center. The new street would create a rear access to the shopping center for pedestrians and vehicles. The new street would allow for the relocation of proposed buildings to permit wrap-around parking and eliminate the unsightly sea of parking that dominates the project's shopping center suburban layout.

LU 5 on p. 2-68-69 describes the Urban Form Guidelines and Allowed Uses for the Traditional Center zone. The proposed project's Shopping Center's site layout and scale fail to meet most of these Urban Form Guidelines.

Traditional Center: Urban Form Guidelines and Allowed Uses

Small Rectangular Blocks allowing for convenient pedestrian access from adjacent areas	Does not meet; no street grid in shopping center of proposed project
Relatively small and narrow lots, a fine-grained development pattern	Does not meet; large suburban layout; no internal sidewalks.
Building Heights ranging from 1-4 stories	Single story commercial with no variation
Buildings sited at or near the sidewalk	Does not meet; most buildings face huge parking lot, not streets.
Rear alleys and secondary access to reduce the need for curb cuts on the primary street	Rear service road provided for trucks for shopping center; does not meet
Parking provided on-street as well as in individual or shared lots at the side or rear of structures, or in screened parking structure.	Large open parking lot with no wraparound parking; like suburban shopping center.
Transparent building frontages with pedestrian-scaled articulation and detailing.	Grocery store not likely to have transparent building front. No street sidewalks in front of stores.
Moderately wide sidewalks furnished with street trees, outdoor seating areas, etc.	Some planned; but not many on streets; more in front of stores facing parking lot.
Public streetscapes serving as center's primary open space, complemented by outdoor seating, plazas, courtyards and sidewalk dining areas	Unclear; possible if restaurants relocated to SC area #1 and public plaza incorporated.

5-169

5-170 **The DEIR's Analysis Fails to Consider the Shopping Center's Incompatibility with Design Guidelines as a Significant Impact to Aesthetic Resources (page 5.1-8 and 9).**

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The DEIR lists the City's goals, policies, and urban design elements applicable to aesthetics. The proposed shopping center is incompatible with all the guidelines and requirements in the following list (page 5.1.6 and 7), but no adverse impacts are identified nor mitigation measures proposed.

LU 2.7.6 – "Walkable Blocks. The City shall require new development and redevelopment projects to create walkable, pedestrian-scaled blocks, publicly accessible mid-block pedestrian routes, where appropriate, and sidewalks appropriately scaled for the anticipated pedestrian use."

5-170 cont. LU 2.7.7 – "Buildings that Engage the Street. The City shall require buildings to be oriented to and actively engage and complete the public realm through such features as building orientation, build-to and setback lines, façade articulation, ground-floor transparency, and location of parking."

LU 5.1.5 (Traditional Centers) – Vertical and Horizontal Mixed-Use: "The City shall encourage the vertical and horizontal integration of uses within commercial centers and mixed-use centers, *particularly residential and office uses over ground floor retail*." (Emphasis added)

5-171 See General Plan LU 5.4.2 which describes the type of suburban shopping center that the City wants to abolish by complete reconstruction. The unfortunate truth is that this goal describes exactly the same type of shopping center that the proposed project presents. LU 5.4.2 (page 5.1-9) would replace surface parking with structured parking, replace parking area drive aisles with pedestrian-friendly shopping streets, infill parking areas with multi-story mixed-use buildings, and create attractive, well-appointed streetscapes and plazas. The proposed project includes very little, if any, of these features of a Traditional Center.

5-172 To be compatible with the City's new guidelines and requirements, the proposed shopping center would have to be completely redesigned. The DEIR does not even consider this incompatibility, although it states (page 5.1.8) that "for the purposes of this EIR, an impact to aesthetic resources would be considered significant if the proposed project would…conflict with design guidelines applicable to the project site." This circuitous argument ignores the bones of the General Plan's detailed description of the Urban Forms of a Traditional Center.

2. The four-story proposed senior development's location is inconsistent with the General Plan's land use designation. The location of the proposed senior housing is incompatible with existing adjacent single story low density residential uses and creates unavoidable significant visual impacts that are not properly identified.

5-173 The proposed four-story senior development is adjacent to one-story single-family homes (located on 24th Street). This area is designated in the General Plan as Traditional Neighborhood Low Density (pages 4-2 and 4-3). Even though the proposed project includes locating a four story building, a high density use (R-5 zoning), immediately adjacent to the existing single story homes, the DEIR fails to identify any significant impacts, visual or otherwise.

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5-173 cont. There are no other four-story buildings in the proposed project. This building represents the highest density in the project and for no apparent reason is proposed to be located adjacent to the lowest density existing housing. The DEIR admits that the building's location is an "exception" to the General Plan's requirement of compatibility, but nevertheless incorrectly and without basis concludes that the project is compatible with surrounding land uses (p.4-14).

The DEIR fails to identify the senior housing as having adverse impacts although it is visually inconsistent and incompatible with adjacent existing uses.

5-174 In its section on Impacts and Mitigation Measures, the DEIR states that "for the purposes of this EIR, an impact to aesthetic resources would be considered significant if the proposed project would substantially alter or degrade the existing visual character or quality of the project site and its surroundings…" (Pages 5.1-8 and 9). The DEIR lists those City policies and guidelines that are applicable to aesthetics on pages 5.1-4 to 1–7.

5-175 Specifically, the location of the four-story senior development is inconsistent with GP Land Use Policy LU 2.7.3: "The city shall require that the scale and massing of new development in higher-density centers and corridors provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods that have lower development intensities and building heights."

5-176 **There are feasible mitigation measures to the unavoidable impact of a towering 4 story building overlooking adjacent single story homes that should be required.** The first, and preferred, is to relocate the senior housing to Lot C on the Tentative Map and restore the brownstone houses (See developer's map of May 2007) on Road A to close the gap that would exist if the senior project were relocated. (The addition of brownstones would slightly increase the number of units, which is movement in the right direction.

The DEIR Fails to Identify a General Plan Inconsistency with the City's Population Goals for this Infill Site.

5-177 Chapter 5.10 Population, Employment and Housing indicates that the proposed project would have 192 fewer persons than the 2030 General Plan expected. This incompatibility could be eliminated by reducing the proposed project's commercial zoning and replacing it with residential uses.

The Proposed Project's Entertainment Use proposed for the area including Lots A and C is not appropriate for this land use and inconsistent with the General Plan's Traditional Center.

5-178 The "destination" entertainment center is by definition a non-neighborhood serving commercial use and the DEIR completely fails to evaluate the visual and aesthetic impacts of a destination entertainment center that requires attracting patrons from outside the adjacent neighborhoods. Lots A and C should contain senior housing and other housing types of a density appropriate to Traditional Neighborhood High Density. The balance of the combined Lots A and C should contain small lot single-family dwellings, townhouses, duplexes, and triplexes as permitted under

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5-178 cont. the Urban Form Guidelines and entirely consistent with the Traditional Neighborhood High Density.

5-179 Another land use change that would make the senior development more compatible with the General Plan's designations would be to contribute more land to the senior development so that its height would meet the compatibility requirements of the General Plan's land use policies wherever it is located. Such affordable senior housing is an appropriate transition use between lower density single-family and the retail and transit corridors accessible for the seniors' use and as such the ideal location for either a 3 or 4 story senior housing development would be on Lots A and C.

The DEIR uses three different site acreages for the senior development. This makes it impossible to evaluate impacts and determine whether its density is compliant with the proposed designation of Traditional Neighborhood High Density land use. A full disclosure of the project's impacts is impossible to assess if the project description is inconsistent throughout the EIR document.

5-180 The senior site is 1.7 acres in the tentative map, 1.4 and 1.7 acres in the text, and 1.32 acres in the Mixed Income Housing Plan – all for the same proposed 80-unit development.

If the senior housing is 1.7 acres (Tentative Map, page 3-6), the density is 47 du/A, above the permitted range but allowable with the application of the city's density bonus law (page 4-11). If the site were 1.32 acres, as pledged in the Mixed Income Housing Plan (pages 3-17 and 4-12), the density would be 60 du/a.

3. The DEIR omits a finding that all areas zoned Traditional Neighborhood High and Low Density should be cleaned up to an unrestricted use. The misleading and incorrect definition of "commercial areas" as comprising the Traditional Center creates conflicting interpretations of whether residential areas will be cleaned up to unrestricted uses.

5-181 The DEIR must state the level of clean up the City requires for every inch of the proposed project based on the three land uses specified in the General Plan: Traditional Neighborhood Low Density (single family); Traditional Neighborhood High Density (multifamily); and Traditional Center (shopping center). Residential uses located in any of the three General Plan zones must be identified specifically and the clean up proposed for every residential use must be identified and described. These clean-up designations are important because the DTSC will rely on them when updating the Remedial Action Plan (RAP). The DEIR only states that the single-family areas will be cleaned up to unrestricted uses (no encapsulation – page 5.8-11).

5-182 The DEIR omits a finding that all areas zoned Traditional Neighborhood High and Low Density should be cleaned up to an unrestricted use.

5-183 The DEIR states that it may not be feasible to remove all the newly discovered contaminated soil from the project site, and discusses encapsulation as one remedy. Because encapsulation involves restricted uses, and is usually reserved for commercial, industrial and non residential sites, the definition of "commercial" in this DEIR has particular relevance. If it includes "multifamily residential," as the DEIR claims as part of the project's three artificial "commercial

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5-183 cont.

areas" in the Traditional Center, then it should be clearly articulated in the Public Health and Hazards chapter (p. 5.8-11 and 5.8 –13 that encapsulation of contaminated soil may not be permitted under the senior housing and multifamily residential property.

For example, if encapsulation is allowed under multifamily residential property, the residents could not plant vegetable gardens and children could not come into contact with the soil on a daily basis. (p. 5.8-13) The City should state that all CPV residential property must be cleaned up to unrestricted levels.

4. The DEIR's Alternatives Analysis does not consider the Alternatives' consistency with the 2030 General Plan's land uses. This is a serious omission.

5-184

The DEIR states that evaluating the Alternatives for compatibility with the General Plan land uses complies with CEQA Guidelines (page 7-2) that "factors such as site suitability, ...general plan consistency, other plans or regulatory limitations, ...should also be considered and evaluated in the assessment of the feasibility of alternatives." Then, the DEIR completely excludes this analysis. It is particularly relevant in this Alternatives analysis because the proposed project's Suburban Center (shopping center) is incorrectly classified as well as being inconsistent with the General Plan's designation and definition of that land use.

5-185

The Village Green Alternative, which was dismissed in the DEIR, appears from its description to have been designed specifically with the General Plan's land uses and policies in mind. The specificity of its design and its land uses makes it qualitatively different from the other Alternatives. (p. 7-4 – 7-6).

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Appendix F

Review of the Curtis Park Village DEIR Air Quality Analysis, from Earl Withycombe

Letter 5 Cont'd.

SCNA Comments on Curtis Park Village DEIR - June 1, 2009

Earl Withycombe, P.E.
2226 Portola Way
Sacramento, CA 95818
June 1, 2009

Ms. Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

Re: Draft Environmental Impact Report for the Curtis Park Village Project (P04-109)

Dear Ms. Hageman:

5-186 This letter is being submitted to comment on the Draft Environmental Impact Report (DEIR) for the Curtis Park Village Project (P04-109). The following comments are limited to the air quality impacts of the proposed project as that is my field of expertise. For the past 35 years, I have worked as an air pollution engineer and consultant, evaluating and designing mitigation controls for air quality impacts from a spectrum of new or modified emissions sources, including industrial facilities, transportation systems, area sources, land use projects, and environmental remediation projects, among others. A copy of my resume is attached (see Attachment 1).

1. The DEIR fails to include information on all significant air pollutants in the evaluation of the project setting.

5-187 The DEIR does not include any information on particulate matter smaller than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Federal ambient air quality standards for this pollutant were adopted in 1997, and measurements of $PM_{2.5}$ in the Sacramento region report concentrations in excess of both federal and state standards. More specifically:

5-188 (p. 5.3-2, Table 5.3-1) The table of federal and state ambient air quality standards should be expanded to include standards for $PM_{2.5}$, an air pollutant for which the federal and state standards are being exceeded in the Sacramento area.

5-189 (p. 5.3-3, Particulate Matter) This section should be rewritten to clearly identify the sources contributing to each of PM_{10} and $PM_{2.5}$. The Sacramento area monitoring data shows that the federal PM_{10} standard has not been exceeded for a number of years, but that the federal and state $PM_{2.5}$ standards have been exceeded frequently.

5-190 (p. 5.3-4, Table 5.3-2) This table should be expanded to include statistics for ambient concentrations of $PM_{2.5}$, a federally- and state-designated air pollutant for which standards are frequently exceeded.

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5-191 (p. 5.3-7, Attainment Status) Please add the appropriate information for $PM_{2.5}$, a pollutant for which federal and state ambient air quality standard are frequently exceeded in the Sacramento area.

5-192 Upon completion of these corrections, the DEIR should be expanded to:

- quantify the construction and operational emissions of $PM_{2.5}$ from the proposed project,
- quantify maximum downwind concentrations of $PM_{2.5}$ downwind of the project, and
- if additional exceedances of state or federal ambient air quality standards for $PM_{2.5}$ are forecast, evaluate and include feasible mitigation measures in the DEIR.

2. The DEIR contains a number of erroneous statements with respect to the responsibilities and activities of local, state, and federal air quality management agencies that obscure public understanding of the air quality regulatory setting.

5-193 (p. 5.3-4, Current Air Quality, 2nd paragraph) This paragraph refers to the "1986 Sacramento Air Quality Plan" as a source of information on sources of air pollutants. This plan is woefully outdated as the regional coalition of air quality management districts with jurisdiction in the Sacramento area have subsequently published the 1994 Sacramento Area Regional Ozone Attainment Plan, the Sacramento Area Regional 1999 Milestone Report, the Sacramento Area Regional 2002 Milestone Report, the 2006 Sacramento Regional Nonattainment Area 8-Hour Ozone Rate-of-Progress Plan, and the 2008 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan, all of which contain more current data on the sources of air pollutant emissions in the Sacramento area than the document referenced in the DEIR. This portion of the air quality chapter should be rewritten to incorporate and reflect the more recent data contained in these other plans, including the lists of major emission sources contributing to regional ozone problems.

5-194 (p. 5.3-4, Current Air Quality, 3rd paragraph) This paragraph states that "... CARB has seven air pollution monitoring sites within Sacramento County...". This statement is incorrect as the California Air Resources Board (CARB) owns and operates only one station in Sacramento County at 13th and T Streets. All other monitoring stations are owned and operated by the Sacramento Metropolitan Air Quality Management District.

5-195 (p. 5.3-5, Environmental Protection Agency) The last sentence of this paragraph is circular and conveys no information to the reader: "The USEPA regulates emission sources that are under the exclusive authority of the federal government". This paragraph should be expanded to explicitly identify the categories of emission sources exclusively regulated by USEPA.

5-196 (p. 5.3-5, California Air Resources Board) The first sentence of this paragraph reads: "The California Air Resources Board (CARB), a part of the USEPA, is responsible for the coordination and administration of both federal and State air pollution control programs within California." Either (1) cite the specific legal authority under which USEPA governs CARB as a subsidiary agency, or (2) if this statement is incorrect, and if the statement that CARB is responsible for the administration of federal air pollution control programs in California is also incorrect, please correct these statements and identify what other corrections of statements in the DEIR that

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5-196 necessarily flow from these corrections and the implications of these corrections with respect to environmental impacts and regulatory mitigation.

5-197 (p. 5 3-7, Sacramento Metropolitan Air Quality Management District) The first sentence of this paragraph reads: "The SMAQMD is the agency primarily responsible for ensuring that National and State Ambient Air Quality Standards are not exceeded and that air quality conditions are maintained in the SVAB." Please define the acronym SVAB and also identify the specific legal authority by which the SMAQMD exercises jurisdiction over the eight county region beyond its borders. If the cited statement is incorrect, please correct the statement and identify all other corrections of statements in the DEIR that necessarily from this correction and the implications of these corrections with respect to regulatory mitigation.

3. The analysis of toxic pollutant emissions, downwind concentrations, and resulting adverse health effects is woefully inadequate.

5-198 (p. 2-4, Air Quality, 2st paragraph) A statement is made that "The proposed project would result in less than significant impacts related to ..... placement of new sensitive receptors in proximity to sources of toxic air contaminants." This statement may be in error as the analysis of exposures to toxic air contaminants referenced in Section 5-3 is woefully inadequate and based on assumptions that are not substantiated. The deficiencies in the toxic air contaminant exposure analysis are detailed below. When the deficiencies are corrected, this conclusion may need to be restated.

5-199 (p. 5.3-4, Sensitive Receptors, 2nd paragraph) This paragraph states that "(s)ensitive receptors in the area include local residences and C.K. McClatchy High School". The analysis that led to this statement is inadequate in that it fails to identify the Sacramento Children's Home, the Eskaton Monroe Lodge senior citizen complex, and several child day care facilities within the same proximity to the proposed project. The DEIR should identify all infant, child, and senior service facilities within 0.5 miles of the proposed project that will be impacted by project air pollutant emissions.

5-200 (p. 5.3-9, Remedial Action Plan (RAP) Activities) This paragraph indicates that the emission analysis of remedial action plan (RAP) activities was limited to the import of fill related to remediation of site soil contamination. The 1995 RAP recommended the excavation and off-site disposal of contaminated soils in Operable Units S-1, S-2, and S-3. To date, excavation in OU S-1 and S-2 has been conducted, but no evidence of excavation in OU S-3 is reflected in the documents placed on the Department of Toxic Substances Control's (DTSC) Union Pacific Railroad, Curtis Park remediation project website (http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=34400003). In a letter to DTSC dated July 28, 2008, ERM Remediation and Construction Management, on behalf of Curtis Park Village, informed DTSC that the volume of contaminated soil found during continuing investigations exceeded the volume anticipated in the 1995 RAP by a factor of 4, and that full excavation and offsite disposal was no longer economically feasible. In the same letter, ERM proposes to remove contaminated soil from the proposed residential areas and bury and

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cap it in the proposed commercial areas (http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/2022794425/DTSC_07.28.2008%20Intent%20to%20change%20Remedy.pdf). The analysis of RAP activity equipment exhaust and fugitive dust emissions must include this proposed activity and all other actions contemplated under an amended RAP. Printouts of URBEMIS-2007 model runs must be included in the FEIR to provide full disclosure to the public of the assumptions and data underlying the analysis of increased emissions associated with these activities. A screening risk assessment of diesel PM emissions from onsite construction and remediation equipment must be performed and included in the air quality assessment of project environmental impacts. The risk assessment must evaluate increased cancer risk and increased acute and chronic health hazard impacts at the most impacted residences downwind of onsite emission sources.

5-200

(p. 5.3-9, last paragraph) This paragraph states that "A screening health risk assessment of diesel PM emissions from diesel locomotives traveling on the tracks adjacent to the Curtis Park Village site was conducted ....." The screening health risk assessment evaluated only diesel PM emissions from diesel locomotives traveling on the tracks adjacent to the Curtis Park Village site, and did not include the diesel PM emissions from diesel switch engine locomotives that idle for periods of time on the sidings immediately adjacent to the Curtis Park Village site that will also increase the cancer risk of future project residents. The screening health risk assessment must be revised and expanded to include these emissions and related cancer risks.

5-201

Switch Engine in Curtis Park Railyard, 7:14 am, May 1, 2009

The screening health risk assessment that is on file with the City of Sacramento Planning Division is a two-page memo from Lawrence Smith of Environmental Resources Management to Cheri Velzy (affiliation unknown) that is dated August 10, 2005 (see Attachment 2). The level of detail in the risk assessment is woefully inadequate for purposes of verifying the data and assumptions that led to the conclusions stated in the assessment and in the DEIR. All data,

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assumptions, and modeling output files must be included in the CEQA record to assess the veracity of the conclusions reached. The screening health risk assessment assumes, for example, that "... four line-haul locomotives per day pass by the Curtis Park Development site...". Since multiple line-haul locomotives are typically used to power one train, and because several line-haul trains pass through the Curtis Park railyard every day, much more accurate information with respect to locomotive activity levels must be gathered and verified by the Union Pacific Railroad to make the risk assessment creditable. **5-201**

As mentioned above, diesel PM emissions from idling switch engines must also be quantified and verified by Union Pacific Railroad and included in the risk assessment, including the shorter distances from the nearest onsite residences at which these sources will operate. **5-202**

Additionally, the screening risk assessment must be expanded to include acute and chronic health impacts resulting from diesel PM emissions from locomotive operation. Emissions and health impacts of acrolein, especially, must be included in the assessment. **5-203**

(p. 5.3-10, Impacts related to the update of the Remedial Action Plan, 1st paragraph) This paragraph states that "Under the current Remedial Action Plan (RAP), contaminated soils would be excavated, disposed of at an appropriately certified landfill, and clean fill dirt would be introduced to return the site to the current grade." In a letter to DTSC dated July 28, 2008, ERM Remediation and Construction Management, on behalf of Curtis Park Village, informed DTSC that the volume of contaminated soil found during continuing investigations exceeded the volume anticipated in the 1995 RAP by a factor of 4, and that full excavation and offsite disposal was no longer economically feasible. In the same letter, ERM proposes to removed contaminated soil from the proposed residential areas and bury and cap it in the proposed commercial areas (http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/2022794425/DTSC_07.28.2008%20Intent%20to%20change%20Remedy.pdf). After a new analysis of RAP activity equipment exhaust and fugitive dust emissions is completed, this mitigation measure must be rewritten to recognize the revised project scope and set of emission activities. Printouts of URBEMIS-2007 model runs must be included in the FEIR to provide full disclosure to the public of the assumptions and data underlying the analysis of increased emissions associated with these activities. **5-204**

(p. 5.3-11, Impacts related to exhaust emissions and fugitive particulate matter emissions from project-associated construction activities, 2nd paragraph) This paragraph suggests that health risks from toxic air contaminants would be less than significant because emissions "... would be spread over (the) site and would not affect any specific receptor for any length of time". The acute impacts of acrolein, a constituent of diesel emissions, are quantified by the California Office of Health Hazard Assessment on a maximum one-hour average basis. Since a one-hour span is not a significant "length of time", a screening risk assessment of diesel emissions from construction equipment must be performed for the construction phase of this project and the health impacts evaluated must include cancer risk, acute and chronic health hazards in order to quantitatively assess whether these impacts will be less than significant. In the construction equipment screening risk assessment report, include all data, assumptions, and modeling **5-205**

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output files. Discuss in corresponding mitigation measure how the assumptions of equipment
5-205 type and use contained in the screening risk assessment will be enforced as operational conditions in project entitlements and Mitigation Monitoring Plan requirements.

(p. 5.3-17, Development of the project could place new sensitive receptors in proximity of a rail line, a source of diesel particulate emissions, 1st and 2nd paragraphs) The screening health risk assessment performed for this project is inadequate and without sufficient documentation. As stated above, the risk assessment must be revised and expanded to include toxic emissions
5-206 from idling and operating switch engine locomotives in the Curtis Park railyard, and must appropriately account for the shorter distances that these engines operate from proposed onsite residences. Line-haul and switcher locomotive activity rates must be quantified, as opposed to assumed, and the values used in the risk assessment must be verified by the Union Pacific Railroad to be creditable. All data, assumptions, and model output files must be explicitly included in the risk assessment report.

4. As project construction will occur in soils deemed sufficiently toxic to constitute a federal Superfund Site, emissions of construction dust must be more carefully monitored and controlled than is proposed in the DEIR.

(p. 5.3-11, Impacts related to exhaust emissions and fugitive particulate matter emissions from project-associated construction activities, 3rd paragraph) The generation of controlled dust emissions "... could potentially result in localized exceedances of ... a significance threshold; therefore, a *potentially significant* impact could result". Because of this potential, this mitigation measure should include a requirement to continuously monitor PM_{10}, such as has been performed during excavation of contaminated soils in 2005-2008, using a network of particle counters near existing residences closest to actively disturbed areas under
5-207 construction. An upwind particle counter and wind instruments on a tower should be included in the network to quantify background PM_{10} levels and wind directions. A permit condition should be included in the dust control plan to prohibit the difference between the upwind and downwind monitors from exceeding 50 $\mu g/m^3$ over an eight-hour shift. This permit condition should require notification to the Sacramento Metropolitan Air Quality Management District whenever any violation of this limit is measured, and the construction contractor in such event should be required to notify the SMAQMD of additional preventive and remedial actions to be taken to avoid further violations. Any dust-control plan submitted to the City of Sacramento Development Services Department should be forwarded to the SMAQMD for review and comment, and any violation of the dust control plan should be treated as a violation of SMAQMD Rule 403 (Fugitive Dust).

5-208 Thank you for the opportunity to comment on the air quality section of the DEIR for the Curtis Park Village Project.

Sincerely,

Earl Withycombe, P.E.
Attachments

Letter 5
Cont'd.

Attachment 1
Resume of Earl Withycombe, P.E.

**Letter 5
Cont'd.**

Résumé

Earl Withycombe

Education

1970, B.S., Aeronautical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts

1989, Certificate in the Management of Hazardous Materials, University of California, Davis, California

Professional Experience

8/06 to present	Air Resources Engineer/SCAQMD Planning Liaison California Air Resources Board

Served as the planning liaison to the South Coast Air Quality Management District, facilitating coordination between ARB and the District in the development of the 2007 8-hour ozone and $PM_{2.5}$ State Implementation Plan for the South Coast Air Basin. Technical analysis in support of air quality planning activities included control measure benefit quantification, emission inventory refinement, air quality impact assessment, and control technology research.

5/93 to 6/06	Partner Sierra Research
4/88 to 5/93	Senior Engineer Sierra Research

Worked as a partner and project manager in a consulting firm specializing in air quality analysis and management. Experience included management of regulatory development and project evaluation services for governmental clients; management of process, control, and instrumentation design; emission and impact evaluation; and compliance strategy services for private clients. Technical contributions included air quality modeling, combustion modeling, control equipment design and analysis, ambient air quality analysis, ambient and stack sampling project design, screening risk assessment, permit development, and particulate matter and fugitive dust emission factor development services for a variety of projects, including those related to power production, cogeneration, industrial boilers, geothermal activities, mineral extraction and processing, lumber production, toxic waste treatment, fugitive dust, and Superfund remediation. Advocacy services included permit negotiation, technical briefing and

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presentation, expert witness testimony, legal support, rulemaking representation, regulatory interpretation, and technical reporting for a variety of public and private clients.

7/83 to 4/88 Managing Partner, Sierra Air Consultants

Founded and managed a small consulting firm specializing in air quality impact analysis. Directed the development of permit applications and provided air quality troubleshooting services to a number of wood processing clients. Analyzed the environmental impacts of several energy projects for environmental and governmental clients. Managed all fiscal and administrative functions for the partnership.

7/75 to 4/88 Air Basin Engineer
Mountain Counties Air Basin,
Lake Tahoe Air Basin

Established and managed a consulting practice providing exclusive and comprehensive technical services to an association of nine county air pollution control districts in the Sierra Nevada region of California. During vacancies in administrative positions, assumed the responsibilities of program management for interim periods in several Districts in the Air Basin. Drafted numerous amendments to the air basin plan in implementing federal and state mandates and responding to new local problems. Developed annual budgets for a number of districts.

Developed ozone nonattainment plans for El Dorado and Mariposa Counties. Drafted and implemented the first local Prevention of Significant Deterioration program in rural California. Analyzed compliance with emission limits and ambient air quality standards for all major and many minor new and modified source applications within the nine county region. Developed comprehensive stationary and area source emission inventories for Mountain Counties baseline inventory (1977) and for the Lake Tahoe Nonattainment Plan (1981). Designed air quality monitoring networks throughout the Air Basin, including systems to measure the impacts of controlled wildland vegetative burning and residential wood combustion. Developed toxic pollutant test burn plans for the experimental incineration of toxic wastes in cement kilns, rotary kilns, and starved air incinerators. Designed a testing program and developed district regulations for the assessment and control of asbestos emissions from unpaved roads and parking lots. Certified all test plans and oversaw all stationary source testing in the Air Basin.

Served as the Co-Chairman of the CAPCOA-ARB New Source Review Rule Committee that developed the 1982 CAPCOA NSR rule which served for many years as a model regulation for the permitting of new sources by districts. Drafted and successfully lobbied several legislative bills amending the relationship between districts and the California Air Resources Board and authorizing experimental programs seeking innovative solutions to air quality problems. Drafted language and lobbied for passage of AB 3374 (1986), the second Calderon landfill testing bill, which refocused priorities on active landfills and adopted more cost effective monitoring protocols for small rural landfills.

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11/86 to 4/87 Air Pollution Control Officer
Northern Sierra Air Quality Management District

Designed and managed the process for unifying three county air pollution control districts into a multi-county agency to increase program service levels while reducing administrative costs. During agency formation, served as agency administrator and organized basic fiscal, regulatory, enforcement, legal and legislative programs. Designed and enacted a stationary source permit fee proposal that dramatically increased program revenues. Developed the first district wildland vegetation management burning regulation and permit fee program in the state.

1/79 to 4/86 Member and Chairman
Sierra County Board of Supervisors

Served two terms as a member and three years as Chairman of the Board of Supervisors of Sierra County. Chaired the Board's Finance, Personnel, and Health & Welfare Committees. Served as the de facto county administrator coordinating multi-department responses to legislation mandates and community problems. Drafted and enacted numerous ordinances, resolutions, and Board orders in the areas of general administration, health, personnel management, human services, finance, and public safety. Served seven years as the Chairman of the County Board of Equalization. Together with the County Auditor, supervised the development of annual county budgets and fiscal policy. Served as the County's labor negotiator for six years. Represented the County on numerous inter- and intra-county boards, commissions, and councils. Served two years on the Executive Committee of the County Supervisors Association of California. Drafted and sponsored several bills streamlining state statutes related to unique rural concerns. Coauthored and led the successful lobbying effort to secure passage of SB 1691 (1983) which established the state's first locally administered groundwater management districts.

8/73 to 1/75 Air Pollution Control Officer
County of Sierra

Served as the program manager of a rural county air pollution control district. Developed and implemented compliance plans for two timber processing facilities. Managed the accounting, budget, reporting, permit review, and air quality monitoring functions of the agency. Developed the technical justification for formation of the Mountain Counties Air Basin to supplant the mountain portions of the Sacramento and San Joaquin Valley Air Basins. Drafted major portions of the first Air Basin Plan and related regulations.

Credentials, Memberships, and Awards

Qualified Environmental Professional, Air Pollution; Institute of Professional Environmental Practice
Registered Civil Engineer, California
Member, Air and Waste Management Association

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Outstanding Individual, 1994 Summer Smog Season Campaign, Partners for Clean Air, Sacramento, California
Clean Air Award, American Lung Association of Sacramento-Emigrant Trails, 1996
Environmentalist of the Year Award, Environmental Council of Sacramento, 1997
Pottenger Award for Volunter Service, American Lung Association of California, 2002

Selected Publications

"Fairbanks International Airport Air Quality Conformity Assessment and Applicability Determination," Sierra Research Report No. SR2005-08-01, prepared for PDC Consulting Engineers, August 12, 2005

"2004 AB 2588 Health Risk Assessment", prepared for the University of California, Santa Cruz, December 2004

"Screening Risk Assessment of Sample Selected Projects Included In the Southern California Association of Governments' Draft 2004 Regional Transportation Plan", prepared for Southern California Association of Governments, February 2004

"BACM Technololgical and Economic Feasibility Analysis", prepared for the San Joaquin Valley Unified Air Pollution Control District, January 2003

"Air Quality Impact Analysis: Patterson Sand & Gravel Company", prepared for EDAW, March 2002

"White Paper: Analysis of Road Construction Emission Contributions to PM_{10} Concentrations in the SCAG Region", prepared for Southern California Association of Governments, February 2002

"1997 Health Risk Assessment Report", prepared for Louisiana-Pacific Corporation, February 2000

"Most Stringent PM_{10} Control Measure Analysis", prepared for the Maricopa Association of Governments, May 1998

"Particulate Control Measure Feasibility Study", prepared for the Maricopa Association of Governments, January 1997

"Air Quality Impacts of the Proposed Rough and Ready Project", prepared for Ford Construction Company, June 1994.

"Evaluation of Public Health Impacts Resulting from Emission of Asbestos Fibers from the California Asbestos Monofill Project", prepared for Calaveras County Air Pollution Control District, November 1993

**Letter 5
Cont'd.**

"Feasibility and Cost Effectiveness of New Air Pollution Control Measures", prepared for Maricopa Association of Governments, August 1993.

"A Methodology for Assessing the Significance of Air Quality Impacts Under the California Environmental Quality Act and the Amador County Air Pollution Control District Rules and Regulations", prepared for Amador County Air Pollution Control District, June 1993.

"Air Quality Impacts of the Proposed Brigantino Placement Project", prepared for Granite Rock Company, August 1991.

"City of Redlands and C.L. Pharris Sand & Gravel Inc. Preannexation Agreement Air Quality Analysis", prepared for the City of Redlands, June 1990.

"Air Quality Impacts of Proposed Eagle Mountain Project", prepared for Mine Reclamation Corporation, March 1990.

"Air Quality Permitting Requirements for the Eagle Mountain Mine Project", prepared for Mine Reclamation Corporation, September 1989.

"Air Toxics 'Hot Spots' Information and Assessment Act (AB 2588) Emission Inventory Plans and Reports", prepared for Blue Mountain Minerals, Diamond Walnut Growers Inc., American Moulding & Millwork Company, and Teledyne Picco, July 1989.

"Rohr Industries, Inc. Riverside Facility Environmental Compliance Audit", prepared for Rohr Industries, Inc., May 1989.

"Blue Mountain Minerals Emission Baseline Analysis", prepared for Blue Mountain Minerals, April 1989.

"Blue Mountain Minerals Dust Control System Emission Compliance Analysis", prepared for Blue Mountain Minerals, April 1989.

"Copper Cove Village Asbestos Remediation Project: Test Methods and Health Risk", prepared for Calaveras County Air Pollution Control District, March 1989.

"R.C. Collet Rocklin Aggregate Facility Emission Impact Analysis", prepared for R.C. Collet, March 1989.

"Evaluation of Public Health Impacts Resulting from Emission of Asbestos Fiber From the Calaveras Asbestos Ltd. Landfill Project", prepared for Calaveras County Air Pollution Control District, October 1988.

"San Joaquin Valley Biomass Emission Analysis", prepared for Biomass Coalition, September 1988.

Letter 5 Cont'd.

"Air Quality and Environmental Significance: The South Valley Power Project", prepared for the City of Calexico, February 1987.

"Cyclone Efficiency Analysis by Microcomputer", 1986 CAPCOA Engineers Technical Seminar, December 1986.

"Air Quality", Foothill County Mining Handbook, Special Publication 86, California Division of Mines and Geology, October 1985.

"Smoke Management", Proceedings of the 6th Annual Conference, Forest Vegetation Management Conference, November 1984.

Letter 5 Cont'd.

Attachment 2

Diesel (Locomotive) Screening Health Risk Assessment for the Curtis Park Project

To: Lawrence Smith
From: Cheri Velzy
Date: August 10, 2005
Subject: Diesel Screening Health Risk Assessment for the Curtis Park Project

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Introduction

In 1998, the California Air Resources Board identified the particulate matter (PM) emissions in diesel exhaust to be carcinogenic. This memorandum presents the analysis approach and results of a health risk assessment of diesel PM from locomotives traveling on tracks adjacent to the Curtis Park Development Project. The analysis evaluates the increased probability of cancer from diesel PM at locations (residences) near the tracks.

Analysis Approach

ERM has conducted a screening health risk assessment of diesel PM emissions from diesel locomotives traveling on the tracks adjacent to the proposed Curtis Park development. The results of this screening health risk assessment produced an "order of magnitude" estimate of the potential increase in cancer risk at proposed residences within the development that are near the tracks. The screening health risk assessment methodology is described briefly below.

EPA fleet average PM emission factors (for a fleet average in the year 2007) for diesel locomotives were used to estimate emissions from diesel trains (EPA 1997). These factors are presented in terms of grams of emissions per brake horsepower hour. The average power output of diesel train engines for line-haul locomotives, based on EPA data, is estimated at between 3,500-5,000 horsepower for newer line-haul locomotives (EPA 1998). This analysis conservatively used 5,000 horsepower in the emissions estimates. It was assumed that approximately four line-haul locomotives per day pass by the Curtis Park Development site, giving an annual total of 1,460 trains per year if the trains travel 365 days per year.

The EPA ISCST dispersion model was used with worst-case meteorological data to estimate the ground-level diesel PM concentrations at the proposed residences. The nearest residence is located approximately 100 feet from the track. The Office of Environmental Health Hazard Assessment (OEHHA) unit risk factor for diesel PM was then used to evaluate inhalation health risk from diesel PM at residences near the tracks.

Results

The estimated cancer risk from exposure to 1,460 trains per year was modeled at 2.4 in one million. The Sacramento Metropolitan Air Quality Management District has published air quality assessment guidelines (SMAQMD 2004) that describe approved analysis methods and significance of impacts relative to the California Environmental Quality Act (CEQA). These

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guidelines state a cancer risk threshold of 10 in one million as a significance threshold. Thus the estimated risk from this analysis is below the CEQA significance threshold.

REFERENCES

Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Risk Assessment Guidelines. August.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2004. Guide to Air Quality Assessment in Sacramento County. July.

United States Environmental Protection Agency (EPA). 1998. Locomotive Emission Standards: Regulatory Support Document (abridged version). April.

United States Environmental Protection Agency (EPA). 1997. Technical Highlights: Emission Factors for Locomotives. EPA420-F-97-051. December.

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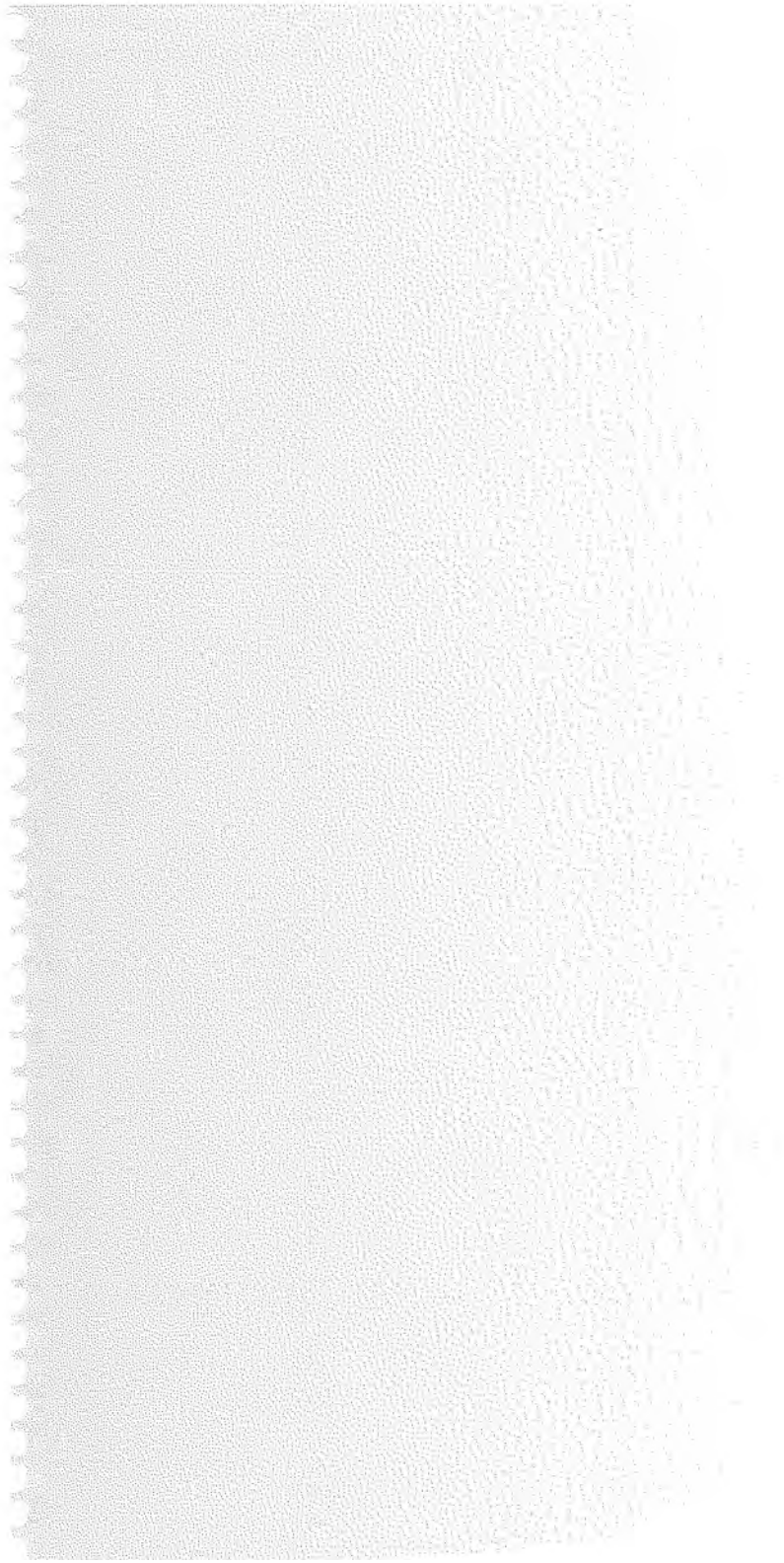

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Appendix G

SCNA Comments regarding the greenhouse gas emissions analysis in the CPV DEIR (Ch. 5.3.7--5.3.9; 6.2.)

INTRODUCTION

According to the Intergovernmental Panel on Climate Change [EPA-HQ-OAR-2008-0508; FRL-] RIN 2060-A07; March 10, 2009.), climate change and the effect of greenhouse gas (GHG) emissions is recognized worldwide as a serious public health, economic, and environmental problem. The pace of global warming has been increasing over recent years

5-209

Recent Stanford studies found that in California (which has six of the ten urban areas with the worst air quality in the nation), carbon dioxide increases air pollution-related mortality and other health problems at a rate of at least 2.5 times that of the United States as a whole.[5] The March Draft Biennial Report, dated March 2009, by the Climate Action Team (CAT) has synthesized research from these and other scientific institutions, and provides greater detail on the problems GHG emissions cause in the State of California. (www.energy.ca.gov/2009publicaitons/CAT-1000-2009-003/CAT-1000-2009-003-D.PDF.)

Because greenhouse gas emissions have already contributed to a severe climate change condition worldwide, even relatively small additional contributions of greenhouse gas emissions are

5-210

cumulatively considerable as measured by the California Environmental Quality Act (CEQA). The incremental contribution of 30,000 metric tons of CO2e per year from this project is substantial, and far exceeds the disclosure standards set by the California Air Resources Board. Accordingly, the inadequate analysis in the CPV DEIR is more than just a technical flaw. By

5-211

failing to adequately analyze and mitigate the very real impacts of the project on climate change, the City is consciously making one of the most severe threats to California's environment and the global environment even worse.

1. The analysis of the project's Greenhouse Gas (GHG) emissions is flawed.

[5] Jacobson, Mark Z., *On the causal link between carbon dioxide and air pollution mortality*, Geophysical Research Letters, Vol. 35 LO3809 (2008), available at www.stanford.edu/grop/efinh/jacobson/Ve.html; see also, Mark Z. Jacobson, Professor of Civil & Environmental Engineering, Stanford University, April 9, 2008, *Testimony to Select Committee on Energy Independence an d Global Warming*, United States House of Representatives at: http://globalwarming.house.gov/pubs/pubs?id+0036

Letter 5 Cont'd.

Failure to include indirect effects. CEQA requires that reasonably foreseeable indirect effects be analyzed in an EIR. (CEQA Guidelines, section 15064 (d).) The DEIR omits the emissions contributed by indirect sources, including the GHG emissions from electrical generation and production and transportation of construction materials that are known will be necessary for this project.

5-212

To the extent that the City may consider that the greenhouse gas emissions from indirect sources have previously been adequately addressed by other lead agencies, it must document that prior environmental review to tier from it. The DEIR does not identify any prior environmental documentation that has adequately addressed GHG emissions from power plants or transportation and manufacture of construction materials.

5-213

Indeed, the use of forest products in the construction of this very large project will not only generate new GHG emissions, it will also destroy a substantial number of trees that would otherwise operate as a carbon offset, in effect, doubling the carbon footprint due to the use of wood products in the project.

5-214

Incorrect baseline. The DEIR states that "[G]iven the high density and mixed-use nature of the proposed development coupled with the proximity to existing employment centers and retail attractions in the City, the proposed project could reduce daily vehicle travel." (DEIR, p. 5.3-19.) This statement uses an incorrect and misleading baseline for comparison. The DEIR should compare the project's traffic and GHG impacts to the *existing conditions*, not to some hypothetical *other project*.

5-215

While it is unclear what baseline was used for the modeling results in Tables 5.3-6 and 5.3.-7, the modeling indicates that the project *increases* greenhouse gas emissions by a minimum of 30,000 metric tons per year. This increase is *not* a "reduction" in emissions as stated on page 5.3-19.

5-216

2. Thresholds of significance.

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5-217 The thresholds of significance used in the DEIR are not applicable to the effects of greenhouse gases. They do not provide "an identifiable quantitative, qualitative or performance level of a particular environmental effect" as required by CEQA Guidelines section 15064.7(a).

5-218 CEQA requires some objective method of judging whether an impact is considered significant, so that the public agency can be accountable for the environmental damage caused by projects within its jurisdiction. It also mandates a duty to avoid or mitigate that damage. A "standard" to be used must be one that is "all of the following: . . . a quantitative, qualitative or performance requirement found in a statute, ordinance, resolution, rule, regulation, order, or other standard of general application." (CEQA Guidelines, § 15064(h); *CBE v. Resources Agency* (2002) 103 Cal.App.4th 98, 124.)

5-219 A fundamental conceptual flaw in how the thresholds of significance are framed is that the DEIR assumes that if a project does not "conflict with or obstruct" "goals or strategies" in the three cited policy documents, it therefore can claim that the project's emissions are "less than significant." (DEIR, p. 5.3-23) Each of these so-called "standards," however, is merely a broad policy statement, with lofty but vague "targets" for nonbinding future GHG emissions reduction. The City has provided no specific or measureable basis to use in making a determination that the project will *not* make a considerable contribution to an admittedly serious cumulative impact Consequently, the City has no substantial evidence to support its conclusion. Although future regulations by other agencies might be used to measure significance once they have been adopted, the fact that they are not readily available does not absolve the City of its responsibility from setting its own thresholds in this DEIR.

5-220 If the "goal" or "target" of a policy doesn't measure the impact on today's environment, a statement that the project does "not conflict" with this broad, general *future* goal does not provide any useful information I terms of CEQA. Consequently, it does not provide any guidance on the basic question whether the *impact* of *this project's* greenhouse gas emissions is significant. Neither does it comply with section 15064(h)(3), which allows a Lead Agency to determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirement in a plan or regulation that is specified in law or adopted by the public agency *and* has *specific requirements to reduce the emissions of GHG*. Here, these three cited sources are not plans or regulations specified in law or adopted by the State agencies, nor are there any "specific requirements" to reduce GHG that would mandate this project to modify its projected emissions. Instead, these programs merely consist of "targets," "strategies," or "suggestions" for the future.

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5-221 For example, the California Global Warming Solution Act of 2006 (AB 32) sets a "target" to reduce GHG emissions to 1990 levels by 2020. This legislation tasked the California Air Resources Board (CARB) to set these targets; however, CARB is in the very early stages of addressing the scope of regulations to do so. It has not adopted any regulations that would apply to this site. The "scoping plan" that was adopted in 2008 only sets statewide "targets" by certain sectors, and is not intended to be used for a project specific CEQA analysis. Regulations that might apply to a residential or commercial project are not expected until at least 2011. (Scoping Plan and Measures Implementation Timeline.) A Statewide cap on GHG emissions is not anticipated to begin until at least 2012. Consequently, the yet-to-be-enacted proposals that AB 32 anticipates are not available for use in measuring the significance of GHG emissions for this project. (ARB web site: www.arb.ca.gov/cc/cc.htm)

5-222 A second policy document cited by the City to claim that over 30,000 tons of CO2 emissions annually is "not significant" is the "lack of conflict" with the Attorney General's general recommendations for reduction of GHGs. However, these "reduction measures" are not a threshold of significance. The AG's list of Reduction Measures is intended to be used as "examples of measures that could be applied to a diverse range of projects *where the lead agency determines that the project under consideration will have significant global warming related effects*" (Office of the Attorney General, *Global Warming Measures*, Updated 12/09/08. Attached and available at http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf.)

5-223 However, since the DEIR concludes that the CPV project does *not* have significant impacts on global warming, mitigation measures are not an applicable concept. Therefore, there is no analysis of whether these generic "reduction measures" will reduce *this project's* 30,000 tons of GHG emissions. Attempting to use mitigation measures instead of a threshold of significance in the EIR is an "apples to oranges" substitute—it doesn't work. In this DEIR, it is an invalid attempt to allow the City to sidestep its duty to acknowledge the significance of this project's contribution to GHG emissions. The August 29, 2008 letter from the Attorney General to the City regarding the inadequacy of the General Plan's GHG emissions analysis makes this same point. (See page 7, August 29, 2008 letter, included in City of Sacramento's Final MEIR for its 2030 General Plan.) The City's response to this comment in its Final MEIR does not remedy this defect. (See MEIR, pages 4-1 through 4-4, 4-25 and 4-26; AG's comment letters attached.)

5-224 Moreover, Table 5.3-8 attempts to characterize future PUD Guidelines as if they were evidence that mitigation measures are being adopted. (DEIR pp. 5.3-21--22.) This is invalid for several reasons. First, measures to reduce or mitigate an impact are only relevant once the impacts are determined to be significant. The DEIR fails to make this determination, and thus mitigation measures are not required under CEQA. Secondly, even if a determination of significance had

Letter 5 Cont'd.

been made (which would require recirculation), then the measures must be specific enough to be evaluated against the site-specific level of impact, and the measures must be both described and imposed by the City in *this EIR*. The PUD Guidelines have not been included in the DEIR; nor has their impact on greenhouse gases from this project been analyzed. Consequently, because they have not been included or even described in any detail, they do not provide specific enough

5-224 standards to serve as performance measures. As explained in the Attorney General's August 29, 2008, letter, "[a]n agency may only approve an EIR in reliance on a commitment to develop a mitigation plan in the future if the plan is sufficiently formulated that it provides a high level of assurance that the objective of that plan—real mitigation—will be achieved." The DEIR does not include sufficiently formulated measures or provide assurance that they would mitigate the impacts of this project. (November. 5, 2008 Letter from AG attached.)

5-225 However, as pointed out in the previous paragraph, the concept of mitigation measures does not apply unless the City first makes the determination that the project's GHG emissions are a potentially significant impact.

5-226 The "lack of conflict" with Governor's Executive Order S-3-05 is equally inappropriate to use as a threshold of significance. As with AB 32, Executive Order S-3-05 simply sets "targets" to reduce greenhouse gas emissions, and directs the Secretary of the California Environmental Protection Agency (CalEPA) to report biannually on the "*progress made toward* meeting the greenhouse gas emission *targets*," and on mitigation adaptation *plans* to combat these impacts. A "target" is by definition not a threshold to measure significance. A "target" is simply a goal to strive for, but holds absolutely no consequences if the target is never met. More to the point, the Executive Order does not *set* any specific targets, it simply delegates that task to CalEPA. Consequently, it does not provide a basis to judge whether 30,862 tons of CO2 is a significant contribution to the severe cumulative impact.

5-227 By comparison, the California Air Resources Board has a mandatory reporting requirement for GHG emissions that requires monitoring in 2009, and reports to be submitted in 2010. (www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm) Although not applicable to mixed use and residential projects, it requires covered facilities, such as electric power generation plants and retail facilities emitting greater than 25,000 tons CO2e per year to report their emissions. For electrical generating facilities over 1 MW, it is 2,500 tons CO2e per year. This threshold is considered significant—it is a minimum threshold to provide for future regulation of facilities in order to meet the 2020 and 2050 goals for GHG reduction. Clearly, the 30,862 tons that this project will contribute—more than 5,000 tons per year from the most liberal reporting requirement--would *not* be considered "less than significant" for ARB purposes. (DEIR, p. 5.3-24.)

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5-227 Moreover, the estimate of GHG emissions from the proposed project report emissions are significantly higher than those being released by the average California resident. Table 5.3-7 reports project operational emissions of 30,862 tons/yr of CO2e, and states that this level represents 0.006% of the current statewide total. The fractional value is approximately correct, as the CARB GHG emission inventory for 2004 is reported to be 479.4 MM tons/yr CO2e (http://www.arb.ca.gov/cc/inventory/data/tables /rpt_Inventory_IPCC_Sum_2007-11-19.pdf), of which 30,842 tons/yr would be 0.0064%.

5-228 But, if the project's state fraction is applied to the current state population of 38,048,462 (http://www.dof.ca.gov/research/demographic/reports/estimates/e-1_2006-07/) estimated for January 1, 2008, then the project's releases are equal to those of 2,283 average residents. The project proposes to include 178 single-family residences (= 409 residents @ 2.3 people/unit) + 80 senior citizen units (= 160 residents @ 2.0 people/unit) + 212 multifamily units (= 488 residents @ 2.3 people/unit), which totals 1,057 new residents. Thus, Table 5.3-7 indicates that each project resident will release 2.15 times as much GHG as the average California resident. This statistic alone suggests that the project's GHG emissions should be considered significant especially as AB 32 requires the average resident to *reduce* GHG emissions by 15% between now and 2020

3. Cumulative Impacts.

5-229 Climate change is a global environmental problem. Development, construction and transportation sectors contribute to effects worldwide, and GHG emissions know no geographic boundaries. Therefore, this project's emissions of GHGs from construction and operations are by their very nature a cumulative impact for purposes of CEQA.

5-230 The CPV DEIR does not even attempt to analyze the project's contribution to the cumulative effect of GHG emissions from this project together with the emissions from other projects on climate change. The only acknowledgement regarding cumulative impacts is a brief three-paragraph discussion that states that the CPV project would be consistent with the *Sacramento 2030 General Plan* and therefore, "the impact would be less than significant." (DEIR, pp. 5.3-23, 5.3-24.) This conclusion is in direct conflict with the City's own determination that despite the fact that a project may be consistent with the land use principles in the General Plan, a project's contribution to GHG emissions and global climate change would nevertheless remain unavoidable and significant.

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In its Errata to the General Plan Final MEIR (See Final MEIR, Errata No. 2, Feb. 26, 2009, attached.)" and final findings and Statement of Overriding Considerations, the City Council overturned its staff's recommendations on its General Plan EIR and determined that greenhouse gas emissions generated by new development--even if consistent with the 2030 General Plan—would be a cumulatively considerable contribution to climate change, and therefore, a "significant cumulative impact." The City acknowledged that although the General Plan included some preliminary policies and programs, it was still in the process of developing a climate action plan with on-going monitoring and reporting. Most significantly, the City Council made a specific finding that even if "*all* the feasible policies and programs included in the 2030 General Plan that avoid, minimize, or reduce greenhouse gas emissions" were implemented, the actual effectiveness of these policies and programs is unknown. Therefore, the City determined that the impact of proceeding with development *consistent with the GP* remains a *significant and unavoidable cumulative impact*. The City Council made a Statement of Overriding Considerations to that effect as part of its approval of the General Plan.

5-231

Nothing in the CPV DEIR reconciles this glaring conflict. Accordingly, the DEIR's bald conclusion that the project's contribution to greenhouse gas emissions and climate change is *not* cumulatively considerable is not supported by any evidence. Because this is a significant impact of the project that was not acknowledged or analyzed in this document, no evaluation of the impacts or any proposed mitigation measures were provided to the public for comment. Consequently, this DEIR must be substantially revised to recognize the cumulatively considerable contribution to greenhouse gas emissions and climate change. These impacts need to be analyzed and mitigated in a new document, and recirculated for public comment,

5-232

Even a relatively small contribution to the serious environmental threat of global warming is cumulatively considerable. Here, where the project's annual contribution is the very large amount of 30,862 tons per year of CO2e, in addition to the substantial indirect impacts that were not analyzed, the project's major contribution to the already seriously degraded environment is cumulatively considerable.

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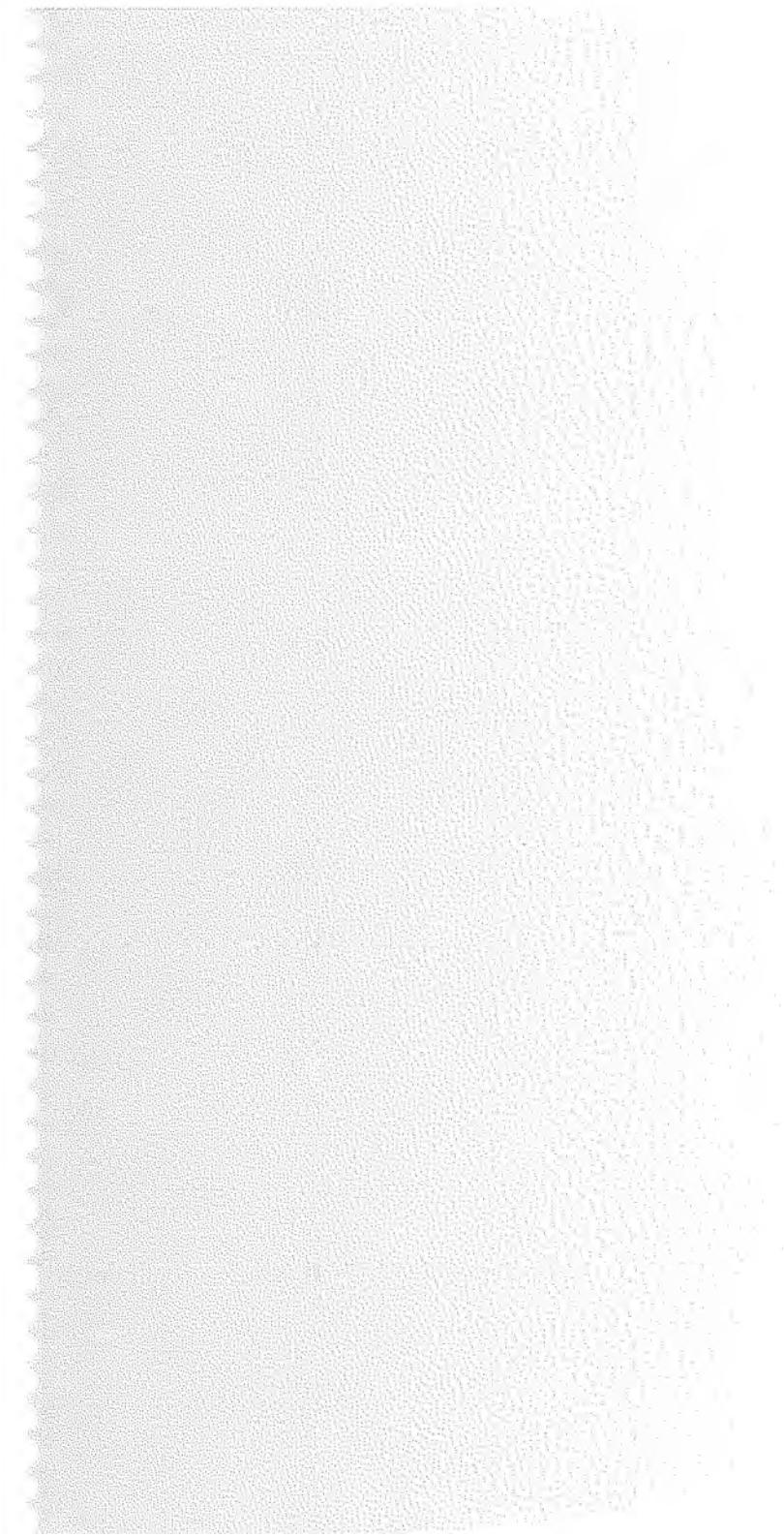

Letter 5 Cont'd.

Appendix H

SCNA Comments regarding various sections of the CPV DEIR

5-234 The mitigation section (Chapter 2) contains a non-sensical statement in the noise section (p. 2-27, 5.4-7, last sentence) The sentence reads: "Other materials may be acceptable provide (sic) they have a density of approximately four pounds per square foot." Density is the ratio of weight to volume (ie, lb/ft3). Pounds per square foot (lb/ft2) is the unit of measure of pressure, not density. Even if this sentence read "... four pounds per cubic foot", it would beg the question of what kind of material is being specified – styrofoam has a density between 1 and 5 lb/ft3, depending on the pore size. The DEIR needs to correct and clarify this statement.

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Cont'd.

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Appendix I

Review of the Curtis park Village DEIR Geology & Soils Analysis, from Keith Miles

Letter 5
Cont'd.

27 May 2009

To: CITY OF SACRAMENTO

From: Resident, 2449 5th Avenue

Subject: Curtis Park Village Project, Project# P04-109
State Clearing House # 2004082020
Draft Environmental Impact Report (DEIR)

To whom it may concern:

I am writing in concern of section 5.8 entitled 'Public Health and Hazards.' This section contains no details of goals or milestones for clean-up levels of toxic elements or
5-235 compounds at the Curtis Park Village Project site. The DEIR contains only reference to the Remediation Action Plan (RAP) of 1995 (notably approaching 15 years old), with indication that a revised plan is in development. Without review of the revised RAP or relevant excerpts from the 1995 RAP as an Appendix, we have no way to evaluate or understand (1) the extent of contamination, (2) clean-up efforts to date, and (3) if toxics
5-236 remediation of the Curtis Park Village Project site will satisfy neighborhood concerns for safety. No detail is provided to indicate final decisions on remediation goals in terms of measurable quantities (e.g , parts per million, parts per billion) for toxics of concern that include arsenic, lead, and polycyclic aromatic hydrocarbons. These kinds of details could be easily handled in summary tables and a schematic of site with isoclines depicting concentrations of contaminants, accompanied by a few explanatory paragraphs. Considering the degree of verbiage contained within the DEIR, these items would not add substantially to the length of the document. At the very least the 1995 RAP should be provided as a link at the website that linked the DEIR, and any decisions of approval based on Public Health and Hazards should await review of the revised RAP. Providing
5-237 reference to the 1995 RAP and related materials (end of 1st paragraph, section 5.8.0) is inadequate for ease of public or layperson review. As an example, the following cited section, which is probably the most detail provided in section 5.8 of measurable quantities, is inadequate without substantial investigation by laypersons:

1995 Remedial Action Plan
The 1995 RAP includes the removal of 0.5 acres of asbestos-impacted soil, removal of 14,500tons of slag, and installation of a groundwater treatment system. Remedial measures implements between 1995 and 2007 include on-and off-site groundwater remediation and excavation and offsite disposal of over 111, 568 tons of soil. It should be noted that in 2007 the majority of the project site was remediated to the limits of the 1995 RAP. The 1995 RAP also approved alternate cleanup levels for lead and arsenic that would be suitable for restricted-use development. Areas where restricted-use cleanup levels are implemented would preclude single-family residences and other potentially sensitive uses (parks/open space)

5-238 Our neighborhood concerns are short-term, e.g., what are the latest measurable goals for toxic clean-up as defined in the revised RAP, and what concentrations (air,

Letter 5
Cont'd.

water, dust) are predicted for sequestered toxics that may be disturbed during remediation or removal activities or during building site preparations. Our concerns are also long-term, e.g., predictions of toxics mobilization on the water table during high precipitation years or disturbance of sequestered toxics if additional on-site construction follows completion of the current plans. Furthermore, we have concern for the safety of the new residents that will become our neighbors, e.g., can they safety plant gardens with no concern of phyto-bioaccumulation, can they or their children safely dig in their backyards, can they put in a below-ground pool, or will their pets be safe?

5-238

5-239

We believe these are reasonable requirements or questions that should be contained within or answered in the DEIR.

Sincerely,

A. Keith Miles, PhD
Wildlife Biologist, Research
Faculty, Ecotoxicology Area of Emphasis
Graduate Group in Ecology
University of California, Davis

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**Letter 5
Cont'd.**

Curricula Vitae

A. Keith Miles
Western Ecological Research Center, USGS
Davis Field Station, 1 Shields Avenue
University of California, Davis
Davis, California 95616
530-752-5365
keith_miles@usgs.gov akmiles@ucdavis.edu

EDUCATION

Ph.D., Oregon State University, June 1987, Wildlife Ecology
M.S., Oregon State University, August 1976, Wildlife Biology
B.S., Howard University, June 1972, Zoology

CURRENT ASSIGNMENT

June 1997 – present Supervisory Wildlife Biologist, Research U.S. Geological Survey

CURRENT RESEARCH

I lead a team of 4 biologists and 10 technicians that specialize in field-oriented investigative approaches to contaminants problems and general problems of conservation of wildlife species. My primary research interests are the effects of contaminants on wildlife and their habitats, with primary focus on ecology of estuarine and marine organisms and habitats. The goals of my research are to determine consequences of accumulation of contaminants in prey, and discriminate the effects caused by contaminants from naturally occurring changes in prey populations

I conduct studies on the effects of contaminants on the structure of invertebrate and vegetative assemblages and the potential for accumulation of these contaminants among specific prey guilds of migratory aquatic birds and marine mammals. My studies have focused on communities at Chesapeake Bay, San Francisco Bay, and the Arctic environment. More recently, I expanded my research to the effects of contaminants desert ecosystems. Results of my research are expected to clarify the role of specific contaminants on the structure and function of marine, estuarine, and desert communities.

ACADEMIC AFFILIATIONS & THESES ADVISEMENT

August 2008 – present - Graduate Awards Committee, Graduate Group in Ecology, University of California, Davis
Sept 2001 – 2005 - Chair, Ecotoxicology, Graduate Group in Ecology, UCD
Jan 1998 – present - Faculty, Graduate Group in Ecology, UCD
June 2006 – present -AES Associate, Wildlife, Fisheries, and Conservation Biology, UCD

Major Advisor – current students.
Ricca. PhD candidate 2015. Functionality of created wetlands in desert ecosystems.
Komoroske. PHD candidate. Boindicators of stress in endangered green turtles.

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Cont'd.**

Grof-Tisza. PhD candidate 2012. Polycyclic Aromatic Hydrocarbon (PAH) Contamination and gene expression in seaducks.
Wainwright de la Cruz. PhD candidate 2010. The effects of contaminants and non-native invasive species on declining seaducks wintering in the San Francisco Bay estuary.
Roberts. PhD. 2009. Predictive Model of Spotted Owl Occurrence in Yosemite National Park Based on Fire History and Nest-site vegetation characteristics.
Ordenana. MS. 2009. Large mammal habitat use in urban environments in southern California.

CURRENT UNIVERSITY of CALIFORNIA, DAVIS, COLLABORATIVE STUDIES

Dr. Jeff Stott, Dr. Liz Bowen. Environmental signatures linked with gene expression patterns in sea otter (*Enhydra lutris*) Environmental signatures and gene expression patterns in sea otter.
Dr. Barry Wilson. Cytochrome P-450 and effects of hydrocarbons on Alaskan seaducks.
Dr. Sharon Lawler. Effects of mosquito vector control agents on endangered fairy shrimp.
Dr. Michael Johnson. Co-advisor, Grof-Tisza (see above).
Dr. John Eadie. Co-advisor, Wainwright (see above).
Dr. Doug Kelt. Co-advisor. Roberts. (see above).
Dr. Dirk Van Vuren, Co-advisor. Ordenana.

CURRENT COMPETIVELY AWARDED STUDIES

Aquatic Bird Use of Recreated Wetlands, Salton Sea, California: Benefits and Contaminant Risks. U.S. Bureau of Reclamation, 2006, State of California 2007.
Effects of mercury (Hg) on waterbirds and habitat at San Luis NWR. USFWS 2007.
Effect of mosquito larvicides on endangered fairy shrimp. USFWS 2007.
Effects of mercury (Hg) on waterbirds and habitat at San Francisco Bay. CALFED 2005
Effects of Hydrocarbons on seaducks in Alaska U.S. Fish & Wildlife Service, September 2001, 2003, 2005, 2007, 2008.
Understanding the dynamics of mercury in eared grebes on the Great Salt Lake, Utah. U.S. Fish & Wildlife Service, 2006.
Snowy Plovers at Point Reyes National Seashore: Unraveling the Mystery of Mercury, U.S. Park Service. 2006.
Science Support for Wetland Restoration of Salt Ponds, San Francisco Bay Estuary," USGS Place Based Program, October 2002, 2004, 2006.

RECENT JOURNAL ARTICLES (peer-reviewed)

Miles AK, Ricca MA, Anthony RG, Estes JA. *in press*. Organochlorine Contaminants in Fishes from Coastal Waters West of Amukta Pass, Aleutian Islands, Alaska. J. Environmental Toxicology and Chemistry.
Takekawa JY, Miles AK, Tsao Melcer D, Schoellhamer DH, Fregien S, Athearn ND *2009*. Dietary flexibility in three representative waterbirds across salinity and depth gradients in salt ponds of San Francisco Bay. Hydrobiologia. 626:155-168.
Tsao Melcer D, Miles AK, Takekawa JY, Woo I. *2009*. Potential Effects of Mercury on Threatened California Black Rails. Archives of Environmental Contamination and Toxicology. 56:292-301.
Ricca MA, Miles AK, Anthony RG. *2008*. Sources of organochlorine contaminants and mercury in seabirds from the Aleutian Archipelago of Alaska: inferences from spatial and trophic

Letter 5
Cont'd.

variation. Science of the Total Environment. http://dx.doi.org/10.1016/j.scitotenv.2008.06.030.

Roberts SL, van Wagtendonk JW, Miles AK, Kelt DA, Lutz JA. 2009. Modeling the effects of fire severity and spatial complexity on small mammals in Yosemite National Park, California. Fire Ecology 4:83-104.

Anthony RG, Estes JA, Ricca MA., Miles AK, Forsman ED. *2008*. Bald Eagles and sea otters in the Aleutian Archipelago: Indirect effects of trophic cascades. Ecology 89:2725-2735.

Eagles-Smith CA, Ackerman JT, Adelsbach TL, Takekawa JY, Miles AK, Keister RA. *2008*. Mercury correlations among six tissues for four waterbird species breeding in San Francisco Bay. J. Environmental Toxicology and Chemistry. 27(10):2136-2153.

Miles AK, Flint PL, Trust KA, Ricca MA, Spring SE, Arrieta D, Hollmen T, Wilson BA.. 2007. Polycyclic aromatic hydrocarbon exposure in Steller's Eiders and Harlequin Ducks in the eastern Aleutian Islands, Alaska, USA. J. Environmental Toxicology and Chemistry. 26(12):2694-2703.

Ricca MA, Miles AK, Anthony RG, Deng X, Hung SSO. 2007. Effect of lipid extraction on analyses of stable carbon and stable nitrogen isotopes in coastal organisms of the Aleutian archipelago. Canadian Journal of Zoology. 85:40-48.

Meckstroth AM, Miles AK, Chandra S. 2007. Diets of Introduced Predators Using Stable Isotopes and Stomach Contents. Journal of Wildlife Management. 71(7):2387-2392.

Anthony RG, Miles AK, Ricca MA, Estes JA. 2007. Sources of environmental contaminants in nesting bald eagles, Aleutian Archipelago, Alaska. J. Environmental Toxicology and Chemistry. 26(9):1843-1855.

Ackerman JT, Eagles-Smith, CA, Takekawa JY, Demers SA, Adelsbach TL, Bluso JD, Miles AK, Warnock N, Suchanek TH, Schwarzbach SE. 2007. Mercury concentrations and space use of pre-breeding American avocets and black-necked stilts in San Francisco Bay. Science of the Total Environment. 384:452-466.

Bowen L, Riva F. Mohr C, Aldridge B, Schwartz J, Miles AK, Stott JL. 2007. Differential gene expression induced by exposure of captive mink to fuel oil; a model for the sea otter. Ecohealth. 4:298-309.

Letter 5
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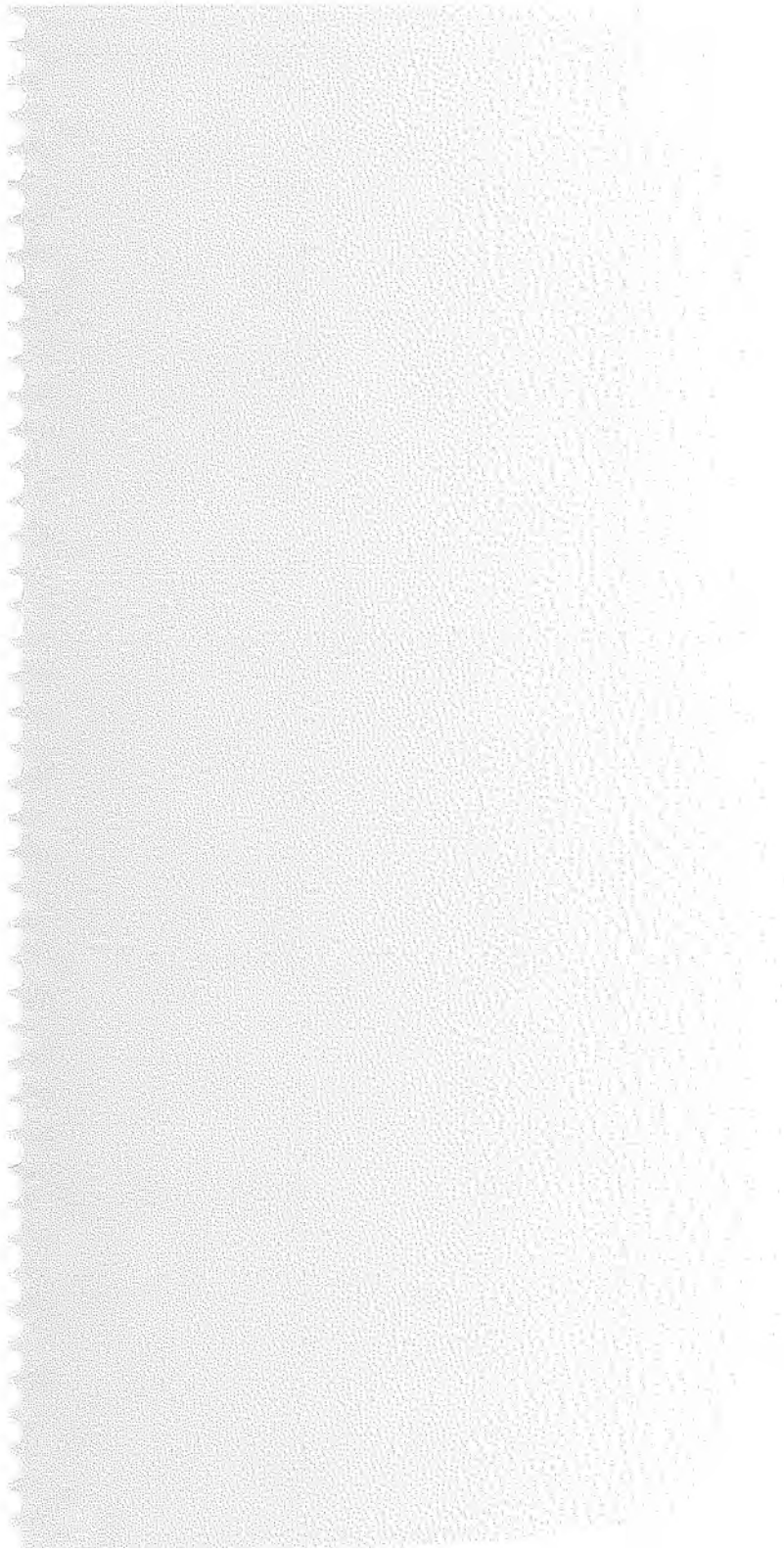

Letter 5
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Appendix J

Additional correspondence referenced in SCNA Comments

Letter 5
Cont'd.

Sacramento Area Council of Governments

1415 L Street
Suite 300
Sacramento, CA
95814

tel: 916 321 9000
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tdd: 916 321 9550
www.sacog.org

May 28, 2009

Heather Forest
Associate Planner
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

Dear Ms. Forest:

I am writing this letter in regards to the revised Curtis Park Village Plan, project P04-109. In 2005, SACOG Director Lauren Hammond requested that we analyze the preferred site plan for Curtis Park Village. We conducted our analysis and submitted a letter to the city council commending the Curtis Park Village plan for its outstanding site plan. The 2005 plan was in the spirit of the Blueprint growth principles. After a revised site plan was prepared in June 2008, we analyzed it and wrote a second letter. That letter expressed our disappointment in the June 2008 plan as it had changed significantly from a higher density, balanced plan to a plan with segregated low density land uses including 216 low density residential units and large commercial sites totaling over 305,000 square feet. As the plan has been revised as of November 2008, we would like to take this opportunity to analyze the current version of the plan.

SACOG staff evaluated the developer's current site plan against the Blueprint growth principles. The developer's site plan proposes a mixed use community comprised of 178 single family dwelling units, 212 multi-family units, 80 senior housing units, approximately 260,000 square feet of commercial, and a 7.5 acre park on approximately 72 acres. We understand from the developer that he is open to either commercial or multi-family uses on the parcel known as Mixed-Use Commercial Area #3. Our analysis of the project treats each of these options as equal possibilities. In this letter, these two options will be referred to as Option A (commercial on Area #3) and Option B (multi-family on Area #3). For Option B, the multi-family option, we assumed the 89,000 square feet of commercial space are removed and applied the site's average multi-family density of 31 dwelling units per acre to the 4-acre site, for the addition of 124 dwelling units to the site plan. The following are our findings from the technical analysis on both development options:

- Two commonly used measures within the planning profession to determine whether automotive transportation is reduced are vehicle miles traveled (VMT) and vehicle trips (VT). VMT is the amount of mileage the average residential household and/or employee in an area will travel in one day. VT is the number of vehicle trips made by the average residential household of an area in one day. SACOG was able to analyze the developer's site plan (Options A and B) and the developer's prior two plans in a regional travel model to compare VMT/HH and VT/HH. A table summarizing these results is presented below.

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Curtis Park Village Scenarios	Housing Units	Commercial Square Footage	Vehicle Trips per Household	Vehicle Miles Traveled per Household
2005 Developer Site Plan	549	200,000	7.72	32.57
June 2008 Developed Site Plan	216	305,000	10.73	45.16
Nov 2008 Developer Site Plan, commercial on Mixed-Use Area #3	470	259,000	9.14	38.37
Nov 2008 Developer Site Plan, multi-family option on Mixed-Use Area #3	594	170,000	7.47	31.46

- On a per household basis, both the Nov 2008 site plan Option A and Option B perform better than the June 2008 site plan, with 15% and 30% fewer VMT/HH, respectively. However, the Option B site plan outperforms the Option A site plan and slightly outperforms the 2005 site plan. The differences between Option B and Option A are more notable in vehicle trips per household: Option B generates 18% fewer VT/HH than Option A. The better travel benefits of the Option B site plan are due in part to the higher housing density of the plan combined with the site's location in a highly walkable neighborhood with good transit access

- Infill, particularly on constrained sites such as this project, is a strategy essential to the success of the Blueprint. We recognize that the site's access presents challenges, but also applaud the efforts of the city and developer to make use of this infill opportunity. We understand that the developer has preserved a landing for a pedestrian bridge connecting the site to Sacramento City College. We understand such a bridge would be a significant cost; we are willing to work with the city to explore funding possibilities if short term funding is not available. To maximize use of the pedestrian bridge, housing at its eastern landing would be the most optimum situation, since most users of the bridge will likely be traveling from Curtis Park to the Sacramento City College light rail station

- The Blueprint principle of providing transportation choice states that development should be designed to encourage the use of alternative modes of transportation. In areas around light rail stations, this means placing higher densities within walking distance of the stations and providing maximum circulation for all modes of transportation. The Curtis Park Village development is ideally situated to provide transportation choices as it is within ¼ mile of two light rail stations and has frequent bus service. We are pleased to see the numerous pedestrian and bicycle connections into, out of, and within the site. The pedestrian/bicycle connection at 10th Avenue is especially important to a future pedestrian bridge. In keeping with the site plan's efforts to blend the development into the existing neighborhood, we encourage the city to adopt transportation option 1, the "neighborhood connection option," which continues both 5th Avenue and Donner Way across 24th Street into the site. This option would maximize the travel benefits for all modes of travel into and out of the site.

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Sacramento Area Council of Governments: Basis for Comment on Development Proposals

The Sacramento Area Council of Governments (SACOG) is comprised of six counties and 22 cities in the region, including the City of Sacramento. SACOG's primary responsibility is developing and implementing the Metropolitan Transportation Plan (MTP), a document that establishes transportation spending priorities throughout the region. The MTP must be based on the most likely land use pattern to be built over the 25-year planning period, and it must conform with federal and state air quality regulations.

The MTP must effectively address two, linked, challenges. Current land use patterns, transportation funding levels, and transportation investment priorities are projected to lead to an increase in vehicle miles traveled that exceeds population growth, an increase in congestion levels of 50%, and increases in mobile source emissions, particularly carbon dioxide and particulates[1]. To attempt to solve these challenges two and one-half years ago the SACOG Board initiated the Blueprint project, an extensive study of the linkages between transportation, land use and air quality. The study has examined a number of growth alternatives at the neighborhood, county and regional scales and reached several important conclusions, including:

- The region will experience strong growth for the next 50 years, approximately doubling the number of jobs, people and houses;
- The structure of the population will change significantly, with two-thirds of the growth in households 55 years and older, and only 21 percent of the growth in households with school aged children;
- Older households have different housing needs and preferences than younger households – over two-thirds of today's householders over 55 express housing preferences for what might be termed non-traditional products in this marketplace – homes on small lots and attached housing;
- The rapid increase in housing prices in the region in the past few years has priced many people out of the home-buying market, emphasizing the need for alternative products such as small lot single family and attached housing that can be priced in a range that more people can afford;
- There is a strong connection between land use patterns, travel behavior and air quality;
- Specific land use patterns that lead to increased walking, biking and transit use and shorten the length of automobile trips include higher density housing and employment, locating jobs and housing near each other, and providing strong connectivity in the design of street and bicycle/pedestrian systems

[1] SACOG Metropolitan Transportation Plan, 2002

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- Compact development and a variety of housing options are important to the Blueprint planning principles. The proposed project provides a variety of housing options including traditional single family homes, duplexes, brownstones, and attached multi-family units.

- Mixed-use development has proven to create active, vital neighborhoods and is a key Blueprint planning principle. The Option A site plan, with an estimated 900 retail employees (based on proposed square footage), clearly is intended to draw retail customers from beyond the immediate local area. The ratio of retail employees to households for the project is 1.9 (assuming approximately 300 square feet per employee), more than six times the regional average of 0.3. As indicated in our first finding, above, the lower ratio of the Option B site plan, due to more housing and less commercial area, is the primary reason for its greater travel benefits. SACOG would like to see vertical mixed-use where residential is built above commercial or office uses; our understanding is the developer is not proposing this. To ensure a true mixed-use environment, the horizontal mixed use planned for the southern half of the site should have a more urban than suburban design to ensure pedestrian and bicycle access between the residential and mixed commercial uses.

- The design details of a land use development affect the attractiveness of a neighborhood and influences how often people walk or bicycle. These design details include street pattern and design, good architectural design, and the relationship of structures to the street. The detached single family homes in the proposed project appear to bring the front of the house closer to the street while placing the garage towards the rear of the house, which creates a more pedestrian-supportive environment. It is critical also that the multi-family housing and commercial buildings, especially those portions that abut the street, should also be designed to a pedestrian scale and oriented so that fronts on the street. In the commercial areas, pedestrian and bicycle traffic should be protected from crossing large expanses of parking lot, as such site design discourages pedestrian and bicycle travel. As part of the design for these areas, structured parking could be explored. If this is not feasible in the short term, the site plan could be designed to anticipate future structured parking when it becomes economically feasible. As with any proposed infill development, it will be essential that the City's design review process carefully examine the design of the proposed structures to ensure the attractiveness of the new neighborhood and its enhancement of the surrounding area.

Thank you again for your consideration.

Sincerely,

Mike McKeever
Executive Director

Letter 5
Cont'd.

ERM Remediation and Construction Management

1777 Botelho Drive
Suite 260
Walnut Creek, CA 94596
(925) 946-0455
(925) 946-9968 (fax)

ERM

28 July 2008

Mr. Fernando A. Amador, Chief
Sacramento Responsible Party Unit
Northern California Central Cleanup Operations Branch
Site Mitigation and Brownfields Reuse Program
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826-3200

Subject: Notice of Intent to Revise Remedial Action Plan
Curtis Park Rail Yard
2401 Sutterville Road
Sacramento, California

Dear Mr. Amador:

On behalf of Curtis Park Village (CPV), ERM Remediation and Construction Management West, Inc. (ERM) has prepared this letter to notify you of Curtis Park Village's intent to submit a Revised Soil Remedial Action Plan (RAP) for the Sale Parcel of the Curtis Park Rail Yard. This letter contains a short site history, a remediation status update, and a general description of the remedial approach that will be proposed in the revised soil RAP. CPV has no intent to modify the approved remedy for ground water; therefore this letter addresses only the status of, and proposed changes to, the soil remedy.

SITE HISTORY

The previous owners of the property, most recently Union Pacific Railroad Company (UPRR), performed investigations and studies at Curtis Park since the late 1980s to evaluate the nature and extent of impacts to site soil and groundwater. These investigations and studies described elevated concentrations of certain compounds of concern (COCs) in soil. Historical railroad operations were identified as the source of these compounds. The *Final Remedial Action Plan* (Dames and Moore, 1995) identified excavation and offsite disposal for soil containing COCs in excess of cleanup goals.

**Letter 5
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In 2003, UPRR began soil remediation pursuant to the *2002 Remedial Action Design* (2002 RAD, Locus), and shortly thereafter sold a portion (the Sale Parcel) of the rail yard to CPV. The Sale Parcel consists of Operable Units (OUs) S-1, S-2, and S-3. CPV assumed responsibility for implementing the RAP, which identified approximately 90,000 cubic yards (CY) of soil requiring excavation within the Sale Parcel.

During 2004, CPV purchased a narrow strip of land (the Additional Parcel) adjacent to the western boundary of the Sale Parcel. The Department of Toxic Substances Control (DTSC) issued an Explanation of Significant Differences that extended the remedies approved in the RAP to the Additional Parcel (September 2005). ERM prepared the *Final 2004 Remedial Design and Implementation Plan* (2004 RDIP, ERM) to address remaining areas within the site that contain impacted soil and require additional soil remediation. This included locations within OU S-1, OU S-2, and OU S-3.

At the time that CPV purchased the property, the existing data suggested that completion of the remedy would require excavation, loading and disposal of approximately 80,000 CY of soils. Through 2007, CPV has excavated and disposed of approximately 74,000 CY, substantially achieving the design limits and confirmation sampling specified in the 2002 RAD and the 2004 RDIP.

The March 2008 *Interim Data Summary Report* (ERM) included all available confirmation sampling results collected between 2003 and 2007. The sampling results indicate that additional excavation would be required to achieve the remedial goals in many areas. The data did not reveal how much more excavation would be needed, thus additional excavation was planned on the basis of over-excavation procedures approved in the RDIP.

Removal of the additional impacted soil was scheduled to begin in June 2008 with an estimate of 50,000 CY of additional excavation established for planning purposes. At the time, the estimate seemed conservative, because if that entire amount were to be excavated, it would have increased the original estimate by more than 60 percent.

**Letter 5
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CHANGED CONDITIONS DISCOVERED 2008

CPV field construction crews mobilized in mid-June 2008 and began excavation at the south end of the property to complete the UPRR digs and excavations S3-1 and S3-2 to design limits. The crew then moved to OU-S2.

CPV advanced three dozen shallow borings in the OU-S2 and OU-S3 areas that were suspected of containing the most extensive COC impact. The purpose of the borings was to attempt to establish, by visual means, the extent of COCs within the upper 10 feet of soil. Previous site experience indicated a strong correlation between visually observable soil staining, so the boreholes were sampled continuously and logged for visually observed contamination only. Some discrete samples were taken and analyzed for PAHs to support the findings in some of the samples that were not stained. The established limits would allow excavation to proceed efficiently so that the soil remedy could be completed within calendar year 2008, per DTSC's expectations.

Visual indications and lab data indicate that the extent of COCs in soil is far greater than originally estimated. Figure 1 shows the known extent (but not the limits) of COC impact within the upper 10 feet of the northern portion of the site, based on previously available data, historical observations of visible staining, and the observations from the borings. The known extent was roughly drawn based on the same criteria that were used to establish the design limits in the RDIP and previous workplans.

Based on these findings, ERM has estimated that the soil volume requiring excavation to achieve the remedial goals within the area illustrated on Figure 1 will exceed 100,000 CY. Since the known extent is not bounded either vertically or horizontally in most directions, it is probable that the total volume that must be removed may reach or exceed 200,000 CY.

These findings indicate that the scope of work anticipated by the 1995 RAP could quadruple, making the existing remedial alternative unfeasible.

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CURRENT STATUS

Approximately 18,728 CY have been excavated to date during the 2008 construction season. The design limits of the various excavations have been substantially achieved throughout the site, except for the excavations to be performed in the Western Loop and the Additional Parcel. The total volume excavated by CPV is approximately 92,724 CY (including the soils excavated during 2008). As there has been no transport and disposal of waste during 2008, there are currently 18,728 CY stockpiled on the Additional Parcel, and one 500 CY stockpile of asbestos-containing material on the Sale Parcel.

CPV suspended work as of 14 July 2008 until an approach could be developed in consultation with DTSC. In a meeting on 11 July 2008, CPV notified DTSC of the suspended action. The meeting included a discussion regarding the path forward. All parties agreed to consider a new approach to the remediation of the site.

INTERIM APPROACH

CPV intends to resume excavation by mid August, and to stockpile soil on site pending the preparation and approval of a revised RAP and RDIP.

Excavation will be limited to the areas that are intended for unrestricted residential use, and excavated soil will be stored in large windrows in areas intended for commercial use. The existing non-ACM stockpiles may be consolidated to optimize on-site logistics. Some limited investigation will be performed to guide the excavation; any data derived from the investigation will be published as part of a revised RAP.

PROPOSED REMEDY

During preparation of a revised RAP, CPV will evaluate an alternative that allows consolidation and capping of waste on site rather than offsite disposal. This alternative will retain the concept of unrestricted residential use for a portion of the site and restricted use in the commercial areas, as described in the current RAP. The main change considered in this alternative will be that unrestricted residential areas

**Letter 5
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will be remediated by removal of all soil that exceeds the remedial goals, and the soil will be placed in the commercial areas. The commercial areas will then be capped to prevent human contact. The cap will consist of some combination of pavement, building foundations slabs, or clean soil.

Characteristics of Existing RAP to be Retained

The revised RAP is expected to preserve the following characteristics of the existing RAP:

- Land use split between unrestricted residential and commercial-only use;
- Deed restriction on commercial land use areas;
- Excavation and removal as the remedy for unrestricted use; and
- Confirmation sampling in unrestricted residential areas.

Changes in New RAP

The revised RAP will address an alternative that includes the following remedy components:

- Consolidation and capping of excavated soil in the commercial portion of the property;
- Analysis and resolution of data gaps to confirm that unrestricted portions of the property meet residential cleanup goals;
- No confirmation sampling in commercial areas; and
- No further shipment of waste off site.

**Letter 5
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SCHEDULE

The proposed schedule for the activities described above includes the following milestones:

• Re-start excavation	August 2008
• Investigation Workplan	September 2008
• Complete Field Investigation	November 2008
• Draft Revised RAP	1Q 2009
• Draft Revised RDIP	2Q 2009
• Implement Remedy	2009 Construction Season

Please indicate your concurrence with the proposal described above to revise the Curtis Park RAP for soil. If you have any questions or require additional information please call me at (925) 946-0455.

Sincerely,

Benjamin Leslie-Bole
Principal

BLB/RM/0043003.20

cc: Jim Levy, UPRR
Chris Poncin, Curtis Park Village

Letter 5
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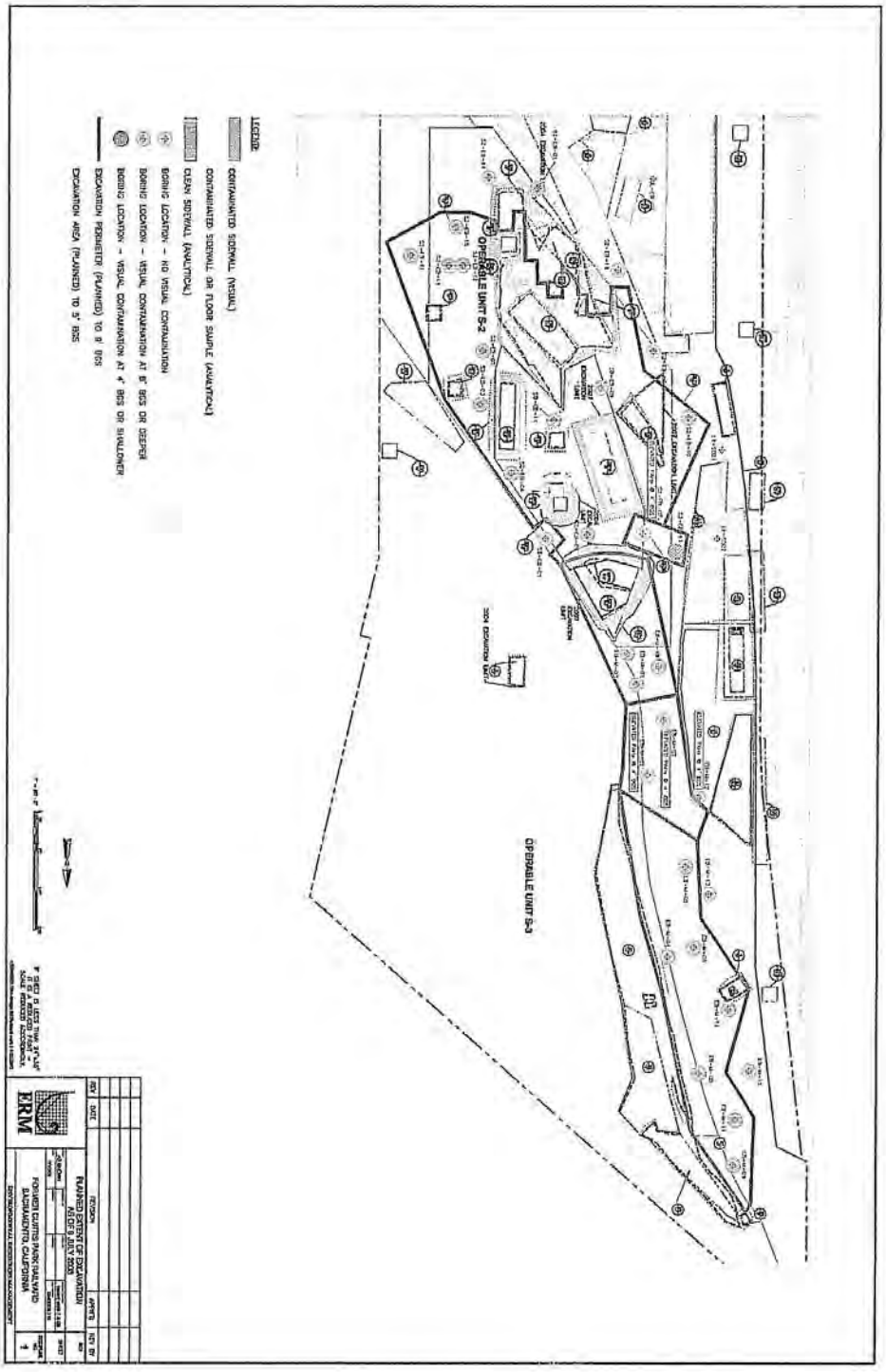

Letter 5 Cont'd.

Department of Toxic Substances Control

Linda S. Adams
Secretary for
Environmental Protection

Maureen F. Gorsen, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

August 13, 2008

Mr. Phil Harvey
Curtis Park Village, LLC
5046 Sunrise Blvd., Suite 100
Fair Oaks, California 95628

NOTICE OF INTENT TO REVISE REMEDIAL ACTION PLAN, INACTIVE AREA, CURTIS PARK RAIL YARD, SACRAMENTO, CALIFORNIA

Dear Mr. Harvey:

The Department of Toxic Substance Control (DTSC) has reviewed the July 28, 2008 letter (Letter) prepared by ERM Remediation and Construction Management West, Inc. (ERM) on behalf of Curtis Park Village, LLC (CPV) for the inactive portion of the Union Pacific Railroad Company, Curtis Park Site located at 3675 West Pacific Avenue, Sacramento, California. The purpose of the Letter is to provide notification of CPV's intent to amend the 1995 Remedial Action Plan (RAP) for the Sale Parcel of the Curtis Park Rail Yard Site (Site). CPV proposes to amend the soil remedy for the Sale Parcel of the Site. Curtis Park Village, LLC, the current owner of the property, is implementing the remediation in accordance with the approved 1995 RAP. The RAP identified approximately 90,000 cubic yards of soil requiring removal from Operable Unit (OUs) S-1, S-2 and S-3. The remediation is being conducted pursuant to Enforceable Agreement No.: HSA 86/87-015EA issued by DTSC to Union Pacific Railroad Company on March 26, 1987. The approved remedy in the 1995 RAP consists of excavation and offsite disposal of soils containing metals, petroleum hydrocarbons, polynuclear aromatic hydrocarbons and other constituents and Land Use Covenant (LUC) for areas where contaminants would remain above unrestricted levels.

The Sale Parcel consists of Operable Units (OUs) S-1, S-2, and S-3. CPV purchased a narrow strip of land (the Additional Parcel) adjacent to the western boundary of the Sale Parcel in 2004. As of today, approximately 74,000 cubic yard of impacted soil has been excavated and disposed. About 18,728 cubic yard of excavated soils is currently stockpiled onsite. Confirmation Sampling collected in 2003 and 2007 indicated additional excavation and disposal of impacted soil is required since the cleanup goals have not been met.

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In June 2008, CPV advanced three dozen shallow borings in OU-S2 and OU-S3 to assess the soil for visual contamination and to collect soil samples for laboratory analyses. The result of the boring investigation indicated that the extent of COCs in soil is far greater than originally estimated. The estimated volume of soil requiring excavation to meet the cleanup goals will exceed 100,000 cubic yards and the total volume of soil must be removed may reach as high as 200,000 cubic yards. The revised estimate indicates the anticipated amount of soil requiring removal by the 1995 RAP could quadruple and making the approved remedial alternative unfeasible.

CPV proposes to revise the RAP by including evaluation of remedial alternative that allows consolidation and capping of waste in the commercial portion of the property. The Amended RAP would retain the concept of unrestricted residential use for a portion of the site and restricted use in the commercial areas, as described in the current RAP. However, the commercial areas will be capped to prevent human contact with contaminated soil. The cap will consist of some combination of pavement, building foundations slabs or clean soil.

The proposed schedule include conducting additional investigation determine the extent of the contamination at the Site. CPV should review previous reports to assess if there any data gap existed at the Site and to verify the quality of the data to support remedy decisions. It is imperative to determine the full nature and extent of contamination remaining and to be consolidating at the Site. Also, CPV should also re-evaluate the risk assessment for exposures by future populations.

DTSC believes that placing a building structure over contaminated soil that needs to be capped should be avoided. Such a concept would make it difficult and expensive to inspect the facility or mitigate any potential future problem with the cap or hazardous substance soil remains in place. DTSC also has concerns with the incompatibilities of office building activities occurring above capped hazardous substance soil along with activities associated with managing, maintaining, and repairing a regulated cap. DTSC would be more amenable to a traditional capped facility that is located in an area of open space and that is accessible for inspection, monitoring, and maintenance.

Current regulation (CCR, Title 22, Section 67391.1) prohibits DTSC approval of a response action decision document which includes limitations on land use or other institutional controls, unless the limitations or controls are clearly set forth and defined and supported with an implementation and enforcement plan. DTSC has concerns with the practicality and effectiveness of issuing, maintaining, and enforcing institutional controls through issuance of separate deed restrictions for a large number of capped parcels where hazardous substance soil may be placed. For each capped parcel, adequate precautions would need to be established and maintained for the protection of

Letter 5
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human health under conditions of maintenance, modifications, or repair of underground utilities or sewers located under capped parcels. These restrictions, operation and maintenance requirements, and protection measures would need to remain effective in perpetuity. DTSC believes it would be preferable for CPV to select a single or small number of dedicated locations of open space that would be compatible with future development.

In addition to protection of public health, the proposed remedy must be protective of groundwater. Prior to preparation of the RAP amendments, CPV will need to demonstrate that any existing and backfill soil to be capped will not result in the degradation of groundwater (Title 27 requirements).

A Remedial Investigation Report, Health Risk Assessment, Feasibility Study, and CEQA evaluation have been prepared and constitute the administrative record in support of the previous RAP determinations. The proposed modification to the RAP would result in the need to re-create a similar administrative record in support of the Amended RAP. The approval of the Amended RAP would require following section 25356.1 of the California Health and Safety Code that include public participation activities for approval of the Amended RAP.

If you have any questions or comments, please contact me at (916) 255-3643.

Sincerely,

Thomas Tse
Sacramento Office
Brownfields and Environmental Restoration Program

cc: Mr. Benjamin P. Leslie-Bole
ERM Remediation and Construction Management West, Inc.
1777 Botelho Drive, Suite 260
Walnut Creek, California 94596

Mr. Rudolph R. Millan, P.E.
ERM Remediation and Construction Management West, Inc.
1777 Botelho Drive, Suite 260
Walnut Creek, California 94596

Letter 5 Cont'd.

Linda S. Adams
Secretary for
Environmental Protection

Department of Toxic Substances Control

Maureen F. Gorsen, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

September 16, 2008

Mr. Phil Harvey
Curtis Park Village, LLC
5046 Sunrise Blvd., Suite 100
Fair Oaks, California 95628

REQUEST FOR HAZARD ASSESSMENT REPORT AND STOCKPILE MANAGEMENT PLAN, CURTIS PARK RAIL YARD SITE, INACTIVE YARD, SACRAMENTO, CALIFORNIA

Dear Mr. Harvey:

The Department of Toxic Substance Control (DTSC) is overseeing the investigation and remediation of the Curtis Park Rail Yard Site (Site). The remediation is being conducted pursuant to Enforceable Agreement No.: HSA 86/87-015EA issued by DTSC to Union Pacific Railroad Company (UP) on March 26, 1987. Curtis Park Village, LLC (CPV) purchased in the inactive portion of the Rail Yard Site in 2003 from UP. CPV, as the current owner of the property, is implementing the remediation in accordance with the approved 1995 Remedial Action Plan (RAP). The RAP identified approximately 90,000 cubic yards of soil requiring removal from the inactive portion of the Site. The approved remedy in the 1995 RAP consists of excavation and offsite disposal of impacted soils. On July 28, 2008, CPV notified DTSC of their intention to modify the approve RAP because the amount of soil needed to be removed in order to meet the cleanup goal has been estimated to significantly larger volume which would make the approved remedial alternative infeasible to implement. CPV is currently exploring other remedial alternative to address the increased amount of impacted soil at the Site.

ERM Remediation and Construction Management West, Inc. (ERM) has notified DTSC that construction activities including offsite disposal have been halted until the Amended RAP has been approved to address the increase volume of impacted soil. Currently there is over 19,000 cubic yard of excavated soil stockpiled on site. Since the previous stockpile management plan (Plan) was developed for staging the soil for offsite disposal, DTSC requests CPV to review and revise (if necessary) the stockpile management plan (Plan) in the Remedial Design and Implementation Plan to describe tasks required to effectively manage the excavated soil until the final disposition for the soil has been resolved. The Plan should keep in mind that excavated soil may be capped on site instead of transporting it for offsite disposal. Soils that may require

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treatment should be segregated from other stockpiles. Stockpile tracking and record keeping should also be reviewed and revised (if necessary) to ensure all necessary information are available in the future to decide on the final disposition of the excavated soil. Measures should be implemented for soil remaining onsite to prevent any migration including overland runoff during inclement weather.

It is essential to protect the community from potential release of fugitive dusts from the site. A Plan must be developed and describe the tasks necessary to monitor the stockpiles onsite. In addition, visual impacts should be addressed during the evaluation of the Plan. CPV should limit the height of the stockpiles to ensure it does not create a nuisance to the local residence. In addition to protecting the community from the contaminant onsite, CPV should conduct an assessment of the Site to identify and to minimize any potential hazards at the Site. Open excavation needed to be marked and should be properly sloped to reduce potential cave-in and potential physical hazard to trespassers. Site security must be maintained to prevent unauthorized person from entering onto the Site. CPV needs to develop a plan describing the activities to be performed by CPV to ensure the Site is secured to protect public health and the environment. The Plan should identify any current and potential hazards, propose actions to address these hazards and including a schedule to monitor the effectiveness of the measures implemented. These plans should be submitted to DTSC for review and approval within 30 days of the date of this letter

If you have any questions or comments, please contact me at (916) 255-3643.

Sincerely,

Thomas Tse

Thomas Tse
Project Manager
Sacramento Office
Brownfields and Environmental Restoration Program

cc: Mr. Benjamin P. Leslie-Bole
ERM Remediation and Construction Management West, Inc.
1777 Botelho Drive, Suite 260
Walnut Creek, California 94596

Letter 5
Cont'd.

cc: Mr. Rudolph R. Millan, P.E.
ERM Remediation and Construction Management West, Inc.
1777 Botelho Drive, Suite 260
Walnut Creek, California 94596

Mr. Fernando Amador, P.E. **(sent via email)**
Supervising Hazardous Substances Engineer
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826-3200

Letter 5
Cont'd.

ERM Remediation and Construction Management

1777 Botelho Drive
Suite 260
Walnut Creek, CA 94596
(925) 946-0455
(925) 946-9968 (fax)

ERM

19 September 2008

Via Electronic Mail

Mr. Fernando A. Amador, Chief
Sacramento Responsible Party Unit
Northern California Central Cleanup Operations Branch
Site Mitigation and Brownfields Reuse Program
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826-3200

Attention: Mr. Thomas Tse

Subject: Workplan for Implementation of
Additional Remedial Investigation
Operable Units S-1, S-2, and S-3
Curtis Park Rail Yard
Sacramento, California

Dear Mr. Tse:

ERM Remediation and Construction Management West, Inc. (ERM) has prepared this workplan on behalf of Curtis Park Village (CPV) for the purpose of identifying our proposed approach to implementing a revised remedial strategy for impacted soils at the subject site. This workplan has been prepared pursuant to our 5 September 2008 submittal entitled *Proposed Scope and Schedule for Revised Remedial Action Plan, Operable Units S-1, S-2, and S-3, Curtis Park Rail Yard, Sacramento, California.*

Specifically, this workplan addresses implementing additional remedial investigation to address remaining data gaps regarding the extent of impacts at the site, potential threat to ground water or indoor air from constituents of potential concern in site soil, and the suitability of selected commercial portions of the site for consolidating and capping waste. Other activities identified in the Scope Document, namely re-evaluating potential risks and risk pathway (and identifying updated cleanup goals), evaluating remedial alternatives consistent with additional investigation findings, and preparing updated decision documentation including a revised Remedial Action Plan (RAP), will be addressed subsequent to the completion of additional remedial investigation activities.

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PROJECT BACKGROUND SPECIFIC TO PROPOSED WORKPLAN

The CPV site consists of portions of the former Union Pacific Railroad Company (UPRR) Curtis Park Rail Yard in Sacramento, California (Figure 1). The site includes three Operable Units (OUs) identified as S-1, S-2, and S-3, which CPV purchased from UPRR in 2003 (collectively referred to as the Sale Parcel), and the Additional Parcel, which CPV purchased from UPRR in 2004. Details of the site are shown on an aerial photograph presented as Figure 2. Additionally, Figure 2 indicates a grid system by which the sampling program addressed in this workplan is identified, along with eleven Investigation Areas defined by their geographic location within the site and/or proposed land use.

In a letter to the Department of Toxic Substances Control (DTSC) dated 28 July 2008, CPV notified DTSC that site conditions were significantly different than anticipated in the *Final Remedial Action Plan* (RAP) prepared by Dames and Moore in 1995 on behalf of UPRR. Based on the visual findings associated with approximately three dozen shallow soil borings in OUs S-2 and S-3 (Figure 3), drilled under CPV direction in June 2008 and sited in the area suspected of containing the most extensive impacts from constituents of concern (COC), CPV concluded that the estimated soil volume requiring excavation to achieve remedial goals specified in the RAP could be as much as three times the volume anticipated in the RAP. CPV proposed preparing a revised RAP, and evaluating the feasibility of a remedial alternative that would allow consolidation and capping of soils exceeding cleanup levels on site rather than disposing of those materials offsite.

In DTSC's 13 August 2008 response to CPV's proposal to revise the RAP, you indicated that certain actions would be required, including:

- Reviewing all previous documentation/reports to assess any remaining data gaps at the site and verifying data quality to support decisions regarding a revised remedy;
- Determining the nature and extent of contamination remaining at the site;
- Re-evaluating the risk assessment to consider exposures by future populations;
- Demonstrating that any existing and/or backfill soil to be capped will not result in the degradation of ground water at the site; and

**Letter 5
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- Supplementing the administrative record necessary to support a revised RAP, including updates to the Remedial Investigation Report, Health Risk Assessment, Feasibility Study, and California Environmental Quality Act (CEQA) evaluation

ERM has already initiated review of previous documentation that would be of assistance in identifying and addressing remaining data gaps. Additionally, in August 2008, CPV installed 52 borings in the northern portion of OUs S-1 and S-3 (IB-1 through IB-52; Figure 3) as the first step in addressing DTSC's request for additional characterization at the site. Data associated with the June and August 2008 additional characterization will be presented in a *Supplemental Site Characterization Report*, which will be prepared following completion of the activities addressed in this workplan.

PROPOSED SCOPE OF ADDITIONAL INVESTIGATION

This section presents CPV's proposed approach to performing supplemental site characterization activities. These activities are categorized as pre-field, field, and reporting tasks, as outlined below.

Pre-Field Activities

The following is a description of activities CPV will complete prior to implementation of invasive site investigation activities.

Permitting

CPV's August 2008 field investigation was performed pursuant to Sacramento County Environmental Management Department (SCEMD) Permit No. 44724. ERM anticipates that the proposed borings for the current phase of investigation, estimated to approximately one hundred, can be performed as an addendum to that permit. ERM is currently coordinating the permit update, including payment of all necessary fees to SCEMD, and will ensure that the permit is current prior to implementing the proposed field investigation.

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Health and Safety Plan Preparation

ERM maintains a project-specific health and safety plan (HASP) for this site. The purpose of the HASP is to identify any potential physical and/or chemical hazards associated with site activities, including excavation work and geological investigations, and thereby provide as much protection as possible to ERM staff, subcontractors, and authorized site visitors. To the degree necessary and appropriate, ERM will update the HASP to reflect the current scope of work prior to its implementation.

Boring Location Placement

As described above, ERM has developed a coordinate system, set on 50-foot centers, by which our proposed sampling locations can be identified. That coordinate system is indicated in Figure 3, along with the proposed boring locations. ERM will provide the locations (e.g., D/28) to a California-licensed land surveyor, who will survey and stake each location in advance of implementing site drilling activities. This approach will ensure that the desired drilling locations are accurately located and tied to the existing site survey.

Field Activities

Proposed field investigation activities include the collection of discrete depth soil samples from borings, as identified above, collection of surficial confirmation samples pursuant to previous excavation activities at selected portions of the site, and collection of surficial samples associated with a visually identifiable layer of potential impact in the southern portion of the site. Each of these activities is addressed below.

Soil Borings

Using a California-licensed C-57 drilling contractor, CPV will oversee the drilling of approximately 100 borings and collection of soil samples at selected depths within the borings using direct-push technique. The locations of the proposed borings are shown in Figure 3 and are identified by Investigation Area and grid coordinates in Table 1. Understanding that many of the proposed boring locations fall within areas that have already had some degree of excavation, the target depth for samples will vary relative to current grade and to the depth of anticipated impacts from COCs (based on former site usage and depth of fill). The column in Table 1 indicating approximate surface elevation

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represents current surveyed elevations (identified from previous survey data). Likewise, the next two columns, indicating total boring depth and depth of sample collection, respectively, are based on current survey data and CPV's understanding of the potential depth of impacts. Table 1 also indicates the various COCs that will be sampled for at individual locations.

Following completion of soil sampling activities, each soil boring will be grouted with a cement/bentonite mixture in accordance with SCEMD guidelines. Grout will be emplaced using a tremie pipe to total depth in each boring. All SCEMD permit conditions will be complied with during all phases of soil boring and abandonment.

Surface Soil Confirmation Sampling

In 2002-2003, Locus Technologies performed limited excavation of soils in the southern portion of the site (OU S-1/Investigation Area 10) on behalf of UPRR. As part of additional remedial investigation leading to a revised RAP for this project, CPV will perform surficial confirmation sampling to define the extent to which Locus' excavation work met the RAP-defined remedial goals. The proposed locations for confirmation sampling are shown in Figure 3, and the proposed COCs to be sampled for are indicated in Table 1.

Additional Surficial Soil Sampling

In the southern margin of OU S-1, along the perimeter road established to facilitate excavation activities throughout the site, a shallow, approximately 6-inch thick layer of blackened soil has been observed. This layer appears to be consistent across the southeastern portion of the site. Although its origin is unknown, it appears to represent organic contamination that should be evaluated in the context of characterizing the site and evaluating site-wide remedial alternatives.

Given that the layer appears to be consistent in character across its occurrence, CPV believes that sampling the unit at no more than three locations will be sufficient to characterize it. The proposed locations for sampling the layer are shown in Figure 3, and the COCs to be analyzed for are indicated in Table 1.

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Laboratory Analyses

As indicated in Table 1, the primary COCs for the site are polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons in the diesel and motor oil ranges (TPH-d and TPH-mo, respectively), and the heavy metals arsenic and lead. Based on historical uses of selected portions of the site, and on findings from previous investigations and/or confirmation sampling across the site, one or more of these COCs will be evaluated at each location, as identified in Table 1. Surface soil samples and samples from soil borings will be collected and preserved in accordance with standard practices, and will be transferred under full chain-of-custody documentation to Accutest, Inc., a California-certified analytical laboratory, where they will be analyzed as follows:

- PAHs using U.S. Environmental Protection Agency (USEPA) Method 8270 with Selected Ion Monitoring (SIM) for lower detection limits;
- TPH-d and TPH-mo using USEPA Method 8015-modified; and
- Arsenic and lead using USEPA Method 6010.

Sample analyses will be performed on a standard (10-day) turnaround basis. As necessary and appropriate to facilitate interpreting results for potential follow-up sampling, we may request a faster turnaround time for selected samples and/or analyses.

Reporting

Upon completion of the supplemental remedial investigation, including any follow-up sampling necessitated by preliminary results, CPV will prepare a *Supplemental Site Characterization Report*, which will include current sampling data along with the results of the June and August 2008 soil sampling investigations performed by CPV and referenced above. The report will provide a comprehensive summary of historical investigative and remedial actions at the site. As requested by DTSC, the report will also provide an evaluation of the quality of historical investigation results and their applicability to a revised remedial approach.

Analytical results for the 2008 investigations performed by CPV will be summarized in tabular form. Figures demonstrating sampling locations and, to the degree appropriate, analytical results will also be included. Field notes, boring logs, permit information, and analytical laboratory

**Letter 5
Cont'd.**

reports, including ERM's data quality assessment, will be presented as appendices to the report.

CPV will provide DTSC with a draft version of the report for review and comment. As appropriate, we are amenable to meeting with DTSC to discuss the results and any comments or concerns you may have. Upon resolving any of those issues, CPV will prepare a final document for submittal to DTSC, paving the way for implementation of the additional decision documentation referenced above (i.e., additional risk evaluation, alternatives analysis, CEQA evaluation, and a revised RAP).

PROPOSED IMPLEMENTATION SCHEDULE

The field investigation referenced above is scheduled for implementation beginning Monday, 22 September 2008. We anticipate the initial phase of investigation will be accomplished in two weeks, and will be completed prior to the week of 6 October 2008. During that interval, we will prepare daily sample shipments to the laboratory, and we should begin receiving preliminary analytical results during the week of 6 October 2008. Pending interpretation of the results for this phase of investigation, we have tentatively scheduled remobilization for follow-up sampling, which we anticipate implementing in early November 2008. This second phase of work will require up to two weeks to complete, and all analytical results for that work should be available by the end of November 2008.

Given the schedule defined above for completion of the supplemental site investigation, we anticipate beginning preparation of the *Supplemental Site Characterization Report* by mid-December 2008, with a target date of 9 January 2009 for submittal of a draft report to DTSC. Based on that schedule, we plan to complete finalization of the report, including incorporation of DTSC comments, by the second week of February 2009.

At this point, we consider this schedule to be tentative, understanding that weather conditions could impact our field schedule, but we will make every reasonable effort to meet or exceed it. A schedule for implementation and submittal of the additional decision documentation referenced above will be coordinated with DTSC upon completion of this phase of work.

**Letter 5
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CLOSING

We appreciate DTSC's continued cooperation and guidance on this project, and look forward to its successful resolution As indicated, we will implement the next phase of field investigation on Monday, 22 September, and will keep you apprised of all developments on the project. In the interim, if you have any questions or comments, please don't hesitate to contact one of the undersigned at 925.946.0455.

Sincerely,

Matt Scheeline
Senior Geologist

Michael E. Quillin, P.G.
Project Manager

Benjamin Leslie-Bole
Principal-in-Charge

MEQ/BLB/MS/0043003

Attachments: Figures 1, 2, and 3
Table 1

cc: Mr. Chris Poncin, Curtis Park Village
Mr. Jim Levy, UPRR

Letter 5
Cont'd.

Figures

Letter 5
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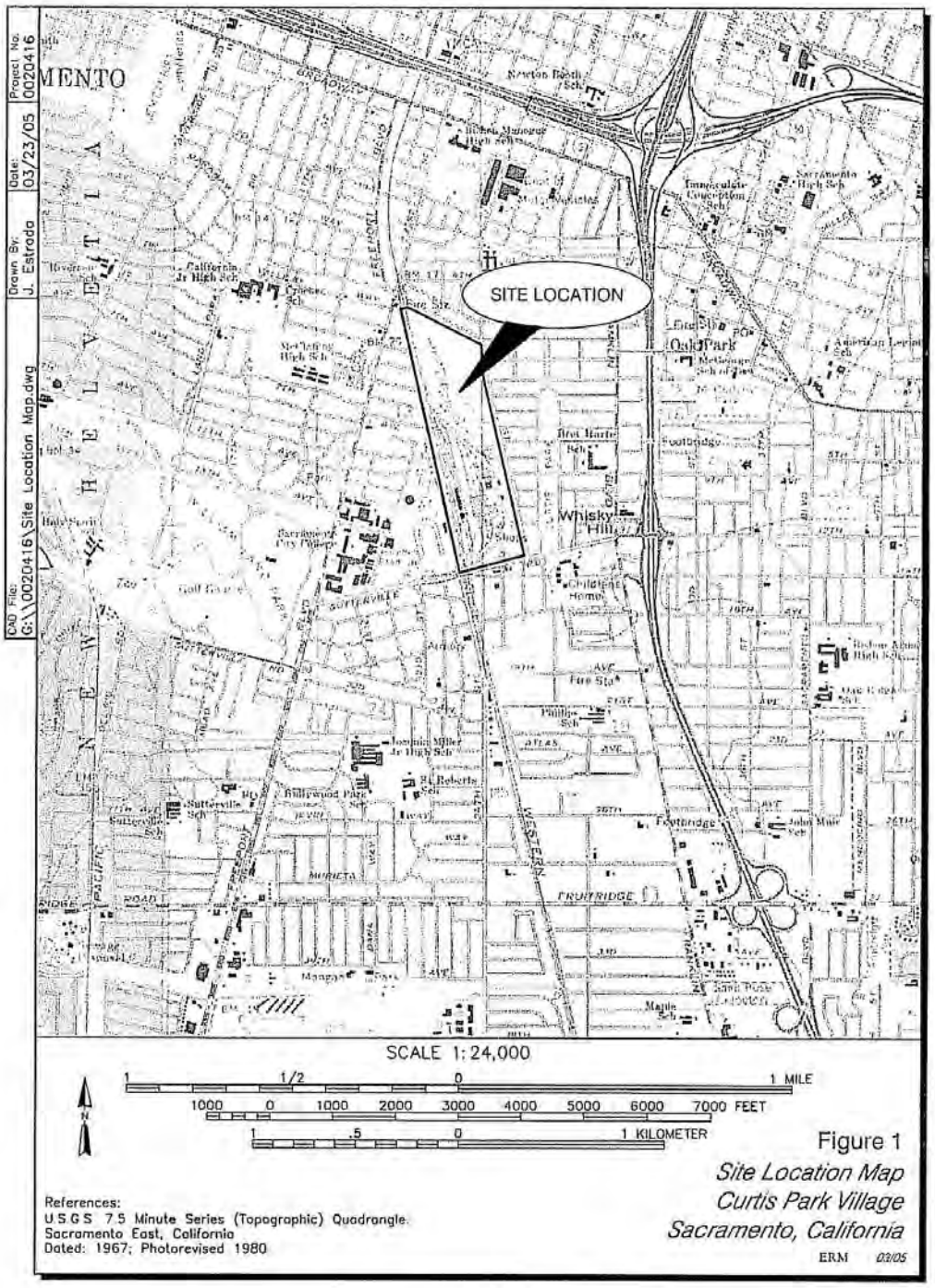

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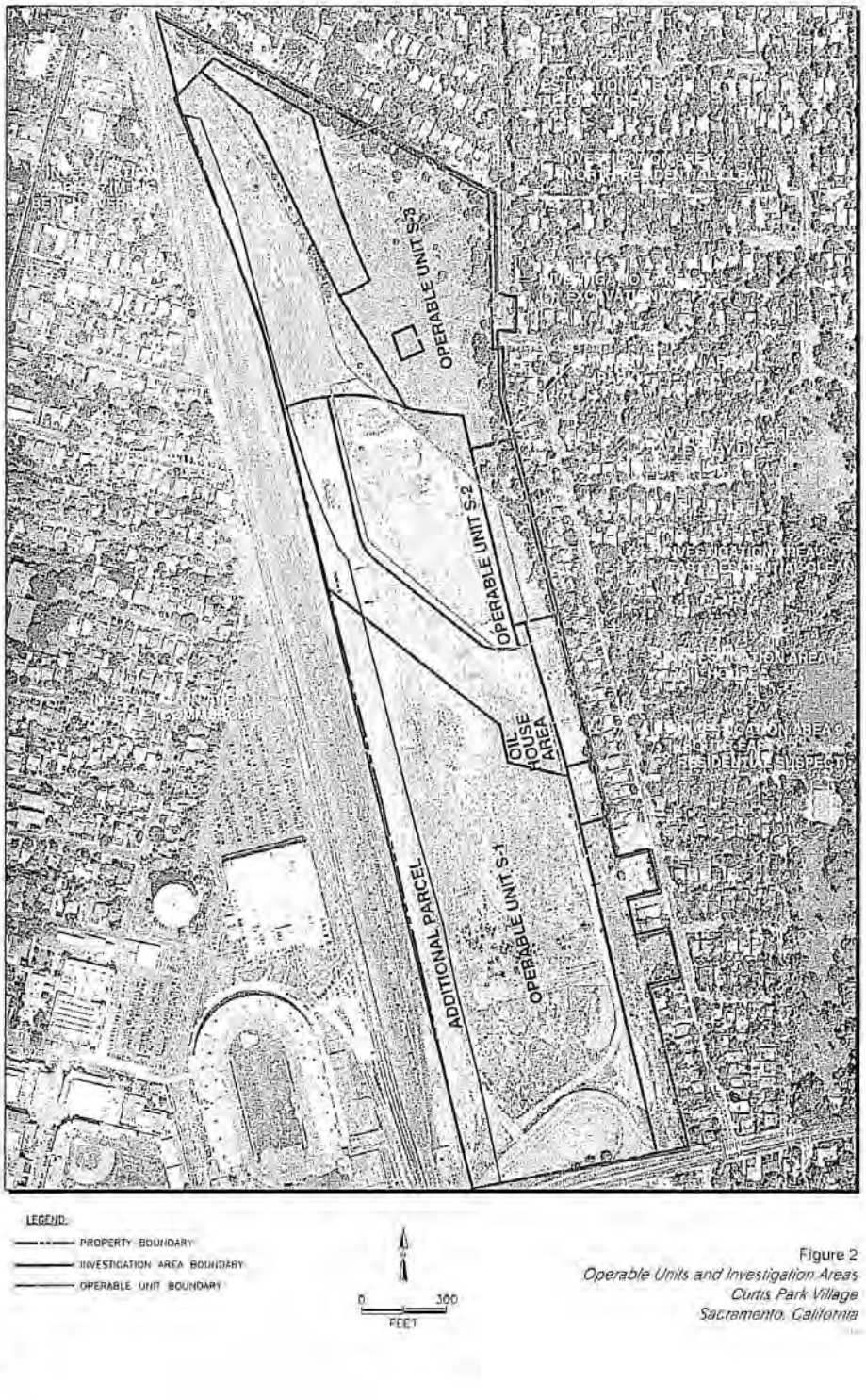

Figure 2
Operable Units and Investigation Areas
Curtis Park Village
Sacramento, California

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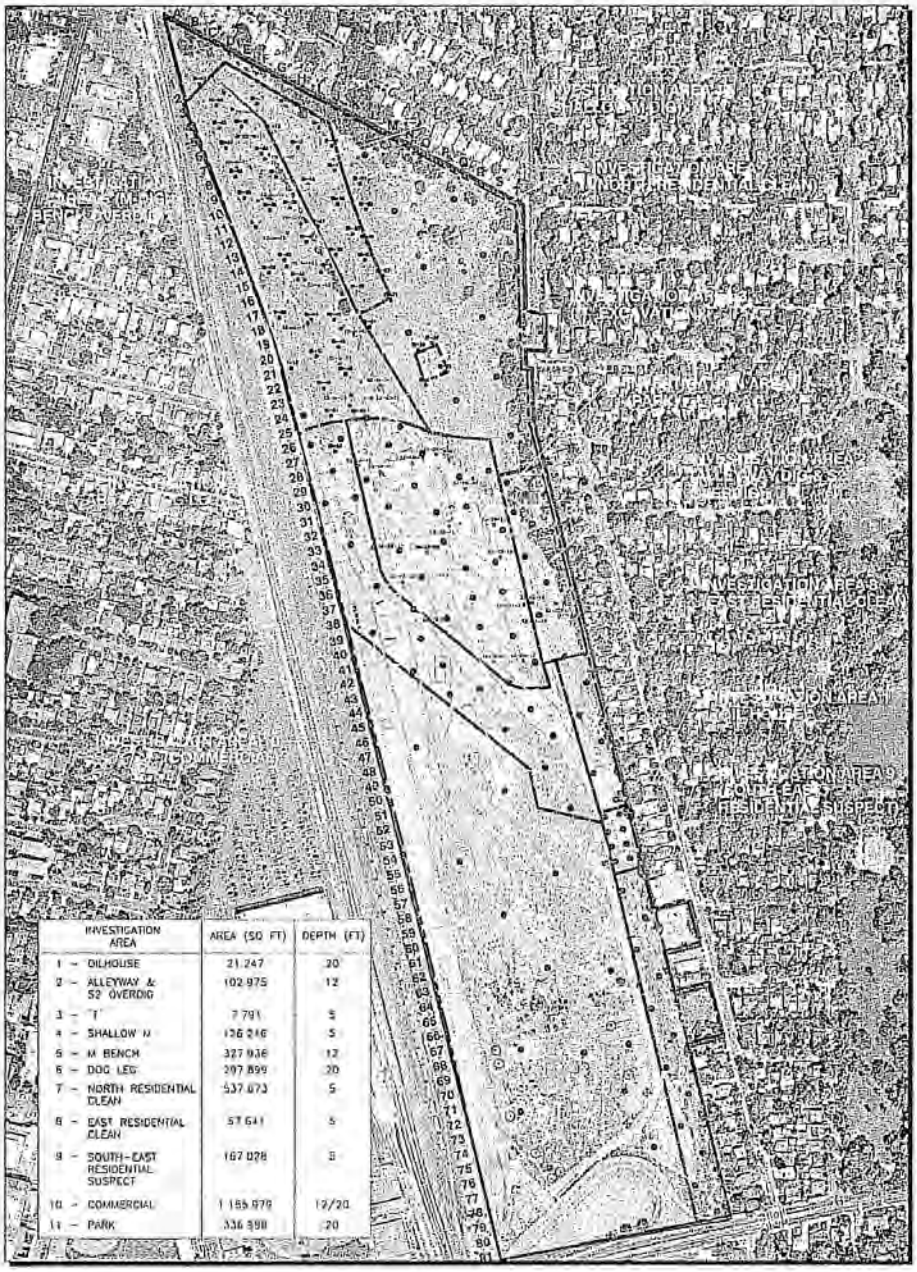

INVESTIGATION AREA	AREA (SQ FT)	DEPTH (FT)
1 – OILHOUSE	21,247	20
2 – ALLEYWAY & S2 OVERDIG	102,975	12
3 – "I"	7,791	5
4 – SHALLOW N	136,246	5
5 – M BENCH	327,936	12
6 – DOG LEG	297,899	20
7 – NORTH RESIDENTIAL CLEAN	537,673	5
8 – EAST RESIDENTIAL CLEAN	57,641	5
9 – SOUTH-EAST RESIDENTIAL SUSPECT	167,028	5
10 – COMMERCIAL	1,185,979	12/20
11 – PARK	336,598	20

LEGEND:

- PROPERTY BOUNDARY
- JUNE 2008 INVESTIGATION SAMPLE POINT
- AUGUST 2008 INVESTIGATION SAMPLE POINT
- STOCKPILE OUTLINE
- RDIP EXCAVATION DESIGN LIMITS
- INVESTIGATION AREA BOUNDARY
- PROPOSED SURFACE SAMPLE LOCATION
- PROPOSED EXCAVATION WALL SAMPLE LOCATION
- PROPOSED SOIL BORING LOCATION

Figure 3
Proposed Boring Locations
Curtis Park Village
Sacramento, California

Letter 5
Cont'd.

Table

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Table 1
Proposed Boring Locations
Curtis Park Village Soil Remediation
Sacramento, California

Investigation Area	Boring Identification	Grid Coordinates (West/North)	Approx. Surface Elevation (Feet AMSL)	Total Depth (Feet BGS)	Depth Samples to be Collected (Feet BGS)	Constituents for Analysis				
						Arsenic	Lead	PAHs	TPH-Gasoline	TPH-Diesel
Investigation Area 1 (Oil House)	IB-53	P/54	25	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-54	P/55	24	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-55	P/56	25	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-56	P/57	29	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-57	Q/54	24	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-58	Q/55	14	14	2.0	X	X	X	X	X
					6.0	X	X	X	X	X
					10.0	X	X	X	X	X
					14.0	X	X	X	X	X
	IB-59	Q/56	17	17	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					17.0	X	X	X	X	X
	IB-60	Q/57	24	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
Investigation Area 2 (Alleyway Dig & S2 Overdig)	IB-61	O/31	15	12	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
	IB-62	P/32	13	12	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
	IB-63	O/33	16	12	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
	IB-64	P/34	16	12	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
	IB-65	O/36	9	10	2.0	X	X	X	X	X
					6.0	X	X	X		
					10.0	X	X	X		
	IB-66	P/38	0	Surface	0.0	X	X	X		
	IB-67	O/40	22	12	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
	IB-68	P/43	15	12	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		

ERM

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9/16/2008

**Letter 5
Cont'd.**

Table 1
Proposed Boring Locations
Curtis Park Village Soil Remediation
Sacramento, California

Investigation Area	Boring Identification	Grid Coordinates (West/North)	Approx. Surface Elevation (Feet AMSL)	Total Depth (Feet BGS)	Depth Samples to be Collected (Feet BGS)	Constituents for Analysis				
						Arsenic	Lead	PAHs	TPH-Gasoline	TPH-Diesel
Investigation Area 3 ("T" Excavation)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Investigation Area 4 (Shallow M Dig)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Investigation Area 5 (M-Dig Bench Overdig)	IB-69	C/24	15	12	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
Investigation Area 6 (Dog Leg)	IB-70	C/26	19	19	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					19.0	X	X	X		
	IB-71	E/26	20	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-72	D/28	21	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-73	C/30	21	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-74	E/30	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-75	D/33	24	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-76	E/36	27	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-77	D/39	26	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-78	G/38	23	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		

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Table 1
Proposed Boring Locations
Curtis Park Village Soil Remediation
Sacramento, California

Investigation Area	Boring Identification	Grid Coordinates (West/North)	Approx. Surface Elevation (Feet AMSL)	Total Depth (Feet BGS)	Depth Samples to be Collected (Feet BGS)	Constituents for Analysis				
						Arsenic	Lead	PAHs	TPH-Gasoline	TPH-Diesel
Investigation Area 6 (Dog Leg) (continued)	IB-79	G/40	24	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-80	F/42	25	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-81	H/42	23	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-82	H/44	24	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-83	J/44	25	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-84	L/44	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-85	K/47	24	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-86	M/46	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-87	N/48	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-88	M/50	24	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-89	N/53	25	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
Investigation Area 7 (North Residential Clean)	IB-90	K/8	12	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-91	L/12	12	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-92	P/12	16	5	2.0	X	X	X		
					5.0	X	X	X		

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Table 1
Proposed Boring Locations
Curtis Park Village Soil Remediation
Sacramento, California

Investigation Area	Boring Identification	Grid Coordinates (West/North)	Approx. Surface Elevation (Feet AMSL)	Total Depth (Feet BGS)	Depth Samples to be Collected (Feet BGS)	Constituents for Analysis				
						Arsenic	Lead	PAHs	TPH-Gasoline	TPH-Diesel
Investigation Area 7 (North Residential Clean) (continued)	IB-93	M/16	12	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-94	Q/16	14	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-95	K/20	13	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-96	P/20	13	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-97	M/25	14	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-98	P/24	15	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-99	P/28	15	5	2.0	X	X	X		
					5.0	X	X	X		
Investigation Area 8 (East Residential Clean)	IB-100	Q/45	23	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-101	P/47	27	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-102	Q/49	24	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-103	P/51	24	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-104	Q/53	24	5	2.0	X	X	X		
					5.0	X	X	X		
Investigation Area 9 (South-East Residential Suspect)	IB-105	P/59	25	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-106	Q/61	26	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-107	P/63	25	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-108	Q/65	25	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-109	P/67	25	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-110	Q/69	28	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-111	P/71	23	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-112	Q/73	23	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-113	P/75	23	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-114	Q/77	24	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-115	P/79	23	5	2.0	X	X	X		
					5.0	X	X	X		
	IB-116	Q/81	24	5	2.0	X	X	X		
					3.0	X	X	X		

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Table 1
Proposed Boring Locations
Curtis Park Village Soil Remediation
Sacramento, California

Investigation Area	Boring Identification	Grid Coordinates (West/North)	Approx. Surface Elevation (Feet AMSL)	Total Depth (Feet BGS)	Depth Samples to be Collected (Feet BGS)	Constituents for Analysis				
						Arsenic	Lead	PAHs	TPH-Gasoline	TPH-Diesel
Investigation Area 10 (Commercial)	IB-117	E/47	25	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-118	J/51	24	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-119	F/55	23	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-120	L/57	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-121	H/59	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-122	J/63	21	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-123	N/64	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-124	G/68	19	19	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					19.0	X	X	X		
	IB-125	K/69	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-126	F/72	20	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-127	M/72	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-128	G/76	22	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-129	N/76	23	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		

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Table 1
Proposed Boring Locations
Curtis Park Village Soil Remediation
Sacramento, California

Investigation Area	Boring Identification	Grid Coordinates (West/North)	Approx. Surface Elevation (Feet AMSL)	Total Depth (Feet BGS)	Depth Samples to be Collected (Feet BGS)	Constituents for Analysis				
						Arsenic	Lead	PAHs	TPH-Gasoline	TPH-Diesel
Investigation Area 11 (Park)	IB-130	G/25	22	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-131	I/26	8	8	2.0	X	X	X	X	X
					4.0	X	X	X	X	X
					6.0	X	X	X	X	X
					8.0	X	X	X	X	X
	IB-132	H/27	1	2	0.0	X	X	X	X	X
					2.0	X	X	X	X	X
	IB-133	F/29	17	17	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					17.0	X	X	X	X	X
	IB-134	J/28	22	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-135	I/30	21	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-136	L/30	11	11	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					11.0	X	X	X	X	X
	IB-137	N/30	15	15	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					15.0	X	X	X	X	X
	IB-138	G/31	17	17	4.0	X	X	X	X	X
					8.0	X	X	X		
					12.0	X	X	X		
					17.0	X	X	X		
	IB-139	J/32	21	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		
	IB-140	L/32	16	16	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					16.0	X	X	X	X	X
	IB-141	G/34	20	20	4.0	X	X	X		
					8.0	X	X	X		
					12.0	X	X	X		
					20.0	X	X	X		

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Table 1
Proposed Boring Locations
Curtis Park Village Soil Remediation
Sacramento, California

Investigation Area	Boring Identification	Grid Coordinates (West/North)	Approx. Surface Elevation (Feet AMSL)	Total Depth (Feet BGS)	Depth Samples to be Collected (Feet BGS)	Constituents for Analysis				
						Arsenic	Lead	PAHs	TPH-Gasoline	TPH-Diesel
Investigation Area 11 (Park) (continued)	IB-142	J/34	20	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-143	M/34	18	18	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					16.0	X	X	X	X	X
	IB-144	H/36	23	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-145	K/36	11	11	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					11.0	X	X	X	X	X
	IB-146	M/36	20	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-147	K/38	14	14	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					14.0	X	X	X	X	X
	IB-148	M/38	18	18	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					18.0	X	X	X	X	X
	IB-149	I/39	20	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X
	IB-150	K/40	15	15	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					15.0	X	X	X	X	X
	IB-151	M/41	15	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					15.0	X	X	X	X	X
	IB-152	N/43	23	20	4.0	X	X	X	X	X
					8.0	X	X	X	X	X
					12.0	X	X	X	X	X
					20.0	X	X	X	X	X

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Table 1
Proposed Boring Locations
Curtis Park Village Soil Remediation
Sacramento, California

Investigation Area	Boring Identification	Grid Coordinates (West/North)	Approx. Surface Elevation (Feet AMSL)	Total Depth (Feet BGS)	Depth Samples to be Collected (Feet BGS)	Constituents for Analysis				
						Arsenic	Lead	PAHs	TPH-Gasoline	TPH-Diesel
Surface Sample Collection	AC1-F-09	NA	22	Surface	0.0			X		
	AC2-F-01	NA	22	Surface	0.0			X		
	AC2-F-03	NA	22	Surface	0.0			X		
	AC2-F-12	NA	22	Surface	0.0			X		
	AC2-F-33	NA	22	Surface	0.0			X		
	AD-F-02	NA	22	Surface	0.0			X		
	AF3-F-01	NA	22	Surface	0.0			X		
	AF3-F-02	NA	22	Surface	0.0			X		
Sidewall Sample Collection	AC1-WALL1	NA	22	Sidewall	NA	X	X	X	X	X
	AC1-WALL2	NA	22	Sidewall	NA	X	X	X	X	X
	AC2-WALL1	NA	22	Sidewall	NA	X	X	X	X	X

Key:
AMSL = Above mean sea level
BGS = Below ground surface
NA = Not applicable
PAHs = Polynuclear aromatic hydrocarbons
TPH = Total petroleum hydrocarbons

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Linda S. Adams
Secretary for
Environmental Protection

Department of Toxic Substances Control

Maureen F. Gorsen, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

October 24, 2008

Mr. Phil Harvey
Curtis Park Village, LLC
5046 Sunrise Blvd., Suite 100
Fair Oaks, California 95628

CONCURRENCE OF WORKPLAN FOR IMPLEMENTATION OF ADDITIONAL REMEDIAL INVESTIGATION, OPERABLE UNITS S-1, S-2 AND S-3, CURTIS PARK RAIL YARD SITE, SACRAMENTO, CALIFORNIA

Dear Mr. Harvey:

The Department of Toxic Substance Control (DTSC) has reviewed the September 19, 2008 Workplan for Implementation of Additional Remedial Investigation (Workplan) prepared by ERM Remediation and Construction Management West, Inc. (ERM) on behalf of Curtis Park Village, LLC (CPV) for the Union Pacific Railroad Company, Curtis Park Site, Operable Units S-1, S-2 and S-3, located at 3675 Western Pacific Avenue, Sacramento, California. CPV is conducting the remedial activities pursuant to Enforceable Agreement No.: HSA 86/87-015EA issued by DTSC to Union Pacific Railroad Company on March 26, 1987. The purpose of the Workplan is to address remaining data gaps regarding the extent of impacts at the Site, potential threat to groundwater or indoor air from constituents of potential concern in site soil, and the suitability of available portions of the site for consolidating and capping waste.

Proposed field investigation activities include the collection of discrete depth soil samples from borings, collection of surficial confirmation samples pursuant to previous excavation activities at selected portions of the Site, and collection of surficial samples associated with a visually identifiable layer of potential impact in the southern portion of the Site. Soil samples sent to an analytical laboratory will be analyzed for polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons in diesel and motor oil ranges and heavy metals (arsenic and lead). The investigation may include a follow-up phase to be conducted in November 2008 depending on the results of the data collected at the Site. DTSC has no comments and concurs with the proposed activities in the Workplan. A Supplemental Site Characterization Report (Report) will be prepared to summarize the evaluation on the quality of the historical data and the results of the investigation conducted in June, August and September 2008. The tentative schedule for submitting

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the Report is January 2009. However, the Report may be submitted earlier provided that the November 2008 investigation is not required for the Site.

If you have any questions or comments, please contact me at (916) 255-3643.

Sincerely,

Thomas Tse

Thomas Tse
Project Manager
Sacramento Office
Brownfields and Environmental Restoration Program

cc: Mr. Benjamin P. Leslie-Bole **(sent via email)**
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Walnut Creek, California 94596

Mr. Rudolph R. Millan, P.E. **(sent via email)**
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Mr. Michael E. Quillin, P.G. **(sent via email)**
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Mr. Fernando Amador, P.E. **(sent via email)**
Supervising Hazardous Substances Engineer
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826-3200

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Appendix K

Documents in support of SCNA GHG Comments (in Appendix H)

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Chapter I

1 Impacts of Climate Change on California's Public Health, Infrastructure and Natural Resources

1.1 Introduction and Background

In June 2005, Executive Order S-05-05 was signed by Governor Arnold Schwarzenegger which mandates the preparation of biennial science assessment reports on climate change impacts and adaptation options for California. The first Climate Action Team (CAT) Assessment Report was produced in March 2006, followed by the release of the 2008 Assessment Report. The 2008 assessment expands on the policy oriented 2006 assessment and provides new information and scientific findings. New information and details in the 2008 CAT Assessment Report includes: 1) Development of new climate and sea-level projections using new information and tools that have become available in the last two years, and 2) Evaluation of climate change within the context of broader social changes, such as land-use changes and demographic shifts. The 2006 assessment examined the impacts of climate change with the assumption that, in general, all other factors remained constant. However, to evaluate the economic impacts of climate change and develop strategies for adaptation, these impacts must be considered as part of a set of multiple stressors associated with the economic development and population growth patterns in the state. This latest assessment involved an attempt to consider the joint effect of increased urbanization on climate impacts.

A CAT steering committee comprised of the Scenarios Sub-group provided general guidance to the 2008 assessment effort. This committee includes technical representatives from California's Environmental Protection Agency, Natural Resources Agency, Air Resources Board, Department of Public Health, Office of Environmental Health Hazard Assessment, Department of Fish and Game, Department of Water Resources, Ocean Protection Council, Department of Forestry and Fire Protection, Department of Food and Agriculture, Department of Transportation, California Energy Commission, in addition to San Francisco Bay Conservation and Development Commission.

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Brief History of Climate Change Research Efforts in California

California started inquiring about potential impacts of climate change in 1988. A report prepared by the California Energy Commission in response to a legislative mandate identified potential impacts (CEC 1989, CEC 1991). Research conducted since that early report has confirmed and greatly refined our understanding of California's vulnerability to climate change in critical sectors such as water, agriculture, coastal areas, and its precious ecological resources.

In the late 1990s, the National Oceanic Atmospheric Administration (NOAA), a federal agency whose mission includes predicting and understanding weather and climate, created the Regional Integrated Sciences and Assessments (RISA) research program to better understand information needs and provide research support on both short- and long-term operation and planning to regional and local resource managers. In California, under the NOAA RISA program, the California Applications Program (CAP) was established at the Scripps Institution of Oceanography, University of California San Diego with an emphasis on climate variability and climate change impacts on water resources, wildfire, and human health. CAP has been involved in climate impact studies and assessments produced in the state.

The U.S. Global Change Research Program in 2001 published the first national assessment of the potential consequences of climate variability and change (USGCRP 2001). As part of this work, several regional assessment reports were produced including one dealing exclusively with California (USGCRP 2002).

At the same time the National Assessment was under preparation, California initiated its own state-supported integrated climate research program. The California Energy Commission's Public Interest Energy Research (PIER) program started climate change research in 2001 with an exploratory project designed to investigate the potential impacts of climate change on water resources, forestry, agriculture, coastal properties, and ecosystems. PIER subsequently released its long-term climate change research plan in 2003 and has been implementing this plan with the creation and research activities of the California Climate Change Center. The Center has produced more than 100 peer-reviewed reports and some of them have resulted in papers published in top scientific journals. This research program has been closely coordinated with other state and federal agencies (Franco et al. 2008).

The passage of Assembly Bill 32, the California Global Warming Solutions Act of 2006, has invigorated new research initiatives such as the newly funded climate change research subprogram at the California Air Resources Board. Moreover, the Climate Action Team has begun to further coordinate climate change research in California (see Chapter VI).

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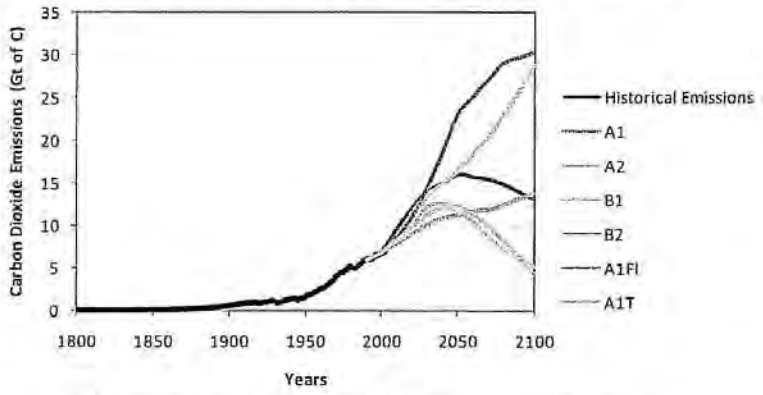
1.2 Impact Studies by Sector

This section summarizes the approaches used to study the impact of climate change in different sectors and their main findings.

1.2.1 Approach to Socio-Economic Scenarios

For this 2008 Assessment, socio-economic storylines and key scenario elements for California were developed that are broadly consistent with two quantitative projections of global climate change conducted under the auspices of the Intergovernmental Panel on Climate Change (IPCC). These projections were driven in part by two economic model-generated scenarios of anthropogenic greenhouse gas (GHG) emissions, representing plausible 21st century trends in social and economic development around the world. These are the so-called A2 and B1 storylines in the IPCC's *Special Report on Emissions Scenarios* (SRES) (Nakicenovic and Swart 2000). The A2 and B1 storylines and their quantitative representations illustrate two quite different plausible trajectories for the evolution of the world economy, society, and energy system, and imply divergent paths of future anthropogenic GHG emissions, with projected emissions in the A2 being substantially higher than for B1 (Figure 1).

Figure 1
Historical and Projected Global Carbon Dioxide Emissions



Data source: IPCC (2001) and Carbon Dioxide Information Analysis Center

The A2 SRES global emissions scenario represents a heterogeneous world with respect to demographics, economic growth, resource use and energy systems, and

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cultural factors. There is a de-emphasis on globalization, reflected in heterogeneity of economic growth rates and rates and directions of technological change. These and other factors imply continued growth throughout the 21st century of global GHG emissions. By contrast, B1 is a "global sustainability" scenario. Worldwide, environmental protection and quality and human development emerge as key priorities, and there is an increase in international cooperation to address them as well as to convergence in other dimensions. Neither scenario entails explicit climate mitigation policies. The A2 and B1 global emission scenarios were selected to bracket the potential range of emissions and the availability of outputs from global climate models

In contrast to the A2 and B1-driven regional climate projections, development of California socio-economic scenarios did not entail formal "downscaling" of the global scenarios or economic simulation modeling of 21st century California. Instead, to support the impact analyses in this study, this project focused on the general, qualitative socio-economic context as well as quantitative projections of key variables, including population, urbanization patterns, and economic growth that reflect the main elements of the global scenarios. These were developed using model output from the SRES and historical information on California and the United States, as well as through new projections of population and urbanization developed specifically for this assessment. As an example, Figure 2 shows the urbanization patterns analyzed in this assessment.

Figure 2
Historical and Projected Urbanization Patterns for California

Source: Sanstad et al. 2008

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1.2.2 Approach to Climate Scenarios

There were six global climate models (GCMs,) run for the recent IPCC Fourth Assessment (IPCC 2007) using the A2 and B1 emission scenarios, were employed to assess climate changes and their impacts for the 2008 California Climate Change Assessment. For the assessment, the NCAR Parallel Climate Model (PCM), the NOAA Geophysical Fluids Dynamics Laboratory (GFDL) version 2.1, the NCAR Community Climate Model (CCSM), the Max Plank Institute's ECHAM3, the Japanese Model for Interdisciplinary Research on Climate (MIROC), and the French Centre National de Recherches Météorologiques (CNRM) models were selected. The set of GCM's expand the ones used in the 2006 California Scenarios Assessment.

1.2.3 Warming Trends

All of the climate model simulations exhibit warming globally and regionally over California. Through the first five decades of the 21st century, the amount of warming produced by the A2 simulations is not much greater than that of the B1 simulations (Figure 3), largely because warming over the next few decades is governed largely by past emissions. Thereafter, however, there is considerably greater warming under the A2 scenario compared to B1 as the effects of present-day and future increased GHG loading accumulates (Figure 3). Overall, the six models' summer warming projections in the first 30 years of the 21st century range from about 0.5 to 2 °C (0.9 to 3.6 °F) and by the last 30 years of the 21st century, from about 1.5 to 5.8 °C (2.7 to 10.5 °F). The upper part of this range is a considerably greater warming rate than the historical rates estimated from observed temperature records in California (Bonfils et al. 2008). There is greater warming in summer than in winter, under both the A2 and B1 emissions scenario simulations.

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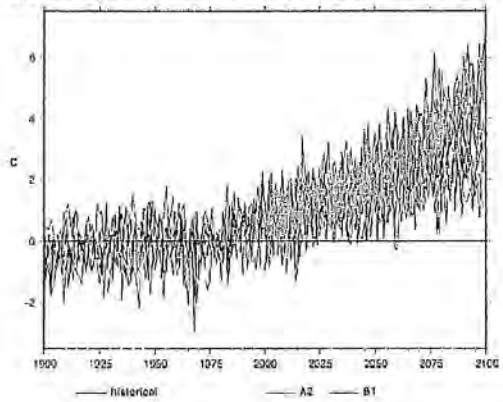
Figure 3
Annual Temperature Projections for the Sacramento Area: A2 and B1 Scenarios



Source: Cayan et al. (2008a)

Historically, extreme warm temperatures in California have mostly occurred in July and August, but as climate warming takes hold, the occurrences of these events will likely extend to the entire period from June to September. All simulations indicate that extremely hot daytime and nighttime temperatures (heat waves) increase in frequency, magnitude, and duration from the historical period. Within a given heat wave, there is an increasing tendency for multiple hot days in succession—i.e., heat waves last longer. Furthermore, the number of days with simultaneously hot daytime temperatures in multiple regions in the state increases markedly; this has important implications for emergency response and satisfying electricity demand in the state.

In producing the climate scenarios for California, Scripps Institution of Oceanography has developed a new downscaling method to translate coarser global models to the finer scale detail required to understand how these changes will affect the state. Another new method, in development for the last two years, makes use of daily outputs from global climate models, which is expected to better capture extreme events. The 2008 Assessment used the new downscaling method along with an established method based on monthly statistics to produce climate projections for California at grid sizes of about 7.5 by 7.5 miles. These smaller scale projections are needed to provide information about specific problems relating to agriculture, energy, ecosystems and many other sectors of California's economy and its natural resources.

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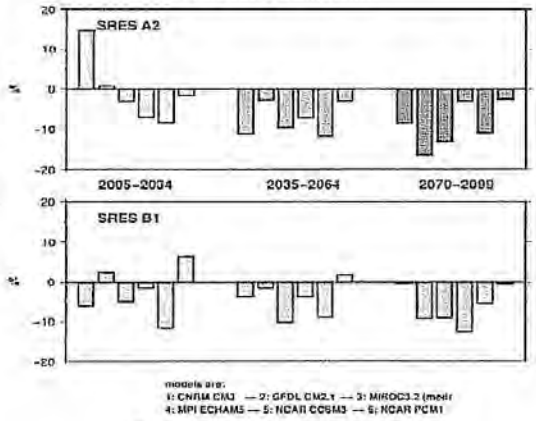
1.2.4 Precipitation

Precipitation in most of California is characterized by a strong Mediterranean pattern wherein most of the annual precipitation falls in the cooler part of the year between November and March. The climate change simulations from these GCMs indicate that California will retain its Mediterranean climate with relatively cool and wet winters and hot dry summers. The model-driven climate simulations indicate that a high degree of variability from year to year of annual precipitation, similar to our historical experience in California, will prevail over this century, including a continued vulnerability to drought. While it will retain its overall character, models of the California climate also project important possible changes. For the Sacramento region, drying is evident as the simulation reach mid-21st Century. By the end of the 21st century, four of the six GCMs used in the 2008 Assessment produce drier (by 5 percent or more) than historical average conditions. In the northern part of California, the tendency for drying fades and even reverses but in Southern California the amount of drying becomes greater, with decreases in some simulations exceeding 15% drier. None of these model simulations became significantly wetter by the end of the century (Figure 4). Even if precipitation levels were to remain unchanged over the 21st century, however, the higher temperatures would increase evaporative water loss and thus produce overall drier conditions. Additional reductions in precipitation would exacerbate the issues associated with increased evaporative water loss.

Figure 4
Changes in Precipitation in Relation to the Average 1961 to 1990 Water Years: Northern California



Source: Cayan et al , 2008a

Cayan et al. (2008a) used the detailed temperature and precipitation projections with the Variable Infiltration Model (VIC), a hydrological model, to produce estimated

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changes in runoff (water river flows), snow, soil moisture and other hydrologic measures in a statewide simulation of the California land surface and its key watersheds. Kapnick and Hall (2008) have obtained independent new results describing observed shifts brought on by warmer winters and springs and on potential effects of climate change on the mass and timing of the California Sierra snowpack, which, along with natural and engineered reservoirs, is a critical determinant of the state's water supply. Previous studies have examined possible climate change-induced changes in the peak snow water equivalent (SWE, a metric for the water content of snow) in April, yielding estimates of the gross effects of precipitation changes on water supply. The water system is designed to achieve joint water storage and flood control objectives based on the historical annual temporal patterns of snowpack accumulation, melting, and runoff. Changes in timing of melting and runoff can affect water supply even in the absence of significant shifts in precipitation levels. Kapnick and Hall constructed a new data set on historical SWE during the February to May phase, in order to study timing. They found that since 1930 there has been a trend toward earlier SWE peaking, and assessed the implications for this trend of the regional temperature increases projected by Cayan et al. (2008a). A shift of the peak from 4 to 14 days earlier in the season by 2100. This shift could adversely affect the capacity and reliability of the California water system with respect to water storage and flood management, and requires changes in water reservoir management rules.

The early melting of snow and precipitation trends will have an effect on river flows (runoff) in California. Figure 5 presents average monthly runoff for a region located in the Upper American and Rubicon basins (headwaters at 9,900 ft [≈ 3,000 m]), and a region in the upper San Joaquin basin (headwaters at 14,000 ft [≈ 4,200 m]).

As shown in Figure 5, there is a clear reduction of the snowmelt season runoff, consistent with the notion that increasing temperatures modify the timing of streamflow toward earlier in the water year. Under historical hydrologic conditions almost 70 percent of runoff flows during the typical snowmelt season in Upper American River area. This number is reduced by more than 20 percent in average for all projections. The conditions at the Big Creek system in the southern part of the Sierra Nevada in contrast show that the snowmelt season runoff represents almost 90 percent of annual runoff under historic conditions, and that number is reduced to slightly above 75 percent under future (end of century) projections. Finally, on average all scenarios show an increasing trend in extreme flows during the winter months. This is an expected response of snow dominated watersheds associated with temperature increases, but this could be compensated (or amplified) in some cases with reductions (or increases) in precipitation and runoff.

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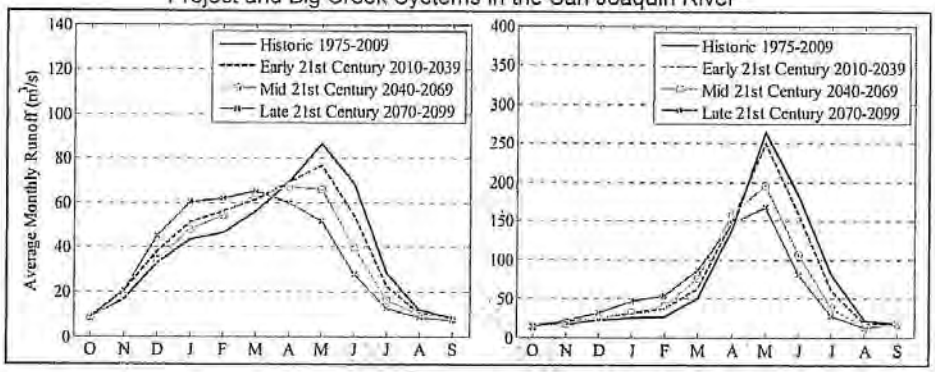
Figure 5
Average Changes in Monthly Hydrologic Conditions in the Upper American River Project and Big Creek Systems in the San Joaquin River



Source: Vicuna et al. 2008

1.2.5 Sea-Level Rise

Sea level measured over several decades at California tide gage stations has risen at a rate of about 17 cm (7 inches) per century. The sea-level rise projections in the 2008 Impacts Assessment indicate that the rate and total sea-level rise in future decades may increase substantially above the recent historical rates. The 2008 estimates represent a significant departure from those in the 2006 CAT report. The 2008 sea level rise projections are based on new scientific findings of the last two years suggesting that prior estimates likely have been too low. A paper authored by Rahmstorf (2007) demonstrated in a semi-empirical manner that over the last century observed global sea-level rise can be linked to global mean surface air temperature. Thus, the new projections produced for California uses Rahmstorf's method, assuming that sea level rise along the California coast is roughly the same as the global average (as shown in the historical record).

A second set of sea level rise projections improves on the Rahmstorf method, by accounting for the global growth of dams and reservoirs, which have artificially reduced surface water runoff into the oceans (Chao et al. 2008). Global sea level rise would have been larger in response to climate change without the impoundment of water behind dams.

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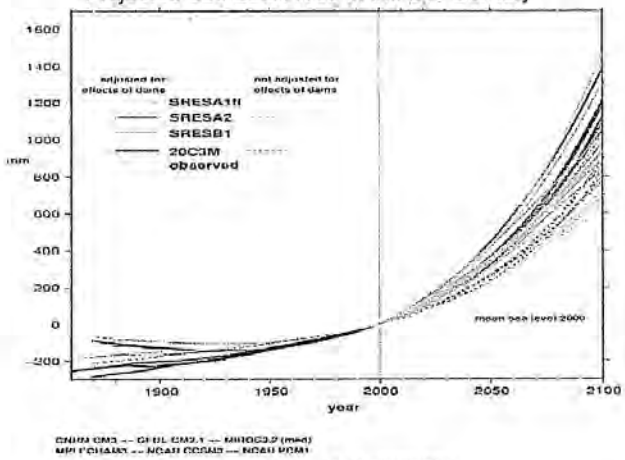
Under either the Rahmstorf method or Chao et al 's augmented approach, the resulting estimates indicate that the rate of sea-level rise over the 21st century could considerably increase. By 2050, sea-level rise could range from 30 to 45 cm (11 to 18 inches) higher than in 2000, and by 2100, sea-level rise could be 60 to 140 cm (23 to 55 inches) higher than in 2000. As sea level rises, there will be an increased rate of extreme high sea-level events, which can occur when high tides coincide with winter storms and their associated high wind wave and beach run-up conditions. These high sea-level events can be exacerbated by El Niño occurrences. Sea levels at the California coast often rise substantially during El Niño winters, when the Eastern Pacific Ocean is warmer than usual and westerly wind patterns are strengthened.

Figure 6 indicates that even for the lower emissions B1 scenario sea-level rise would be on the order of 60 centimeters (23 inches), which was close to the level estimated for the high emissions scenario (A1Fi)[1] and the (slightly lower) A2 emissions scenario in the 2006 Assessment Report.

Figure 6
Projected Sea-Level Rise in the 21st Century



Source: Cayan et al. (2008b)

The group at Scripps enhanced the work done for the 2006 Assessment Report by not only estimating hourly sea level rise conditions for one location (San Francisco) but generating the same information for additional locations (Crescent City and San Diego). A compounding element as the sea level rises is the continued occurrence of winter

[1] Figure 1 shows the carbon dioxide emission levels associated with the A1Fi global emission scenario

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North Pacific storms, which elevate sea level due to wind and barometric effects, especially during high tides. However, by the end of the 21st Century, the models yield a somewhat subtle tendency for fewer larger coastal storms, a feature that is consistent with the drying tendency in the central and southern part of California that was noted above.

1.2.6 Agriculture

The diversity and size of California's agricultural sector creates unique opportunities and challenges in its responses to climate change. Global warming is likely to change precipitation, temperature averages, maximums and minimums, pest and weed ranges, the length of the growing season, and other factors. These will all affect crop productivity. Extreme events may be among the greatest challenges, as they can lead to large losses.

Lobell and Field (2008) investigated the impacts of climate change on perennial crops, which represent an important contribution to agricultural value in California. They used historical county crop yields and weather data to establish models that relate weather changes to yield changes, and used these weather-yield models to project the impacts of climate changes through 2050. Results vary for the various crops with slight positive impacts on crop yields for almonds and significant decreases in cherry yields (Figure 7).

In another study, Lee and Six (2008) looked at productivity changes from 1950–2099 for seven annual field crops: alfalfa (hay), cotton, maize, winter wheat, tomatoes, rice, and sunflower. They used a model to simulate processes that affect plant productivity, including interactions with soil organic matter, nutrient cycling, and soil temperature and moisture. Compared to 2000, in 2050 cotton, maize, sunflower, and wheat yields decrease from 3 percent to 8 percent, while rice and tomato yields were essentially the same. Alfalfa yields increased, but the results were not consistent across counties. The differences in yields between a high-emissions scenario and a low-emissions scenario were small. However by the end of the century yields of all crops except alfalfa decreased, and the differences between high- and low-emissions scenarios were pronounced.

The results suggest that climate change will decrease annual crop yields in the long-term, particularly for cotton, unless future climate change is minimized and/or adaptation of management practices and improved cultivars becomes widespread.

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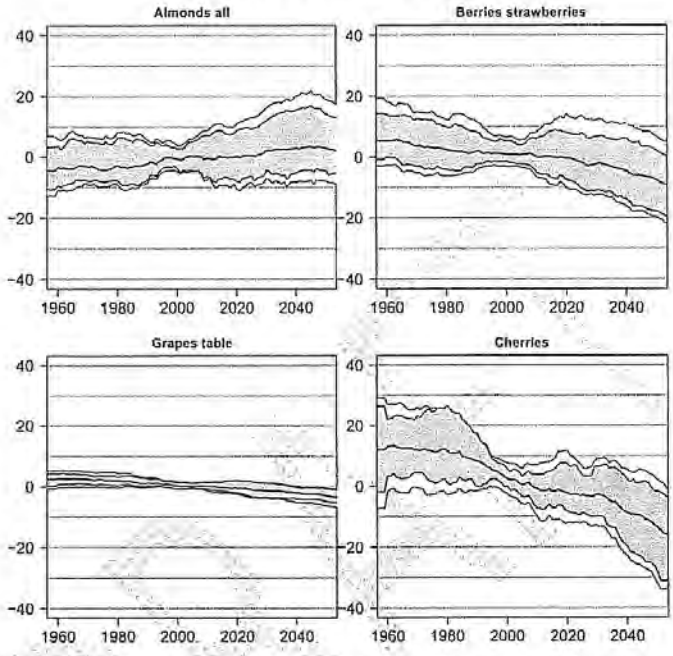
Figure 7
Simulated Change in Crop Yields for Four Crops



The thick blue line shows the average of all projections, the dark shaded area shows 5 percent to 95 percent range of projections when using multiple climate models, and the light shaded area shows 5 percent to 95 percent range when using multiple climate models and multiple crop models. The results are presented as percent changes from the 1995–2005 average yields, and as 21-year moving averages in order to emphasize the trend rather than year-to-year variability.
Source: Lobell and Field (2008)

1.2.7 Forestry

California timber production has been declining over the past few decades due to several factors, including moderate warming, increased wildfires, land use change and growing emphasis on recreation. Climate change has the potential to further affect the extent of forests, the amount of timber production in the state and the value of timber on the market. The direction, magnitude, and exact nature of future change will depend on individual site characteristics, climate changes, and impacts on other timber-producing areas. The ecological responses to climate change are dynamic and, therefore, dynamic modeling is required to capture impacts in the sector.

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Costello et al. (2008) performed a statewide analysis using a process model known as 3-PG (Physiological Principles for Predicting Growth). The 3-PG model uses species physiological characteristics to model growth in single species, even aged stands. Monthly climate data—consisting of maximum temperature, minimum temperature, precipitation, and solar radiation—drive the simulation. The model uses these to calculate rates of carbon fixation from photosynthesis (i.e., net primary production) and partitions the resulting biomass into foliage, stems, and roots according to species specific ratios.

Douglas fir, ponderosa pine, redwood and western hem-fir collectively account for over 92 percent of harvest value on private lands in California, according the California Board of Equalization Timber Tax Database (Spero 2006). The researchers simulated timber production under future climate conditions with the 3-PG model using these four species as representative for the entire industry.

Battles et al. reported in the 2006 Assessment that climate change in California would reduce the productivity of timberlands in the Sierra Nevada. In particular, the growth of ponderosa pine (*Pinus ponderosa*) was projected to decline under a drier and warmer climate. They obtained these results by adapting an industry standard planning tool to forecast 30--year tree growth and timber yields for forest stands under a changing climate. However, they recognized the inherent risk of applying a model, even an adapted one, to situations for which it was not specifically designed. For the 2008 Assessment, Battles et al. built from scratch a climate-sensitive forest growth model using the best available data and applied the model to a 20 year-old pine plantation near Whitmore in Shasta County, a major timber producing county. Preliminary results simulating growth of a commercial pine plantation over a 50-year management cycle (20 to 70 years old) for 18 climate simulation runs projected increases in yield as measured in total tree volume. The increased growth was most directly tied to the consistent projections of warmer temperatures during the twenty-first century. Under the different climate scenarios, pine yield increased from 9 percent to 28 percent above baseline by 2100. This result contradicts their previous work, which reported decreases in pine yield by 2100 under similar climate projections. Further evaluations are under way to better estimate the reliability of the new model.

Westerling et al. (2008) constructed a statistical model of wildfire as a function of climate and land surface characteristics in California. Their model predicts the monthly probabilities of large fires occurring on a one-eighth degree latitude/longitude grid (approximately 7.5 by 7.5 miles) over California. This work expands on an analysis by Westerling and Bryant performed for the 2006 Assessment that considered the effects of climate change on California wildfire and wildfire-related damages that held development fixed at the 2000 census and assumed unchanged vegetation patterns. Their new study assesses the range of outcomes given numerous sources of uncertainty including three GCMs with different sensitivities to anthropogenic forcing, two emissions scenarios, population growth projections and changes in the spatial distribution of vegetation. Model results suggest increases in wildfire, although the

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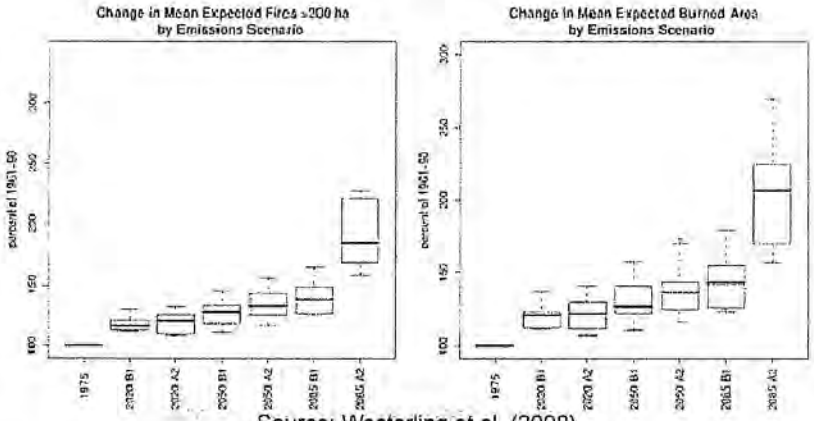
range of outcomes is large and expands with time (Figure 8). The long-term increase in fire occurrence associated with the higher emissions pathway (A2) is substantial, with increases statewide ranging from 58 percent to 128 percent by 2085. Likewise, estimated burned area increased 57 percent to 169 percent under the A2 pathway.

Figure 8
Change in Expected Fires and Burned Area by Emissions Scenario



Source: Westerling et al. (2008)

Figure 9 illustrates the geographical distribution of estimated increases in fire risk for the B1 and A2 emission scenarios for a period centered in 2085.[2] The panel on the left shows results for the PCM model and the panel on the right for the CNRM model to illustrate results close to the lower and upper range shown in Figure 8. The results show that fire probability is likely to increase multiple times in the extreme North and Northwest of the State, as well as in the Central California Coastal Ranges, the high Sierra, and different regions in southern California.

[2] The fire risk in Figure 9 is the multiple of the risk in the historical period (e.g., an increased risk of 2 means that the fire risk would double by 2085 in comparison to what has been already experienced in California).

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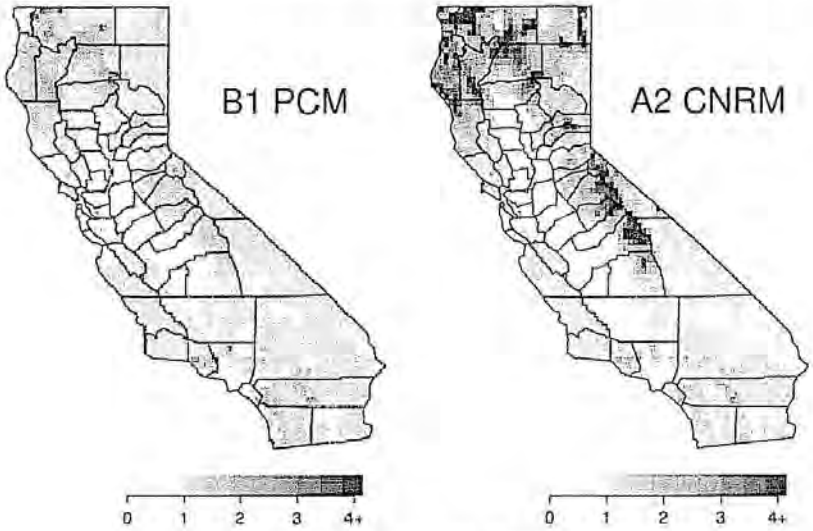
Figure 9
Fire Probabilities in 2085 as a Multiple of the Probability of Fire Occurrence during the Reference Period (1961-1990)



Source: Westerling et al. (2008)

Hughes et al. (2008) studied the potential effects of 21st century climate change on the Southern California Santa Ana winds, which are hot, dry, and strong winds blowing westward from the desert during fall and winter. The Santa Ana winds have significant ecological and socio-economic effects. Their timing – following common hot and dry summer conditions in Southern California – coupled with increased development, particularly residential housing, in critical areas, makes them a major risk factor for economically costly wildfires. At the same time, they contribute positively to biological activity in coastal ecosystems, as well as to improved air quality in the South Coast Basin. Using a high-resolution dynamic regional climate model to simulate conditions in Southern California, Hughes et al. found a decrease in both the frequency and intensity of Santa Ana winds over this period. Using a numerical weather model, they concluded that future global warming will lead to a further decrease.

Shaw et al. (2008) estimated potential changes in aboveground live trees for different climate scenarios as shown in Figure 10. The researchers used the MC1 Dynamic Global Vegetation Model (MC1-DGVM) developed by the US Forest Service at the Forestry Sciences Laboratory in Corvallis, Oregon. The impact of climate change on carbon sequestration depends in part on whether the future will be warmer and wetter, as projected by the PCM1 model, or hotter and drier, as projected by the GFDL and

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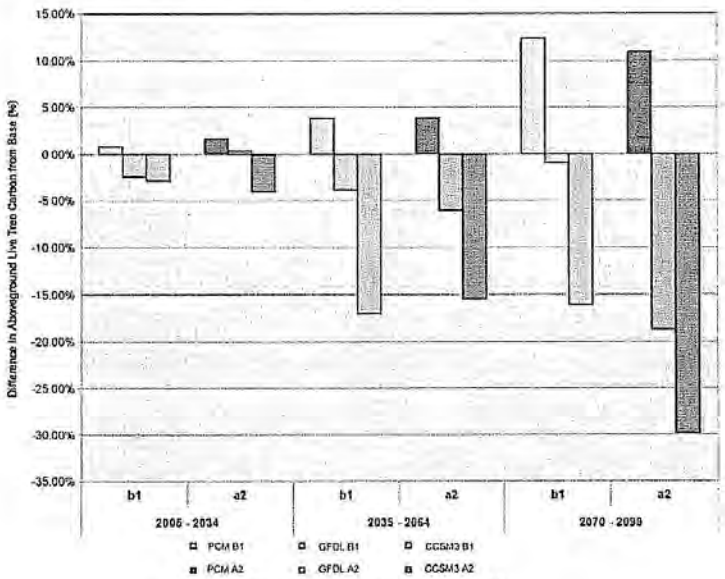
CCSM3 models. Using the warmer, wetter model (PCM1), MC1 projects an increase in aboveground carbon for both the lower (B1) and higher (A2) emissions scenarios above the baseline scenario (Figure 10). In contrast, the hotter, drier model (GFDL) projects much lower carbon stocks than the baseline scenario, with a marked drop around 2080 in the A2 emissions scenario. The climate future generated by CCSM3 results in an even sharper decline in carbon stocks over the 21st century, with the largest loss expected under the A2 scenario. By 2070 to 2099, carbon stocks could increase by 9 percent in the warmer, wetter future, or drop by 26 percent in the hotter, drier scenario.

Figure 10
Percent Change from the Future Baseline Climate in Carbon Storage in Aboveground Live Trees for Lower and Higher Emissions Scenarios for Three Global Climate Models (PCM1, GFDL, and CCSM3)



Source: Shaw et al. (2008)

In summary, in the forestry sector several tools were used to assess the impacts of climate change. A more sophisticated analysis of forest fires confirms prior studies suggesting an alarming, increasing trend in the frequency of these fires. The productivity of forest for timber in general is estimated to decline on a statewide basis but some species and in some locations timber production may increase. Further studies are needed to confirm and refine these results. The amount of carbon

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sequestered in aboveground live trees is expected to decline but results are not consistent across the different climate projections produced by the range of models used in this assessment

1.2.8 Water Resources

Two groups conducted studies of water resources under changing climate conditions using two different models: CALVIN and CalSim-II. The CALVIN model is an engineering-economic optimization model that has been enhanced for climate change studies. Since the model assumes perfect water markets with water being delivered where it is needed to minimize economic losses or increase benefits to the overall water sector, results from CALVIN should be interpreted with caution and representative of minimum impacts given physical constraints only (i.e., as best case scenarios). By comparison, the CalSim-II model is a simulation model that accounts for the existing rules and regulations governing the water system in California. The model assumes that current rules, regulations, and practices remain unchanged in this century. Since climate change will undoubtedly result in changes in water management, results from CalSim should be considered conservative.

The CALVIN work conducted for this assessment (Medellin-Azuara et al. 2008) explored water supply adaptation strategies under two climate scenarios, assuming 2050 levels of socio-economic development. The first climate scenario used a warmer-drier climate with high GHG emission levels and low precipitation levels; the second climate scenario (warmer only) includes historic patterns of precipitation with high levels of emissions and increased temperature. The warmer-drier scenario comes from the downscaled outputs from the GFDL model for the A2 emissions scenario while the warmer-only scenario retains the warming from the GFDL model but assumes no changes in average precipitation levels from the historical record. The CALVIN model integrates economic costs in agricultural and urban locations, operating costs, and water storage and conveyance infrastructure within the network connecting and transporting water resources within and across the state. CALVIN suggests economically promising water management strategies, such that water is allocated to minimize total scarcity and operating costs in California considering a set of physical and operating constraints.

Table 1 below shows the amount of unmet water demand (scarcity) using historical climate conditions with future population and urban growth and the two climate projections described above. Overall, urban uses are supplied at their target demand. Small shortages close to 28 thousand acre-feet (TAF) per year are most likely in Southern California in historical and warmer-only scenarios. Affected urban centers include some parts of the Metropolitan Water District of Los Angeles and some cities east of Los Angeles within the Mojave and Imperial Valley regions. This finding

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assumes that current infrastructure development projects will be in operation. The warmer-drier scenario doubles shortages for urban locations to 59 TAF/year. The CALVIN model estimates that urban areas are basically able to receive the water they need from water transfers from the agricultural sector.

It is important to point out that the warmer-drier climate scenario comes at a cost to some environmental flows. Reductions in environmental flow requirements for the Trinity River, Clear Creek, and the Sacramento River, the San Joaquin/Mendota refuges, and Pixley were required to achieve model feasibility under this drier scenario. A reduction of 8 TAF/year, roughly 11percent of the average annual minimum streamflow requirement, was applied to Mono Lake water releases from Grant Lake. Changes in end-of-period storage policies in selected reservoirs (such as Shasta) were also needed to accommodate reductions in required minimum streamflows. Such reductions in streamflow would need to be reviewed for potential environmental impacts, and the respective costs and benefits carefully weighed.

Table 1
Water Scarcity, in Percent of Water Deliveries by 2050

Scenario	Scarcity (Thousand Acre-Feet/year)	Delivery (Percent of Target)
Historical		
Agriculture	970	95.9
Urban	28	99.7
Total	998	
Warmer-Only		
Agriculture	1,229	94.8
Urban	29	99.7
Total	1,258	
Warmer-Drier		
Agriculture	5,153	78.2
Urban	59	99.4
Total	***5,212***	

Chung and Anderson (2008) used the CalSim-II model to estimate potential impacts of climate change on operation of the State Water Project (SWP) and the Central Valley Project (CVP) (Figure 11) using 12 climate projections for both the middle and the end of the century. The indicators of water supply reliability analyzed were annual Delta exports, reservoir carryover storage, Sacramento Valley groundwater pumping, power supply, position of a Delta salinity indicator known as X2, and the frequency and extent of system vulnerability to operational interruption. In analyzing the study results, it was

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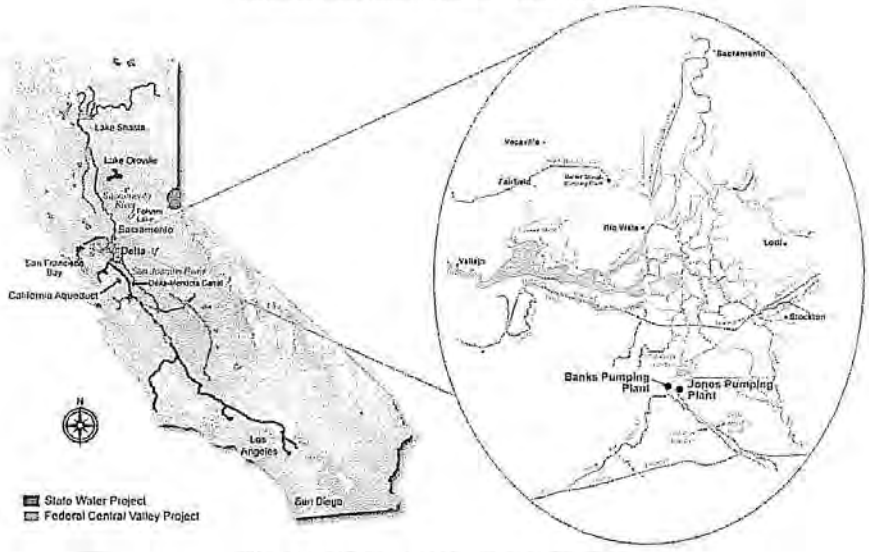
assumed that each climate projection was equally likely and that no changes were made to the existing SWP and CVP infrastructure

Figure 11
State Water Project and Central Valley Project in California (left)
Sacramento-San Joaquin Delta (right)



Source: Chung and Anderson (2008)

The reliability of the SWP and CVP water supply systems is expected to be reduced for the range of future climate projections studies. Decreases in annual Delta exports would reduce water deliveries south of the Delta. Reductions in reservoir carryover storage would reduce the systems' flexibility during water shortages. In the Sacramento Valley, reduced surface water supplies are likely to be augmented by increased groundwater pumping. Both power generation and power use by the SWP and CVP are anticipated to decrease under climate change due to the expected reduction in water deliveries. The SWP and CVP are expected to continue meeting X2 Delta salinity standards. Under climate change, in some years water levels in the main supply reservoirs (Shasta, Oroville, Folsom, and Trinity) could fall below the lowest release outlets making

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the system vulnerable to operational interruption. In those years, additional water would be needed to meet current regulatory requirements and to maintain minimum system operations. This water could be obtained through additional water supplies, reductions in water demands, or a combination of the two. For current conditions, the system is not considered vulnerable to operational interruption.

In summary, without changes in operating rules for the water system in California the reliability of water supply will be severely affected. On the other hand, it seems that California could afford the implementation of adaptation measures that could significantly reduce the system's vulnerability.

1.2.9 Coastal Areas

Several studies assessed the impacts of climate change on the coastal sector. Knowles (2008), assembled and mosaicked the highest resolution elevation data for the San Francisco Bay region currently available and used a hydrodynamic model to assess the extent of inundation with a 140 cm (55 inch) increase in mean sea level from the present day (measured at the Golden Gate Bridge) (Figure 12)

Many of the areas indicated as vulnerable to inundation are presently behind levees and would only be inundated if those levees breached or were overtopped, or they include wetland areas which are inundated by high tides only occasionally today. The most prominent features subject to inundation in the North Bay are the wetlands surrounding San Pablo and Suisun Bays; municipal and industrial areas along the Martinez-Pittsburg corridor; the Richmond-Pinole peninsula; and areas in eastern Marin. In the Central and South Bays, a ring of developed areas currently behind levees would be newly at risk as sea level rise is expected to greatly increase pressure on existing levees and increase the risk of breaching. Other areas, such as San Francisco airport, that are not currently protected behind levees would need levee protection.

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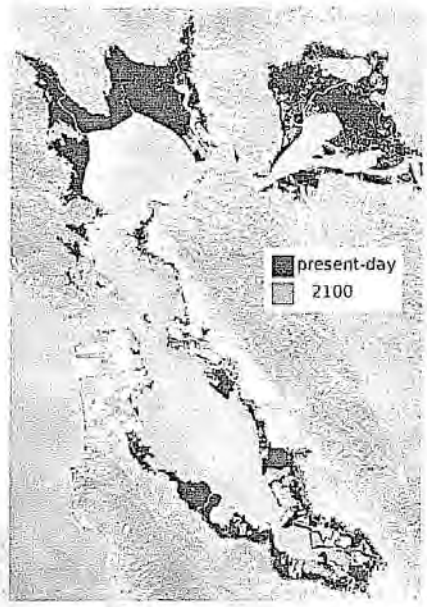
Figure 12
Present and Future Inundation Scenarios at Mean High Tide in the San Francisco Bay



Inundation of San Francisco Bay areas that lie below average annual high water levels under conditions of present mean sea level (blue), and under conditions of a 140 cm increase in mean sea level (red)

Source: Knowles (2008)

Peter Gleick and colleagues (2008) used the inundation maps produced by Knowles for the San Francisco Bay region and produced similar maps for open coast regions to estimate the area, population, and assets potentially affected by higher sea levels. They also estimate the costs of protecting them from the encroaching sea (for results on the economic estimates, see Chapter III). They estimated that $50 billion of property, along with 260,000 people, are located in areas that are currently vulnerable to flooding. Existing levees protect some of these areas but will no longer be sufficient with projected sea-level rise. Their analysis reveals that $100 billion of property and 475,000 people are located in Bay and open coast areas vulnerable to inundation in 2099. However, risk is not evenly distributed among the counties in the San Francisco Bay, with San Mateo and Alameda counties having 40 percent of assets at risk, the greatest

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amount in the Bay Area. Marin, Santa Clara, and San Francisco counties are also exposed to a high degree of risk; exposure to risk in these counties is higher than in all other counties along the Pacific coast, with the exception of Orange County. Exposure to risk in Sonoma and Napa counties is relatively modest.

While all sectors are vulnerable to the impacts from sea-level rise, 70 percent of all assets at risk are residential, followed by the commercial sector with 20 percent. In addition to buildings and their contents, a wide range of other critical infrastructure, such as roads, hospitals, schools, emergency facilities, water and wastewater treatment plants, and others will also be at increased risk of flooding. Continued development in vulnerable areas would put additional assets and people at risk.

Another study by Adams and Inman (2008) estimated changes in beach width and volume both historically and for different scenarios of climate change. The authors found that southern California beaches behaved very consistently over the period between 1949 and 1998. Some beaches had chronic erosion (e.g., Point Dume, Will Rogers, Dockweiler, and Torrance), while one was had continuous accretion (e.g., Dan Blocker), with the remaining beaches (Malibu, Las Tunas, Topanga, Santa Monica, Venice, El Segundo, Manhattan, Hermosa, and Redondo) being mixed in their trend of sedimentary health, exhibiting both erosion and accretion reaches. In all instances the beaches experienced the greatest amount of change during severe winter storms, especially during El Niño events.

Climate-driven sea level rise and changes in the characteristics of waves could cause some beaches to erode more while others may actually get wider. During El Niño events, wave direction is more westerly and of longer period than during non- El Niño conditions. Recent evidence suggests that El Niño frequency has already increased commensurate with the warming global climate. The authors used a model that relates deep-water wave conditions to beach response, to identify erosion hotspots under different climate scenarios. They found that a higher frequency of El Niño-like conditions will increase potential longshore divergence of sediment at exposed sites by as much as 300 percent, increasing erosion or turning previously accreting sections of the beach into erosion hotspots. They also found that when waves are large, of long period, and from westerly directions erosion can increase by nearly 20 percent for a 1 meter rise in sea level.

Together, the three studies suggest that climate change-driven sea-level rise is likely to be more severe and potential economic impacts considerably higher than previously projected. The long-term commitment to sea level rise (due to the thermal inertia of the oceans) and high development of much of California's coastline for residential, industrial, recreational, and infrastructure uses suggest that mitigation can reduce the magnitude of sea level rise over the very long term (hundreds of years), while adaptation is the only way to deal with the impacts from sea level rise over the coming decades and century.

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1.2.10 Energy

Anticipated climate change will affect residential electricity demand patterns for California's households. Increases in mean temperature and the increased frequency of extreme heat events combined with the uneven distribution of new residential development across the state will drive up the demand for cooling in summertime, which is only partially offset by decreased heating needs in the wintertime. Auffhammer and Aroonruengsawat (2008) combined four years of residential billing data for California's three largest utilities with daily temperature and pricing information to estimate temperature consumption response functions by the climate zones defined for the California Energy Commission's building standards.

Figure 13 presents estimated per-household changes in residential electricity demand due to warming using the results from the PCM global climate model. The maps on top represent results for the B1 scenario and the maps on the bottom show results for the A2 scenario. The maps on the left are average increases for the 2020 to 2039 period and the ones on the right for the 2080 to 2099 period.[3] Increases in demand in the coastal regions are relatively modest due to the lower increase in coastal temperatures while increases inland, especially in the Central Valley, are substantial. Demand in the next 40 years generally is insensitive to the global emissions scenarios considered while demand at the end of this century is heavily dependent on global emissions pathways in this century. The increased electricity demand in the residential sector for the A2 scenario is higher by about a factor of two than in the B1 scenario by the end of the 21st century.

On average statewide electricity demand in the residential sector would increase by about 7 percent in the next few decades beyond that of anticipated population growth alone. By end of this century demand would increase by 20 percent in the B1 scenario and by 50 percent in the A2 scenario. These changes represent substantial impacts to California's residents and an added stress to the electricity generating sector.

California's water and hydropower energy resources are also vulnerable to climate change, motivating a series of studies in recent years. Hydropower constitutes around 15 percent of in-state energy generation in California, its greatest value being associated with peak use. More than half of this energy generation occurs at high elevation (over 1,000 feet) in systems that have less storage capacity but higher natural head than lower-elevation systems. In high elevation systems snowpack is used as a natural reservoir to deliver water for hydropower generation in the spring and summer seasons.

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[3] The new estimates reported by Auffhammer and Aroonruengsawat (2008) seem to be substantially higher from what has been reported in prior studies. The potential reasons for the discrepancies are being investigated.

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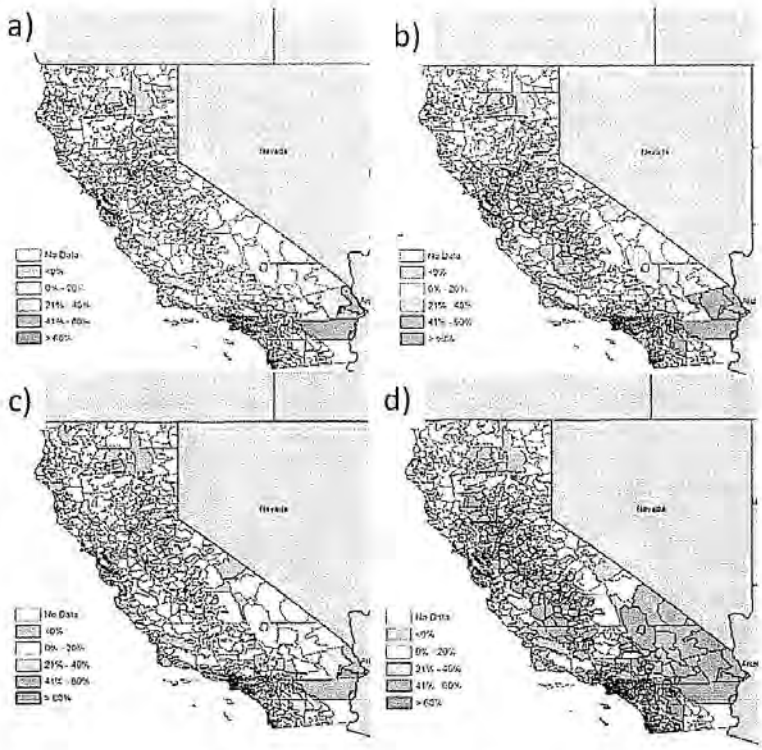
Figure 13
Projected Changes in Electricity Demand in the Residential Sector

Simulated increase in per-household electricity consumption by zip code for the periods 2020–2039 (a)(c) and 2080–2099 (b)(d) in percent over simulations using climate data for the 1980–1999 period. Model NCAR PCM forced by IPCC SRES B1 (a)(b) and A2 (c)(d).



Source: Auffhammer and Aroonruengsawat (2008)

Chung et al. (2008) reported that power generation by the Central Valley Project (CVP) is expected to decrease by three percent at mid-century and by six percent by the end of the century, and the power used by the CVP is expected to decrease by one percent

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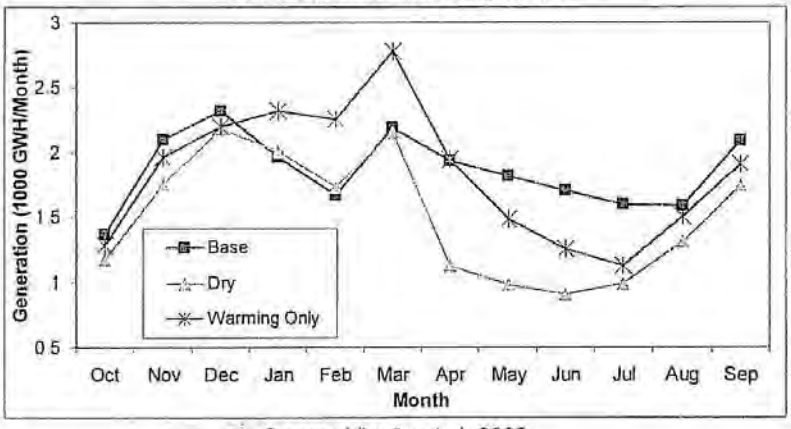
by mid-century and three percent by the end of the century. The power generation by the State Water Project (SWP) is equally expected to decrease by three percent by mid-century and by six percent by the end of the century, and the power used by the SWP is expected to decrease by six percent by mid-century and 10 percent by the end of the century. Both CVP and SWP include low-elevation hydropower units associated with the major reservoirs belonging to these two systems.

For high-elevation hydropower units, Medellin et al. (2008) reported up to 20 percent decreases in annual electricity generation for the about 150 high-elevation hydropower units available in California. Total annual generation is a strong function of the amount of precipitation falling in California. If precipitation levels were to remain at historical levels for the rest of this century, annual hydropower generation in high-elevation units would not be severely affected. However, electricity generation decreases in the summer months when it is needed the most to meet peak electricity demand (Figure 14).

Figure 14
Average Monthly High-Elevation Hydropower Generation in California
Under Different Climate Scenarios



Source: Vicuña et al. 2008

Vicuña et al. (2008) performed a very detailed engineering study of two high-elevation hydropower systems in California: the Upper America River Project, operated by Sacramento Municipal Utility District in Northern California, and the Big Creek system, operated by Southern California Edison in Southern California. The operations of these two high-elevation systems were simulated using historic climate conditions and the future climate change scenarios. Hydrologic scenarios under climate change imply an average reduction in runoff for both systems (with a greater reduction for the Big Creek

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systems) and a change in the hydrograph (distribution of runoff in different parts of the year) towards earlier timing of runoff. The changes are greater for the Upper America River Project system because of the lower elevation of the basins where the system is located. The simulation results indicate that the reduction in runoff results in a reduction in energy generation in both systems. However, due to the greater change in the hydrologic conditions for the Upper America River Project system, spills are greater in that system, and hence the reduction in energy generation (and associated revenues) is greater as well.

1.2.11 Air Quality

Californians experience, on a cumulative basis, the worst air quality in the nation. Ozone and particulate matter (PM) are the pollutants of greatest concern, especially in the problematic South Coast and San Joaquin air basins. The current control programs for motor vehicles and industrial sources cost about $10 billion per year. As the population of California increases, the climate warms, and forests, croplands, and native vegetation become altered, scientists expect that air pollution in coming decades may worsen. Climate change could slow progress toward attainment of health-based air quality standards and increase pollution control costs by increasing the potential for high ozone and high particulate days. Reductions needed to counter man-made and natural biogenic emissions will be particularly important during strengthened temperature inversion events and summertime stagnation episodes.

Potential air quality impacts of climate change are being assessed using both empirical and deterministic methods. The empirical methods use meteorological parameters to find if conditions conducive to high air pollution episodes will change with climate change. Deterministic methods rely on air quality photochemical models.

Concentrations of several of the key air pollutants, such as ozone and PM, depend strongly upon the vertical gradient of temperature in the lower atmosphere. The persistence of California's ozone problem is associated with inversions, warm sunny days with stagnant atmospheric conditions that trap emissions close to the surface where they have ample opportunity to accumulate and to form smog. Iacobellis et al. (2008) investigated how atmospheric circulation and other conditions have accentuated or diminished these inversions during the last five decades and on how they may change over the 21st Century. The study indicates that while there are inversions on most days in California, of varying intensity and structure, low frequency variability in inversion strength, along with other inversion characteristics, may have important implications for future changes.

Steiner et al. (2006) evaluated the effects of some anticipated changes in climate variables and ozone precursor emissions for the Central Valley and San Francisco Bay Area. Reductions in anthropogenic emissions of conventional air pollutants by 2050 will reduce ozone levels, assuming there is no change in climate. However, changes in

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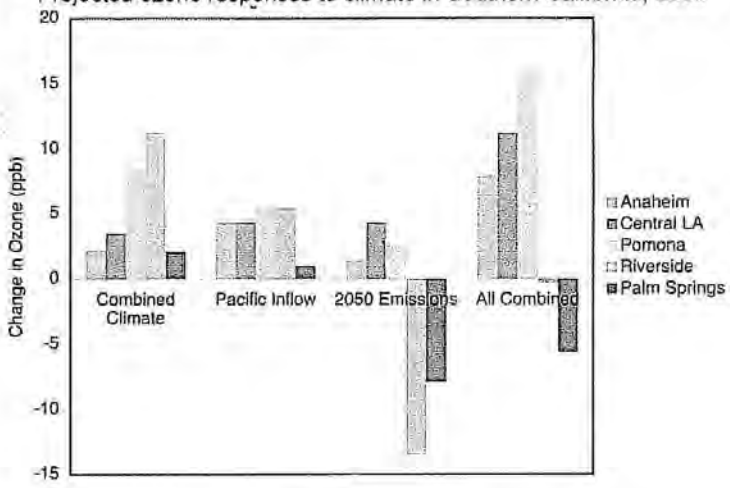
climate variables, such as higher temperatures and increased natural biogenic emissions, would produce higher ozone concentrations. When these two effects, changes in climate and conventional emission reduction programs, are combined, the benefits of the emission reductions are partially or completely offset by climate change. This off-setting of air quality improvements by climate change-induced temperature and emission changes is sometimes called the "climate penalty."

In a separate study, Millstein and Harley (2008) analyzed in more detail the effects of climate change on ozone concentration in Southern California. They model conditions in 2050, assuming CO_2 levels of twice pre-industrial. They superimposed the effects of emissions and climate-related changes to air quality on a 2005 summer high-ozone episode. They considered the effects of five factors: (a) increased temperature on atmospheric chemical reaction rates, (b) increased temperature on biogenic emissions from plants, (c) increased water vapor concentrations, (d) increased inflow of pollution from the West, modeling an increase in pollution carried in from Asia, and (e) population growth and technology change affecting the emissions of air pollutants within the study area. The authors also differentiated the effects of daytime and nighttime warming. The climate effects (a, b, and c above) lead to ozone concentration increases of up to 11 parts per billion, though the effect on ozone was greatly reduced when the temperature increase occurred at night. Increased inflow pollution also led to ozone increases up to five parts per billion. These climate and inflow-related changes offset some of the anticipated benefits of emission controls within the South Coast Air Basin. (Figure 15)

Figure 15
Projected ozone responses to climate in Southern California, 2050



Source: Millstein and Harley (2008)

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The PM2 5 (particulate matter of less than 2 5 microns) response to global change is more complicated to diagnose because some of the likely trends act in opposite directions Increased temperature discourages the formation of particulate ammonium nitrate, an important contributor to levels of PM2.5, but rising concentrations of background ozone encourages it A preliminary study (Kleeman, 2008) suggests that the effect of increased background ozone was especially important during episodes with lower air temperatures PM2.5 events in the San Joaquin Valley usually occur during the winter months, so the importance of background ozone concentrations at lower temperatures may be especially significant there Rainy days, wildfires, global dust storms, humidity, and other factors also affect PM and are the subject of ongoing research

1.2.12 Public Health

Climate change has the potential to significantly impact the health of Californians. Research suggests that the most serious effects will not be primarily related to changes in average climate, but rather to increased frequency of extreme conditions, principally more frequent, longer and more intense heat waves. Heat wave conditions are also associated with weather patterns conducive to increased air pollution formation and wildfire outbreaks, both of which pose risks to public health. In addition, climate change also has the potential to influence asthma symptoms, the incidence of infectious disease, and the potential to affect humans indirectly through impacts on food and water supplies and quality.

A large body of literature published over the past 10 years has consistently shown that the number of observed deaths is greater when temperatures are elevated, and that not all deaths associated with temperature are directly due to hyperthermia or dehydration. Most excess deaths occur in people over 65 years of age who have chronic disease. However, a significant number of cases of death directly attributable to heat are in healthy, relatively young to middle aged people. This group often includes outdoor workers and people engaged in strenuous exercise. Many excess deaths are indirectly related to heat exposure, with the cause of death being cardiovascular or other chronic diseases that are exacerbated by heat exposure. Several studies have also reported that hospitalizations and emergency room visits increase as ambient temperature rises.

Basu and Ostro (2008) provide the first studies investigating heat-related mortality in California. A study of nine counties found that excess mortality resulted from extreme temperatures but also from exposure to generally higher mean temperatures during non-heat wave periods. This study also observed greater effects in Blacks, those over age 65 and those under age one. A follow-up study (Ostro et al. 2008) analyzed the effect of temperature and mortality during the 2006 heat wave and found a higher percent increase in mortality per unit of increase in apparent temperature (nine percent per 10 °F) during that heat wave than during the previously studied non-heat wave

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periods (about 2.3 percent per 10 °F). Green et al. (2008) investigated the relationship between temperature and hospitalizations for various causes using the same nine counties as the mortality analyses discussed above. Hospitalizations for directly heat-related causes, such as heat stroke and dehydration, increased as temperature increased. In addition, hospitalizations for ischemic stroke (reduced blood and oxygen flow to the brain), respiratory disease, diabetes, acute renal failure, and intestinal infectious disease also increased as temperatures increased. The results highlight the conclusion that there is an association between temperature and hospital admissions in California, even without extreme temperature events.

A two-week heat wave that impacted most of California in July 2006 led to more than 140 deaths directly attributable to heat exposure. Although daytime temperatures were high during this time period, they were not record-breaking. However, nighttime temperatures during this heat wave were unprecedented and played a key role in the high death count (Gershunov 2007, Gershunov and Cayan 2008). Heat waves, especially those with substantial nighttime warming, have been increasing in recent decades in California. Knowlton et al. (2008) investigated the relationship between hospitalizations and emergency room visits during the 2006 California heat wave. The results showed a significant increase in emergency room visits for heat-related causes. There were also significant increases in hospitalizations for heat-related illnesses, acute renal failure, electrolyte imbalance, and nephritis. Effects were largest in the Central Coast region, which includes San Francisco. This region of California rarely experiences heat waves comparable to the 2006 event. The human toll was likely related to acclimating and adapting to the heat in this region. Ostro et al. (2008) analyzed the full mortality effects of the 2006 heat wave and indicated that the impacts might be two to three times greater than the 140 deaths directly attributed to the heat wave based on the coroner reports.

Climate change will increase the intensity and frequency of wildfires as discussed above. An increase in the number, size and duration of fires will add to the air pollution that already burdens California (Jaffe et al. 2008a; Jaffe et al. 2008b, Spracklen et al. 2007; Spracklen et al. in revision). Wildfires have the potential to significantly impact public health through the contribution of smoke to air pollution. A recent paper (Künzli et al. 2006) investigated respiratory symptoms in children residing in 12 cities in Southern California during the 2003 wildfires, and showed that the number and intensity of respiratory symptoms increased with both the number of days the child smelled smoke and with the PM10 (particles smaller than 10 microns) concentration. However, these results indicate that quantitative estimation of the impacts of future wildfire events is extremely difficult because the health-related impacts of any fire are unique to that event and are influenced not only by the magnitude, intensity and duration of the fire, but also the proximity of the smoke plume to a population.

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1.2.13 Crosscutting Issues

The above summary of research suggest that even a relatively modest climate change (such as under the B1 emissions scenario, as described above) could create substantial impacts in each of the examined sectors. Future assessments will begin the challenging work of linking impacts occurring in one sector with those in others by potentially aggregating or using offsets, or responding to new findings.

There are different ways to systematically integrate these impacts across sectors, including through a geographic regional focus such as all impacts affecting a specified area, such as a metropolitan region or a section of the coast; a thematic focus taking into account all impacts from extreme events; or a temporal focus in which all impacts that occur in a specific year. In the 2008 Assessment Report, several studies begin this cross-cutting integration, but future work will need to expand upon it.

One study by multiple authors and coordinated by the San Diego Foundation examines the combined impacts of climate change with other demographic, economic, and social changes anticipated for the San Diego metropolitan area for the next several decades Sponsors of this multidisciplinary study (San Diego Focus 2050) assume that a recurring assessment of the risks from climate change and incorporation of the best available information into planning will enable San Diego to adapt more readily to the coming changes

For instance, using a cross integration strategy in San Diego to address climate change means taking into consideration demographic and socioeconomic changes, in addition to environmental issues. Local governments, businesses and individuals will need to be ready to deal with multiple risks and hazards simultaneously, such as sea level rise related to flooding, loss of beaches, water scarcity and water use conflicts, heat waves, rising electricity prices or even shortages, wildfires, increasing air pollution, species movement and losses, and greater public and private expenses

Another cross-cutting study by Mastrandrea et al (2008) examined the impacts of extreme events in California such as heat waves, wildfires, droughts, and floods, which have historically caused significant damages to life and property, and are responsible for a large fraction of near-term annual climate-related impacts. Experts expect many extreme events to become more frequent and more intense in the future due to warm temperatures (Figure 16)

Indeed, Trenberth et al. (2007) and Karl et al (2008) found that some extreme weather events in the United States have already increased in frequency and intensity over the past few decades, with likelihoods ranging from likely (>66 percent likelihood to very likely (>90% likelihood) Observed incidences of extreme weather and changes in the frequency of extreme weather patterns over time in California are consistent with the

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observed national trends. Adapting to extreme weather can be more challenging than adapting to gradual changes in weather conditions. Thus, studies of extreme weather events uniquely impact assessments and adaptation planning.

In their study, Mastrandrea et al. (2008) carefully define what would be considered an extreme weather event based on existing literature and historical experience. The study connects climate conditions (or indicators) to extreme events and tie the impacts experienced in one sector to those in other areas. New projections are made of frequency and intensity of extreme events in the future across climate models, emission scenarios and downscaling methods.

Consistent with other studies, the authors find significant increases in the frequency and magnitude of both maximum and minimum temperature extremes in many areas. The magnitude of change depends on overall temperature increase. For example, in many regions of California, at least a 10-fold increase in frequency is projected for extreme temperatures currently estimated to occur once every 100 years, even under a moderate emissions scenario (B1). Under the higher emissions scenario (A2), these temperatures are projected to occur close to annually in most regions. Also consistent with other studies, they found that projections of precipitation extremes are less spatially correlated and statistically significant than temperature extremes county-by-county, and they are more sensitive to the climate model and downscaling methodology that are employed.

Figure 16
Expected Changes in the Occurrence of Extremes as Climate Changes

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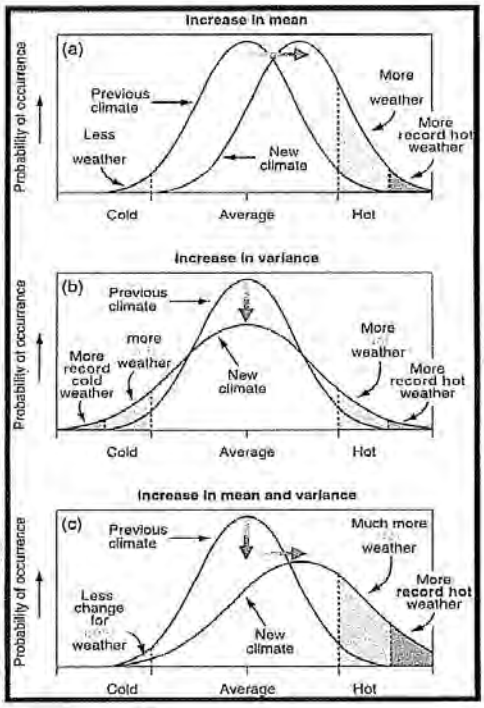

Increases in the mean of (a) climate variable may shift toward more extremes on one side of the distribution and fewer extremes on the other; (b) increases in the variance of a climate variable would produce more extremes on both ends of the distribution; and (c) increases in both the mean and variance in a climate variable will produce a skewed shift in extremes: relatively minor shifts in extremes on one end of the distribution but much more change on the other end of the distribution

Source: Trenberth et al. (2007), based on Houghton et al. (2001)

Mastrandrea et al. (2008) also undertook a comparison of current and future expected frequencies of extreme events comparable to those recently observed, such as the heat wave of July 2006 and the freeze of December 1998). Their exploration suggests

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significant changes in the future. Heat waves similar in length and intensity to the 2006 heat wave will become more frequent all across the state. Some simulations suggest that heat waves will be an annual event by the end of this century under a higher emissions scenario. Freezing spells, on the other end, are robustly projected to become less frequent all across the state, even in locations where now they are a yearly event, becoming as rare as a one in 10-year event or less in a large fraction of California.

The study makes important progress in projecting extreme climate conditions and the implications of economic impact analyses, vulnerability assessments, and adaptation planning, though future work will need to refine the approach. Further refinements of information regarding exposure and sensitivity must be assessed to determine the capacity to adapt to specific sectors, regions, and populations, in addition to identifying specific vulnerabilities and strategies to reduce areas of concern.

The state Office of Environmental Health Hazard Assessment (OEHHA), as lead agency for the Environmental Protection Indicators for California (EPIC) Project, has prepared a report presenting indicators of climate change in California (OEHHA, 2008). A total of 27 climate change indicators are presented. The indicators draw upon data collection, monitoring and studies by state and federal agencies, universities and research institutions. Many of the indicators are derived from research studies funded by the California Energy Commission's Public Interest Energy Research (PIER) Program. Taken collectively, the indicators can help the research community in examining the interrelationships between and among climate and other physical and biological elements of the environment, and in identifying gaps in information. Finally, the indicators – particularly those that reveal evidence of the already discernable impacts of climate change – can highlight priority areas for state mitigation and adaptation strategies. Generally, the indicators show that changes occurring in California are largely consistent with those observed globally. There are a number of specific changes that are highlighted by the OEHHA work. Emissions of greenhouse gases have increased since 1990, as have atmospheric concentrations of carbon dioxide, the most important anthropogenic greenhouse gas. Air temperatures in the state have increased over the past century, with nighttime (minimum) temperatures increasing faster than daytime (maximum) temperatures. Water temperatures in Lake Tahoe have increased in the past 30 years, although water temperatures in the southern Sacramento-San Joaquin River Delta have stayed about the same. Sea levels measured at San Francisco and La Jolla have been rising. Over the past century, spring snowmelt from the Sierra Nevada to the Sacramento River has declined, and glaciers have decreased in area. Large wildfires have become more frequent. The lower edge of conifer-dominated forests in the Sierra Nevada has been retreating upslope over the past 60 years. In Yosemite National Park, small mammals are now found at different elevational ranges compared to earlier in the century. Butterflies in the Central Valley have been arriving earlier in the spring over the past four decades. These and the other indicators in the study will continue to be tracked and will provide an ongoing record of the measured impacts of climate change.

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Community vulnerability is determined by its ability to anticipate, cope with, resist, and recover from the impact of increased major weather events associated with climate change. Climate change will affect industrial and agricultural sectors, as well as transportation, and energy infrastructure. These shifts may have health and economic consequences for diverse communities throughout California. Climate change may also amplify current as well as future socioeconomic disparities leaving low income, minority, and politically marginalized groups with fewer economic opportunities and more environmental and health burdens. Shonkoff et al. (2008) conducted a literature review exploring disparities in the impacts of climate change and the abilities of different groups to adapt to it and identifies knowledge gaps and future research questions. The literature review concludes that without proactive climate change policies that are sensitive to their economically regressive potential and their distribution of benefits, climate change policies could potentially reinforce and amplify current as well as future socioeconomic and racial disparities

1.3 Summary of Major Findings

The work summarized in this chapter constitutes ongoing research that will continue for the foreseeable future. It is clear, however, that the science on climate change, impacts, and adaptation needs for California is progressing in important ways. Major advances since the 2006 project have been made, including:

- Downscaling of global climate model outputs to produce greater resolution and thus more realistic climate change projections for the state
- Understanding of the climate and terrestrial influences on global sea level rise and thus improve projections for the 21st century
- Collection and analysis of data to better understand the state's regional and local exposure to changing climate risks such as floods or extreme heat
- Understanding the impacts of climate change on crop yields for important commodities of California's agriculture
- Providing more detailed insights into the complex challenges and costs involved in meeting future energy needs.

Extreme events from heat waves, floods, droughts, wildfires and bad air quality are likely to become more frequent in the future and pose serious challenges to Californians. They pose growing demands on individuals, businesses and governments at the local, state, and federal levels to minimize vulnerabilities, prepare ahead of time, respond effectively, and recover and rebuild with a changing climate and environment in mind.

The next chapter provides some preliminary indications of the cost of climate change impacts under different assumptions, as well as of the cost of adapting to impacts that cannot be prevented or minimized through stringent greenhouse gas mitigation

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CHAPTER II

2 Economic Impacts of Climate Change on California

2.1 Introduction

This chapter summarizes the recent assessments of economic impacts of climate change on California. The assessments focus on the economic valuation of the physical impacts described in the previous chapter. Consequently, this chapter is organized by those sectors, with an emphasis on putting dollar values on the changes anticipated under the A2 and B1 climate change scenarios discussed above. The A2 scenario represents a higher greenhouse gas (GHG) emissions scenario that may be described as "business as usual" and the B1 scenario is a lower emissions scenario resulting in far lower emissions by the end of the century (see Figure 1 in Chapter I).
By putting a dollar value on the physical impacts of climate change, we start to understand in economic terms the cost associated with climate change if no corrective actions are taken versus the value of global action to reduce greenhouse gas GHG emissions.
These assessments are in the early stages of development and are expected to evolve as improved data and methods are developed. Nevertheless, this current assessment demonstrates that climate change poses significant monetary risks for California. The value of reducing global emissions is substantial. Even when levels of emissions drop, the monetary impacts remain significant, highlighting the need for effective adaptation policies as part of the State's response to the climate change challenge.

An overview is given of the methodology used to determine the monetary value of the physical impacts of climate change, the economic impact assessments from various sectors, and other areas that remain to be assessed.

2.2 Economic Valuations

The concept of economic valuation, representing the consequences of climate change through a monetary measure, has been the subject of significant research and also some controversy both technically over appropriate measures and methodologies, and philosophically. For example, some ecologists argue that it is not proper to equate economics with morality and that "[i]n fact, we should not take costs into account in setting environmental (or other) objectives, but we should take costs into account when considering how to implement moral objectives and policies" [4] There is a limited amount

[4] Roughgarden (1998)

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of funds, however, to spend in combating climate change. The monetary value of avoiding actions to reduce greenhouse gas emissions versus taking initiatives to reduce emissions are undertaken in this report.

Economic valuation measures in monetary terms the value that people place on things. The value is characterized through a monetary amount that is equivalent, in terms of its effect on the person's wellbeing, to the item in question. There are two ways to formulate what is equivalent: the most that the person would be willing to pay (WTP) to obtain the item, known as the WTP measure of equivalence, and the minimum compensation that the person would be willing to accept (WTA) to forego the item, known as the WTA measure of equivalence.

The physical impacts of climate change may create changes in markets for suppliers and consumers of goods and services. Conceptually, there are four possible types of change: a change in income, a change in the price of commodity or input, a change in the quality of a commodity or input; and or in availability. A heat wave in an agricultural area that damages or kills crops could be conceptualized as a loss of income for farmers and farm workers; an increase in prices of crops for consumers; a reduction in quality (grapes are still available but the heat harmed their quality); or a reduction in quantity of grapes available for the market.

Climate change may also produce impacts that are not reflected in markets, such as effects on human health and mortality, the loss of amenity from the environment, and impacts on ecosystems and species. While there may also be market effects associated with these changes, by themselves the items are not things that can be purchased in a market.

Replacement cost must also be considered, particularly for non-market impacts. In some cases it is possible to take actions to replace the non-market items lost. For example, if a population of birds is injured or killed, it may be possible to protect an existing threatened and declining population of a similar bird so that its population grows. Or it may be possible to create a new habitat at another location to increase its population.

The concept of replacement cost needs to be treated with care. In many cases it may not be possible to replace the non-market item lost, hence, there has arisen the notion of "replacement of like kind" – the replacement is something that is different, but similar. However, similarity is in the eye the beholder, and what is a meaningful replacement of that which is lost is a matter of judgment.

When assessing damage, a common principle in law is that the appropriate compensation is the lesser of the value of the item damaged and the cost of replacing it. If it can be replaced inexpensively – if the replacement cost is the lesser of the two – then it is appropriate to provide the cost of replacement as the means of making the item's owner (e.g., society) whole. If the item cannot readily be replaced, or the cost of replacement is the greater of the two, then the appropriate compensation is the value the owner places on the lost item. In the context of damages from climate change, it is not clear how readily it will be possible to replace the non-market damages, therefore, the empirical relevance of replacement costs is an open question.

In summary, as applied in this report, the economic cost of climate change may be thought of as the lesser of the replacement cost and the monetary value of the impact.

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When the impact is a direct change in income, the change in income is itself the monetary value. For any other change, whether involving a market or non-market effect, the monetary value is based on the willingness to pay for the item or willingness to accept to forego the item.

2.3 Sectoral Economic Impacts [5]

This section summarizes what is known about potential economic impacts of climate change in California and describes the economic studies being conducted for the 2008 Assessment Report [6]

The authors who prepared the economic evaluations for this report worked closely with the scientists conducting the impact studies. For example, Richard Howitt and Josué Medellín-Azuara (UC Davis) are using the estimated changes in crop yields reported in Chapter I in their economic valuations for the agricultural sector. Peter Gleick (Pacific Institute) and colleagues are using Noah Knowles' sea-level rise projections and flood-related inundation to estimate economic impacts of future flooding on San Francisco Bay urban areas, while Linwood Pendleton (UCLA) and colleagues are using beach width loss projections along various erosion hotspots (developed by Adams and Inman) to estimate impacts on beach going-related economic expenditures along Southern California beaches.

The assessment uses two global GHG emission scenarios commonly used in climate impact studies to estimate the potential physical and economic impacts of climate change on California. Most studies conducted for this assessment used the higher A2 (business-as-usual emissions) scenario and the B1 (low emission scenario) (see Figure 1 in Chapter I). The A1Fi scenario would have been an even higher emissions scenario, bracketing even more of the plausible future emissions pathways, but the Intergovernmental Panel on Climate Change (IPCC) did not require model runs using the A1Fi scenario from the different research groups maintaining global climate models for the 2007 IPCC Fourth Assessment. Therefore, detailed climate projections are not available for that scenario from most modeling groups and thus could not be downscaled to California.

[5] The reader should be aware that Chapter II summarizes a series of technical papers in the final stages of peer-review and, therefore, final results may differ from what is presented in this chapter.

[6] This chapter refers to an exploratory study released in 2003 and funded by the Energy Commission's Public Interest Research (PIER) Program, a study which investigated the potential economic impacts of climate change in California. For simplicity, this study is referred in this chapter as the 2003 Assessment (Wilson et al. 2003).

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The B1 scenario (low emission scenario), while not explicitly reflecting global climate policies, has been used in past studies as a proxy for a "policy" scenario in which policies are assumed to be implemented with the goal of substantially reducing GHG emissions at the global scale. Some explicit policy scenarios have been developed but unfortunately, again, modeling groups have not been required to run such an alternative lower emissions "policy" scenario. For this reason, the 2008 Assessment uses the B1 scenario as a proxy to estimate impacts assuming the implementation of strong programs designed to reduce global GHG emissions.

As indicated in Chapter I, Scripps developed 12 climate change scenarios using the outputs from six global climate models covering both the A2 (business as usual emissions) and B1 scenarios. Considering the resources required for the different impact studies, the researchers in charge of the different studies used a subset of the 12 available climate scenarios. In addition, some studies focused on specified time periods, such as 2050 or the end of this century. For this reason, the reported economic impacts do not cover the entire range of potential scenarios and timeframes.

2.3.1 Economic Impacts on Agriculture

Agriculture is not only the most heavily studied sector in the climate economics literature, but also the most controversial in terms of the range of divergent impact estimates. Most studies in the past suggest that climate change would benefit this sector of the U.S. economy, while some more recent studies suggest that this may not be the case. One factor contributing to the divergence in estimates is the sheer complexity of the interactions between climate and crop growth; these interactions involve temperature, carbon dioxide; crop water needs, pests, weeds and ozone.

Temperature influences crop growth through its impact on photosynthesis, respiration, and serves as a controlling factor for key plant development processes, such as blooming and fruit setting.[7] It affects both crop yield and crop quality. The effects are not unidirectional. Yield generally increases at first as temperature rises but then both yield and quality decline. Moreover, different crop processes react to different aspects of temperature. Photosynthesis, by which a plant manufactures carbohydrates, occurs during daylight hours and increases with daytime temperature (i.e., daily maximum temperature). Respiration, which consumes plant carbohydrates, occurs during day and night, and therefore increases with nighttime temperature (typically, the daily minimum temperature). If the latter increases more than the former, the net effect can be a reduction in yield.[8] For some perennial crops, a beneficial consequence of warming is

[7] Besides crops, livestock are also affected by temperature. For example, high temperature stresses dairy cows, reducing milk production and reproductive success.

[8] Since 1980, nighttime temperature has increased about three times as much as daytime temperature, and in some areas there has been a reduction in yield over this period for some

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the reduced probability of frost damage. But the opposite effect also can occur with fruit trees, which typically need a certain number of hours of winter chill each year for flowering and for fruit to set.

CO_2 itself is the prime substrate for photosynthesis. For most plants, photosynthesis increases when the atmospheric concentration of CO_2 rises. However, the amount of this fertilization effect is still uncertain: it has been well demonstrated in controlled environments such as growth chambers, but there are few studies in more realistic field settings. Some recent research suggests that the yield increase under fully open air conditions at an agronomic scale may be only one-third to one-quarter as large as assumed in many previous climate impact assessments (Long et al. 2005, 2006).[9] For some crops, it is not certain whether the increase in growth translates into a corresponding increase in the yield of the economically valuable product of the plant, such as the seeds or the fruit. Some crops, such as strawberries, may benefit in quality from an increase in CO_2. For others, there may be a reduction. For instance, a decrease in the bread-making quality of wheat.[10]

Climate also affects a plant's need for water. Higher levels of atmospheric CO_2 induce plants to close the small leaf openings through which water vapor is released, thus reducing the need for water. However, higher temperatures can increase a plant's water requirement.

In addition to the direct effect on the plant, climate affects the biotic environment surrounding the desirable crop, including weeds that compete with the crop for sunlight, water and soil nutrients, and insect pests and microbial pathogens such as viruses, bacteria, and fungi that influence plant growth. In some cases, the carbon fertilization effect will benefit weeds more than the crop itself, leading to a net reduction in yield (and/or increasing cost to the farmer fighting the growing weed or pest problems). Changes in temperature and precipitation may affect the range of plant pests, leading to an impact on yield.[11]

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crops such as wheat, maize and barley (Peng et al. 2004; Lobell and Ortiz-Monasterio 2007; Lobell and Field 2007).

[9] Based on this work, Cline (2007) suggests a weighted average increment in global agricultural yield from carbon fertilization of 9% at 550 ppm, and 15% at 750 ppm, which is the level associated with the A2 emission scenario by 2100. Tubiello and Fischer (2007) argue that Long et al. (2006) overstate the difference between their findings and the previous literature. Cline's estimate of the yield effect is consistent with the preferred crop model cited by Tubiello and Fischer, but is lower than most estimates in the existing literature.

[10] Pritchard and Amthor (2005).

[11] A recent study in California suggests that range expansion of plant pests is likely to be more significant than range contraction. An example is pink bollworm, a major cotton pest. The pink bollworm's range is limited by winter frosts that kill over-wintering dormant larvae. As

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Another environmental factor is groundlevel ozone, which is formed through the action of sunlight on volatile organic compounds in the presence of nitrogen dioxide. High ozone levels are harmful to crop plants, and ozone is likely to increase with higher summertime temperatures.[12]

In short, the potential effects of climate change on agricultural production are complex, non-linear, and multidimensional. Perhaps not surprisingly, the impact has been treated in a fairly simplified manner in most of the existing economic analyses.

In California, the first study of the potential impact of climate change in the agricultural sector was conducted by Howitt et al. (2003) as part of the 2003 Assessment. He used an earlier version of his Statewide Agricultural Production (SWAP) optimization model modified to consider potential gains in yields due to technical progress in the 21st century and econometric relationships between crop yields and growing season temperatures. His study also considered the effect of water availability as suggested by the CALifornia Value Integrated Network (CALVIN) model. He concluded that economic impacts would be relatively modest assuming that farmers are able to switch from such low-value high water demand crops (e.g., alfalfa) to high-value crops (e.g., vegetables) and are enticed to sell some of their water "rights" to urban centers. The statewide assessment, however, masked some large regional differences in expected impacts. For example, farm income goes down substantially in Palo Verde[13] and in some counties in the Sacramento Valley according to this study.

For the 2008 Assessment, three methods are being used to estimate economic impacts given the complex nature of this problem. The assessment used as much as possible improved estimated changes in yields provided by Lee et al. (2008) (see Chapter I) for annual crops and Lobell and Field (2008) for perennial crops (see Chapter I). An advantage of the new yield estimates is that the researchers are now considering not only the effect of temperatures during the growing season but also additional meteorological parameters that are known to affect yields, such as low temperatures in the winter and spring for perennial crops such as almonds.

The first study, by Costello et al. (2008), involved the use of annual county-level data on agricultural profits and crop yields to estimate the impact of weather and climate change on agricultural sector production in California. The basic methodology involves two distinct steps. In the first step, they developed statistical models relating profits and yields to weather across counties and years. Special attention is devoted to fitting models that allow for nonlinearities and for the diverse agricultural practices in California (e.g., perennials and annual crops). In the second step, they used the estimated

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temperatures rise, winter frosts will decrease, greatly increasing the survival and subsequent spread of the pest throughout the state (Gutierrez et al. 2008).

[12] Elevated ozone levels are also harmful to human health, especially for asthma.

[13] Palo Verde is an agricultural region in Imperial County, California.

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statistical models to project the impacts of climate change on the agricultural sector. In principle the model takes into account the effect of increased temperatures on pest control, farmers' behavior adapting to higher temperatures, and other factors already implicitly accounted for in the historical data sets. Because the models are estimated based on historical variations in weather data, they cannot, however, capture the potential impacts of persistent changes in meteorological conditions that would be expected under climate change. For example, the implications of sustained elevated ozone levels or expanded ranges of pests and plant disease due to climate change are not reflected in the historical data.

According to Costello et al. (2008), the aggregate economic impacts of the production changes are positive and the magnitude of the impacts grows with the time horizon of the projection. Over the 2010-2039, 2040-2069, and 2070–2099 periods, the projected impact are +$0.5, +$1.5, and +$2.3 billions of dollars (2006 dollars), respectively for the A2 scenario as simulated with downscaled outputs from the National Center for Atmospheric Research's (NCAR) global Community Climate Model (CCSM). The corresponding estimates for the B1 scenario are +$0.6, +$0.8, and +$1 billion dollars. The authors noted that their results are contingent on the assumption of continued availability of irrigation water in the 21st century, as the analysis does not consider potential future water supply constraints or increased costs of irrigation.

The second study, by Howitt et al. (2008), explored the likely statewide economic costs of climate-related agricultural yield changes in California by 2050, using the SWAP Model. The SWAP model assumes farming units in California aim to maximize net profits from agricultural production. As indicated before, evidence from other studies reported in Chapter I suggests a warmer-drier climate in California may reduce crop yields over the long run. Yield losses estimated in these studies are used in SWAP to calculate losses for selected crop groups in California. The base regional cropping pattern is established using geo-referenced data on land use from the California Department of Water Resources. In addition, average production cost information from the University of California Agricultural Cooperative Extension was used. SWAP also takes into account estimates of agricultural land conversion to urban uses, technological change, and expected crop prices by year 2050. An offsetting effect may result from agricultural crop price increases as a result of decreased production and reduced yields which are considered by the SWAP model. However, for crops traded on a global market such as grain, rice, and corn, shifts in demand can be directly related to changes in world prices, which are exogenous to SWAP.

To consider the availability of water for the agricultural sector, the researchers used results from Medellín-Azuara et al. (2008). Medellín-Azuara et al. simulated the water system in California with the CALVIN model driven by the climate projections generated by the Geophysical Fluid Dynamics Laboratory (GFDL) global climate model under the A2 global emission scenario (warm-dry scenario, see Chapter I). According to Howitt et al., there would be significant reductions in irrigated acres, ranging regionally from 14 percent to 28 percent, and 8.9 percent to 15.3 percent reductions in revenues due to partial offsets from price and crop changes. According to SWAP, total California

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agricultural revenues in 2050 would be $22 6 billion, down from $25 5 without climate change (a net loss of about $3 billion per year in 2006 dollars). Table 1 shows the estimated percent changes in price, production, and revenues in 2050 as estimated by the SWAP model. The results reflect crop substitution in response to climate change, a type of adaptation to changing conditions. Large reductions occur in pasture and rice--water intensive activities that have seen recent declines in California. As would be expected, the crops most heavily affected are water-intensive or low-value.

Table 1

Percentage Change in Price, Production, and Revenue in 2050

(From Historical to Future Conditions under Climate Change: GFDL A2 scenario)

Crop Group	% Change Price ($/Ton)	% Change Production (Tons)	% Change Revenues
Alfalfa	-5 56%	9 39%	3.94%
Citrus	18.51%	-25.47%	-7.55%
Corn	0 02%	-24.31%	-23 65%
Cotton	1.54%	-22 32%	-19.90%
Field	0 06%	-46.01%	-44 31%
Grains	0.06%	-39.79%	-40 10%
Grapes	4.05%	-11.16%	-7.77%
Orchards	22.14%	-21.68%	-4.11%
Pasture	0.04%	-87.79%	-87.78%
Rice	1.80%	-31.36%	-27.45%
Tomato	-0.24%	0.71%	0 45%
Truck	3.13%	-14.20%	-11.33%

Source: Howitt et al. (2008)

The third study by Joyce et al. (2008) makes use of the results generated by Chung et al. (2008) using the CalSim-II model to estimate the availability of surface water to agricultural users in the Central Valley and urban users in the South Coast hydrological region. Unlike the other studies, the analysis of these data is explicitly probabilistic. The time series of outputs generated by CalSim-II are not treated as deterministic but, instead, as realizations of a random variable from which an empirical probability distribution can be derived.

For the analysis of agricultural users in the Central Valley, the economic metric used is net revenue (profit), as opposed to gross revenue. By 2085, the median annual net revenue of Central Valley agricultural producers is projected to decline by $128 million annually under the GFDL A2 scenario, compared with $72 million under the GFDL B1

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scenario. With the PCM A2 scenario, it is projected to decline by $14 million annually, while with the PCM B1 scenario it is projected to increase by $8 million. In some of the lower decile years, the reductions in net revenue are more pronounced.

Table 2 summarizes the estimated statewide economic impacts for this sector using the results of the more complete study of Howitt et al. (2008). However, since this study only simulated the A2 scenario; impacts for the B1 scenario were estimated using the results from Hanemann et al. (2008), which suggest a halving of costs under the B1 scenario. The A2 impacts would represent a contraction of about 11 percent from the no climate change conditions in the agricultural sector in 2050.

Table 2

Potential Revenue Losses to the Crop Sector ($billion/year)

Climate Scenario	2050	2085
A2	3.0	>3.0
B1	1.5	>1.5

Scenario A2 estimates from Howitt et al. (2008).

Scenario B1 estimates are 50 percent of the A2 estimates based on Hanemann et al (2008)

Estimates include crop substitution in response to changing conditions over time, but exclude impacts on livestock. Estimates also do not consider impacts due to sustained increases in ozone levels, or expanded ranges of pests and crop diseases

There are several caveats to the results presented in Table 2. For example, potential increases in costs to combat the effects of pests are not included. Reductions in revenues to dairy production or animal operations due to reduced productivity with higher temperatures and possible cost for adaptive measures were also not estimated. It is also reasonable to expect transition costs, such as those incurred when shifting perennial crops to new areas. But they were not considered in these estimates.

2.3.2 Economic Impacts on Forestry

Early studies on the potential impacts of climate change in the U.S. timber industry suggested that timber growth would be reduced with subsequent economic losses to U.S. producers and landowners (Perez-Garcia et al. 1997). However, a subsequent study by Sohngen et al. (2001) concluded that under the assumption of "perfect

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adaptation"[14], landowners would switch to different timber species to accommodate a changing climate, thereby continuing to produce economic benefits. The net result would be a positive outcome for relatively small increases in temperatures in B1 scenarios, but negative for larger climate changes, as in A2 scenarios. For the Southwest, a region that includes California and other states, the net effect seems to be positive for landowners under these adaptation assumptions. The authors cautioned that the results are limited by the fact that the study did not consider the impact of changes in global timber markets on consumers. These impacts are important to consider because some studies suggest that future global timber prices are likely to be heavily influenced by timber production outside the United States. If global timber prices go down, consumers benefit, but US timber producers may register declines in revenue. Mendelsohn (2003b) performed a similar study for California for the 2003 Assessment Report. His study relied on an ecological model to predict changes in ecosystems from transient climate scenarios (Lenihan et al. 2003). For each climate scenario, a dynamic vegetation model predicted changes in productivity and vegetation patterns.

Mendelsohn used these projected changes to estimate how forest composition and productivity would change at a county level. Forest changes, in turn, were used to predict the impact on harvesting and planting of softwood forests in each county from 2000 through 2100. The study suggests that, at first, climate change increases harvests by stimulating growth in the standing forest. In the long run, these productivity increases are offset by reductions in the size of the area where productive softwoods can grow. Mendelsohn assumed that there would be large global timber price reductions leading to economic losses to California timber producers of more than $1 billion.

The 2008 Assessment Report included two economic studies conducted for the forest sector. The first study, by Hannah et al. (2008a), built and improved upon the approach used by Mendelsohn (2003b). Among the innovative features of their study are the use of species range shift models that have been under development for the last three years at UC Santa Barbara (Hannah et al. 2008b) coupled with a process model known as 3-PG (Physiological Principles for Predicting Growth), a general forest productivity model (see Chapter I) and dynamic optimization within the economic model.

Hannah et al. (2008a) found that "climate change will result in an overall decline in the value of harvested timber in the state, with decreases of [between] 4.9 percent [and] 8.5 percent, depending on climate change scenario and management option." An important driver of their findings is that in addition to impacts on tree growth, climate change is expected to cause downward pressure on global timber prices. As a result, future timber prices are forecast to increase more slowly under climate change as compared to a no climate change baseline (see Figure 1). In some California locations, strong losses in timber revenue coincide with projected pressure for land conversion to other uses, such as housing. These spatial effects are more significant than statewide averages, and

[14] Perfect adaptation means perfect foresight, perfect information, and everybody responding like an economic rational person.

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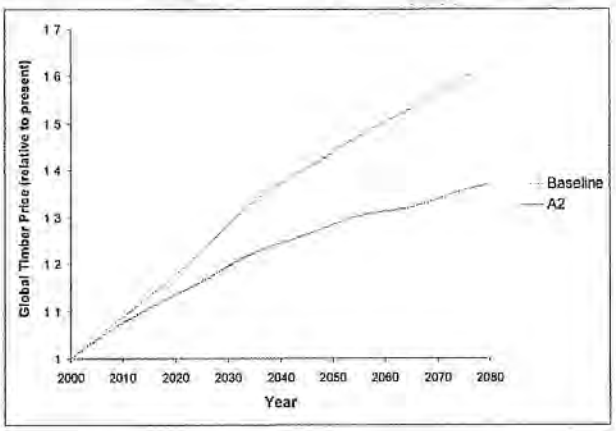
may result in loss of timberland to competing uses. Policy intervention to retain timberlands for production and recreation might include carbon pricing, which would soften the potential revenue declines in all areas.

The reported impacts represent statewide averages, which range from significant gains to major losses depending on global timber price responses to climate change. A significant decrease in the rise in global timber prices is expected due to increased global productivity with warming, especially in high latitude forests. This results in revenue losses in California by the end of the century based on the A2 scenario.

In the absence of price effects of climate change, most timber producing locations in California would see net benefits. In the B1 scenario, prices are assumed to be closer to the baseline (unaffected by climate change) case, resulting in revenue gains across the state, due to rising productivity. This is in principle in agreement with the findings from Battles et al. (2008) who simulated growth of a commercial pine plantation during a 50-year management cycle for 18 climate realizations and predicted increases in yield as measured in total tree volume. It supports the assumption that under more severe climate change, global timber productivity would rise, depressing prices.

Figure 1

Potential Relative Global Timber Prices



Adapted from Sohngsen et al , 2001

The second study, by Bryant and Westerling (2008) provides estimates for the potential effect of changing wildfire patterns for populations and households throughout California. By linking spatial scenarios for climate-related changes in wildfire probability to spatial scenarios for population growth, the researchers generated scenario-specific

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expected values and estimated bounds on the damages from wildfires. Bryant and Westerling used the increased fire risks that they developed for the 2008 Assessment (see Chapter I) to estimate the expected number of housing structures likely to be damaged by future wildfires, and (more tenuous but illustrative estimates) of monetary losses associated with housing destruction. Their findings suggest that there may not be much of a discernable difference in damages between the A2 and B1 scenarios until the second part of this century with the range of results (minimum and maximum values) reported in Table 3. A substantial portion of the increased economic loss is driven by the assumed increase in exposed value due to population growth and development in fire-prone areas.

Table 3 presents the results for this sector (Hannah et al. and Bryant and Westerling) where economic losses are in relation to the revenues that land owners would realize in the absence of climate change.

Table 3

Loss in Undiscounted Cumulative Net Revenue from Timber Production in California
and
Annual Damages from Forest Fires on Housing Units

(Loss in Undiscounted Cumulative Revenue in $billion, Fire Damages in $billion/year)

Climate Scenario	Impact	2050	2085
A2	Timber Revenue	-0.4 to 3.4	4.2 to 8.0
	Forest Fires	0.2 to 2.3	0.7 to 14
B1	Timber Revenue	- 2.2 to -1.3	
	Forest Fires	0.2 to 2.5	0.5 to 11

Negative numbers represent gains.

Estimates for undiscounted cumulative timber revenue from Hannah et al., (2008). Losses calculated from 2000 through 2050 or 2080.

Estimates for annual damages from forest fires from Bryant and Westerling (2008) for 2050 and 2085.

Estimates do not include impacts from expanded ranges of pests or disease.

Forest fires damages reflect only potential impacts on housing units.

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2.3.3 Economic Impacts on Water

Three quarters of the fresh water used in the United States comes from surface water rather than groundwater and, therefore, depends directly on current precipitation. One might thus be inclined to assume that, with climate change, water supply will change by whatever is the change in total annual precipitation. This assumption, however, is overly simplistic because in some regions temperature increases and accelerating sea-level rise affect water supply additionally or even more profoundly than precipitation. Temperature affects both the timing and volume of runoff. In mountain areas, including California and the Pacific Northwest, it affects whether precipitation falls as rain or snow, whether it runs off immediately or is stored as snow, and when the snow melts. It also affects the ground cover in a watershed, which in turn influences runoff. In forested areas, for example, the combination of higher temperature and dryer soil could cause more frequent or intense wildfires, reducing forest cover, lowering moisture retention, and accelerating runoff. Because of the water consumed by ground cover, Nash and Gleick (1993) found that, if the temperature in the Colorado River Basin increased by 4 °C (7.2 °F) with no change in precipitation, this would reduce the mean annual runoff there by nearly 20 percent.

What matters economically, however, is not just total runoff but also its timing. For agriculture in rainfall areas, the key variables are the available soil moisture at the time of planting plus precipitation during the growing season.

At the national level, there are both positive and negative estimates of the economic impact of climate change on U.S. water supply. For example, a negative figure comes from Hurd et al. (1999) who estimated an annual loss of about $15 billion by 2100. A more positive potential outcome is represented by Frederick and Schwarz (1999) who projected negligible economic impact in part because one of their climate scenarios assumed substantial increases in precipitation and water supply for most of the United States.

The 2003 assessment included a study by Lund et al. (2003) applying the CALifornia Value Integrated Network (CALVIN) model to the Hadley Climate Model (HadCM2) and NCAR's Parallel Climate Model (PCM 2) simulations of the IS92a[15] emissions scenario. The PCM model estimates were distinctly drier than the Hadley model estimates, and thus resulted in some significant water scarcity by 2100 under that scenario. The CALVIN model makes several assumptions which can be regarded as best-case adaptive responses to climate change. It assumes perfect foresight regarding future streamflow and water supply over the stretch of years simulated, and it assumes well quantified and totally fungible water rights, so there is no legal or institutional impediment to water market exchanges. Because the marginal willingness of urban water users to pay for water exchanges is much higher than that of agricultural water

[15] IS92is a global emissions scenario that was developed for the Intergovernmental Panel on Climate Change in the early 1990s

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users, the model handles all shortages by assuming water markets re-allocate water to urban uses, leaving only agricultural use unfulfilled.

For the present report, Medellín-Azuara and collaborators applied the CALVIN model to analyze water supply adaptation strategies under two climate change scenarios and 2050 levels of development. The first scenario explored a warmer-drier climate with high greenhouse g emissions levels (A2 scenario) and low precipitation levels as estimated by the Geophysical Fluid Dynamics Laboratory (GFDL) global climate model. The second climate scenario (warmer-only) resembles historic overall levels of precipitation but includes seasonal shifts as suggested by the GFDL model. Results suggest that significant adaptations will be necessary in both the warmer-drier scenario and the warmer-only scenario.

Increased water scarcity is expected to occur due to the drier climate in the warmer-drier scenario, with increasing competition among water uses. Early snowmelt and peak storage characterize both scenarios in California. In the warmer-only scenario, water scarcity costs are projected to be significantly less than for the warmer-drier scenario. However, significant losses to high-elevation hydropower may also occur under the warmer-drier scenario. Wider ranges of groundwater and surface water storage levels for the warmer-drier scenario suggest conjunctive use operations may be a promising adaptation strategy for some regions of California. The combination of perfect foresight and perfect markets would minimize the projected economic loss from river runoff shifts induced by climate change. Thus, in the drier GFDL scenario, perfect adaptation keeps the annual cost down to $243 million. This should be compared with the estimated annual cost of $83 million, taking into account only urban development without changes in climate. Therefore, the net economic loss due to climate change is a modest amount, about $160 million ($0.16 billion) annually.

Hanemann et al. (2008) conducted an analysis of impacts on urban water users in the South Coast region. Their study started by noting that population growth is expected to be the major driver of change over this century. With the population growth anticipated by 2085 and no improvement in urban water use efficiency, urban water use in the South Coast region would more than double, from 4.2 million acre-feet (MAF) in 2000 to 8.7 MAF in 2085. If per capita urban water use fell from the present level of 208 gallons per capita per day (gpcd) to 160 gpcd through increased use of efficiency measures, urban water use in 2085 would still be more than 50 percent larger than it is today, at 6.7 MAF. Rather than projecting the absolute level of urban water use with and without climate change, their analysis focused on the differential impact of climate change, assuming that the region has secured adequate supplies to meet the needs created by future population growth.

Because of hydrologic uncertainty and physical and institutional limits to the amount of water that can be transferred from agriculture on a spot market basis, it is likely that drought emergencies and water shortages will not be eliminated in the South Coast region. The analysis was calibrated to a no-climate change baseline of shortages.

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occurring with a probability of 16 percent, or 13 times in 81 years. By 2085, without additional supplies, the probability of a shortage increases to 51 percent under the GFDL A2 scenario, and 42 percent under the GFDL B1 scenario. By contrast, it increases to 21 percent with PCM A2, but under PCM B1 declines to 15 percent. Generally, it is assumed, however, that the region will obtain additional supplies to reduce the occurrence of severe drought. Under the scenarios considered, the region increases its permanent supply at an annual cost of $354 million. The economic metric of loss from water shortage in the South Coast region is the loss of short-run consumer surplus. The expected loss without climate change is $135 million per year. Under the GFDL A2 scenario in 2085, this annual loss rises to $562 million, an increase of $427 million (~$0.4 billion) per year. Under the GFDL B1 scenario, it increases by $135 million (~$0.14 billion) per year.

The California Department of Water Resources (DWR) and the Department of Fish and Game (DFG) have been charged by Assembly Bill 1200 to estimate the potential impacts of levee failures on water supplies. The Delta Risk Management Strategy (DRMS) team has been formed to provide, among other things, cost estimates for levee repair and maintenance, as well as economic cost estimates associated with hazardous events such as earthquakes, and impacts from climate change and a rise in sea level. DRMS issued a preliminary report in June 2007 and a final report was issued very recently – too recently for the information to be incorporate here. The information from the final report will be used in a future analysis to estimate the costs associated with a failure of the Sacramento-San Joaquin Delta levee system due to increased flood (hydrologic) risk from climate change impacts—sea level rise and changes in seasonal runoff.

In summary, the three studies commissioned for the 2008 Assessment Report describe relatively modest impacts of climate change on the water sector when perfect foresight and adaptation are assumed. This is a surprising result given the expected substantial changes in snow pack in the Sierra Nevada and the shift of river runoff timing with more natural runoff occurring in the winter and less in the spring and summer seasons. Part of the explanation may lie in the fact that the changes in streamflow projections from the current downscaled climate scenarios are significantly smaller than they were in the projections used in the 2006 scenarios project. The result may also reflect the flexible water infrastructure in California that is able to store water in the winter time for use in the dry hot months of the years and transport the water where it is needed.

The added risk of a major failure of the levee system in the Sacramento/San Joaquin Delta due to accelerated sea level rise, however, increases the potential negative economic impacts, as shown in Table 4 below.

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Table 4

Potential Economic Costs to the Water System[16]

($billion/year for Water Supply and $billions due to the Failure of the Delta System)

Climate Scenario	Impact	2050	2085
A2	Water supply	<0 16	<0 4
	Delta failure		
B1	Water supply		<0 14
	Delta failure		
Water supply impacts assume perfect foresight and adaptation Delta failure costs are per failure event			

The economic impacts reported in Table 4 do not consider the potential economic losses due to inland flooding. This may be a significant shortcoming because even under climate scenarios that show overall reductions in precipitation levels, winter runoff conditions are expected to exceed historical levels, increasing the probability of flooding.

2.3.4 Economic Impacts on Coastal Regions

Besides agriculture, the most extensive economic analysis of impacts of climate change in the United States is for sea level rise. The first analysis of the potential cost of sea level rise was conducted by Schneider and Chen (1980). Barth and Titus (1984) conducted an integrated analysis of two U.S. cities, incorporating adaptation strategies and examining decision-making following coastal disasters. Yohe (1989) and Smith and Tirpak (1989) built on this early work. The economic methodology was subsequently refined by Yohe et al. (1996) and Yohe and Schlesinger (1998). This methodology has become a commonly used framework for assessing the economic impacts of sea-level rise.

Schneider and Chen (1980) estimated the market value of taxable real property located in the coastal areas of the United States that would be inundated during a rise in sea level. This estimate subsequently was characterized as an assessment of vulnerability

[16] The numbers for water supply come from Hanemann et al. (2008) with the exception of the value for 2050 of $< $0.16 billion/year, which is derived from Lund et al. (2008) for the A2 scenario.

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rather than damage because it ignores the possibility of adaptation, namely the construction of sea walls and other structures to prevent inundation or other measures (such as retreat) to reduce the risk from inundation to structures. Barth and Titus (1984) conducted an integrated analysis, combining climate change and sea-level rise scenarios to estimate physical impacts due to inundation and storm surge, and economic impacts on property. The cost and benefits of adaptation using erosion control, beach nourishment, and shoreline protection were examined, along with alternative development strategies. Their methods enabled them to estimate the economic value of anticipating sea level rise in development and shore protection investments

The economic analysis of Yohe et al. (1996) assumed that sea walls would be constructed where and when this is economically justified. Where sea walls are constructed, the authors assumed that the construction would occur just when the sea level reaches the property at risk, and the only economic cost is the cost of this construction; this assumes that there is no flood damage either before or after the sea walls are constructed. If a sea wall is not constructed, then the economic cost is the loss of the land and the damage to structures.

A consideration omitted from most analyses of damage from coastal inundation is the damage to infrastructure located along the coast. The coast is the location for a huge amount of infrastructure, including wastewater sewer and treatment plants, water supply (drinking water treatment and desalination facilities), utilities (natural gas, electricity and telephone lines), roads, airports, harbors, and other transportation infrastructure. This infrastructure is vulnerable to both storm surges and sea level rise. Hurricane Katrina destroyed, disabled, or damaged 172 wastewater treatment plants and about 1,000 water supply systems in Louisiana, Mississippi, and Alabama, with 90 percent of those systems still affected two weeks after the hurricane. Furthermore, even if sea walls are constructed, some of the coastal infrastructure will still need costly modifications to accommodate a higher sea level. For example, storm water and combined sewer outfalls will have to be modified to avoid sea water inflows that would disable wastewater treatment systems. None of these infrastructure costs are factored into existing economic assessments of the costs of climate change.

Another omitted consideration is environmental impacts. For example, Hurricane Katrina caused numerous petrochemical releases, and more than 7 million gallons of oil were spilled. In addition, a 40-mile chain of barrier islands was largely destroyed. Some of the environmental impacts of storm surges and sea level rise also have direct economic implications, such as the increased erosion of cliffs and beaches. Beach erosion may necessitate replenishment of the sand, which can be a substantial expense. Few studies have begun to estimate the cost and economic impact of beach loss and replenishment. Moreover, in the immediate aftermath of a storm event, before the sand has been replenished, there can be a heightened risk to coastal land and property and some curtailment of beach use, which itself entails a loss of economic value in the form of the public's willing to pay (WTP) for beach recreation

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As part of the 2003 Assessment, Neumann et al (2003) performed a very limited study about the potential impact of climate change on coastal properties assuming the implementation of perfect adaptation strategies The study estimated the cost of protecting low-lying developed coastal areas plus the value of land that is allowed to be inundated No impacts were assumed at California's coastal cliffs or other coastal infrastructure The authors examined scenarios where sea level rises linearly to 33 cm (~1 foot), 50 cm (~1 5 feet), 67 cm (~2 feet), and 100 cm (3 3 feet) by 2100, capturing a wide range of potential changes The authors found that most of the low lying and exposed urban coastline has sufficiently high value to justify protection by sea walls

The undiscounted cost of protecting vulnerable areas over the next 100 years was estimated to be approximately $700 million for a 50 cm (1 5 feet) sea level rise and $4 7 billion for a 1 m (3 3 feet) sea level rise

The Neumann et al (2003) study has several limitations, including the use of simplistic methods to estimate the cost of inland areas that would be affected by inundation, the assumption that cliffs will not be affected by sea-level rise, the failure to include valuation of ecological damages or infrastructure impacts, and the assumption that coastal properties would be protected as needed just in time. In addition, the authors used a rate of $935 per linear foot (in constant 2000 dollars) for sea wall protection in Southern California; however, the actual cost there today is already on the order of $6,000 per linear foot and may well increase further over the considered time period

For the 2008 Assessment two coastal economic impacts studies were commissioned in an attempt to address some of the limitations of the prior studies mentioned above

The first study by Heberger et al. (2008) made use of the detailed inundation maps generated by Knowles (described in Chapter I) for the San Francisco Bay to update a study that the Pacific Institute conducted in 1990. In addition, they produced similar, if less detailed inundation maps for the open coast areas. This study examined the site-specific economic costs of a 100-year flooding event before and after a 140 cm (4 6 feet) sea level rise above 1990 levels (the high-end scenario of the estimated range produced for the 2008 Assessment Report)[17]. The GIS-based analysis used land use data, land and structural value inventories to project the areas and structures exposed to increased flooding if left unprotected by levees or if other adaptation strategies were not implemented. The study concludes that a 140 cm (4 6 feet) sea level rise will put 480,000 people at risk of a 100-year flood event, given today's population. A socio-economic analysis of those affected suggests that there is the likelihood of a disproportionate impact on low-income communities and those of color. A wide range of critical infrastructure, such as roads, hospitals, schools, emergency facilities, wastewater treatment plants, power plants, and more will also be at increased risk of

[17] An economic assessment for the B1 scenario was not undertaken in this study The study assumed a linear increase in flood elevation levels by the projected 1 4 m (4.6 ft) of sea-level rise, though historical evidence suggests that mean higher high water (MHHW) has increased more than mean sea level

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inundation, as are vast areas of wetlands and other natural ecosystems. In addition, the cost of replacing property at risk of coastal flooding under this sea level rise scenario is estimated to be $100 billion (in 2000 dollars). An overwhelming two-thirds of that property is concentrated within the San Francisco Bay, indicating that this region is particularly vulnerable to impacts associated with sea level rise. Their study did not attempt to quantify the economic impact from economic and social disruption, such as interruption of traffic in ports or along coastal roads and highways, lost days at work, health impacts, impacts on migratory bird habitat, or other higher-order impacts to the economy and the environment, which can be serious during flooding events. Protecting vulnerable areas from flooding by building seawalls and levees will cost at least $14 billion (in 2000 dollars), with added maintenance costs of another $1.4 billion per year Continued development in vulnerable areas will put additional areas at risk and raise protection costs

Large sections of the Pacific coast are not vulnerable to flooding, but are highly susceptible to erosion. The study finds that a 140 cm meter sea level rise will accelerate erosion, resulting in a loss of 41 square miles (over 26,000 acres) of California's coast by 2100. A total of 14,000 people currently live in the area at risk of future erosion.

Additionally, significant transportation-related infrastructure and property are vulnerable to erosion. Statewide flood risk exceeds erosion risk, but in some counties and localities, coastal erosion poses a greater risk.

The second study, by Pendleton et al. (2008), builds on Adams and Inman's (2008) analysis described in Chapter I to examine the economic impact of climate change and sea-level rise on Southern California beaches (Los Angeles and Orange counties). The authors combined the estimates of beach width changes with a model of beach-going (using various socioeconomic and demographic scenarios) to assess the non-market and market impacts of beach loss. The beach visitation model used as inputs data on beach attributes, including width, travel costs, income, and demographic characteristics. The study compared the effects of gradual, cumulative beach width loss on the beach going public due to current rates of sea level rise and after accelerated sea level rise (up to 1 m or 3.3 feet) by 2100, as well as the effect of punctuated beach width loss from a year characterized by extreme erosional events (as predicted by Adams and Inman 2008). The authors also projected the costs of beach nourishment needed to mitigate these impacts, a likely first response to climate-related beach erosion, and compared the net benefits of inaction to the potential cost of attempts to counteract the effects of climate change on beaches. Their study found that the gradually increasing sea level by itself would cause a relatively small reduction in the total number of beach visits (if population and demographics are held constant at year 2000 levels). While sea-level rise could cause an *overall* reduction of the economic value in beach attendance, some beaches would experience increased visitation and value while others would lose value. They also found that the potential annual economic impacts, and the economic costs of adaptation through beach nourishment, are likely to be many times greater for wave-driven erosion events, especially from extreme storms, than if gradual sea level

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rise over time is considered alone. The effects on one year of beach visitation caused by an extremely stormy year is likely to be similar in magnitude to the annual effects caused by a full meter of sea level rise. The economic impacts of both inundation and storm-related erosion are distributed unevenly across the region.

The estimated reduction of beach attendance is 600,000 people with reductions of annual expenditures by beach visitors $15 million and reductions of consumer surplus[18] of $63 million (year 2000 dollars) for a 1 m (3.3 feet) of sea level rise (total annual cost of $78 million or about $0.08 billion). If higher high tides result in stormier winters, the most important impact of sea level rise on the beach going economy may result from increased wintertime erosion. The authors estimate that a single extremely stormy year could result in a loss of $9 million in the first year following the stormy winter, with a loss reaching $25 million at some highly affected beaches. The loss in consumer surplus could equal $37 million for the region. If this analysis were done for all important coastal beach recreation areas in California, the total costs for the State would increase

Table 5 below summarizes the findings described above.

[18] Many local visitors are able to enjoy the beach at little or no cost, but they still derive economic benefit from this "free" or at least "low cost" resource. Even though these beachgoers may not spend much on their beach visits, they still enjoy considerable economic benefit from the beach. This benefit beyond what people do pay is called the consumer surplus or non-market value of beaches and represents the willingness to pay to visit beaches, beyond what people actually do pay.

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Table 5

Estimated Replacement Value of Property at Risk along all California Coasts due to Flooding ($billion) and Beach Recreation in Los Angeles and Orange Counties ($billions/year)

Climate Scenario	Impact	2050	2085
A2	Flooding: San Francisco Bay property at risk	36*	62**
	Flooding: Open coast property at risk		37**
	Southern California Beach Recreation annual loss	< 0.08	> 0.08
B1	Flooding: San Francisco Bay property at risk		49***
	Flooding: Open coast property at risk		
	Southern California Beach Recreation annual loss	<0 08	<0 08

* Estimate is based on a sea-level rise of 50 cm.
** Estimate is based on a sea-level rise of 140 cm.
*** Estimate is based on a sea-level rise of 100 cm.
The estimates for flooding in the San Francisco Bay come from Table 22 in Heberger et al (2008). The open coast flooding estimate for 2085 comes from Table 21 in Heberger et al 2008.
Pendleton reports a total cost of about ~$0 08 billion/year for 1 meter (3 3 ft) sea-level rise. To extrapolate this number, this analysis assumed that in 2050 sea level would always be below 1 meter (3.3 feet) for both the A2 and B1 scenarios. At the end of this century, sea-level rise would be higher than 1 meter for the A2 scenario and lower than 1 meter for the B1 scenario. Flooding estimates do not include potential costs of accelerated erosion, damage to infrastructure, or environmental impacts.

2.3.5 Economic Impacts on Energy

In the United States, space heating and cooling accounts for 54 percent of all energy used by residential and commercial users. Global warming has a mixed effect: it reduces the need for heating while raising the need for cooling. Whether the cost from increased cooling outweighs the savings from reduced heating is an empirical question that varies with location and depends on whether the energy affected is baseload or peak power and also the degree of warming. A key issue is how heating and cooling demand vary with temperature. For the United States, researchers have analyzed this

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issue in different ways and have reached different conclusions, but the majority of the studies find increases in energy demand (cooling and heating) and energy expenditures. A recent study by the U.S. Climate Change Science Program confirms this overall finding for the nation.

In addition to the effect on demand, climate change can also affect the supply of energy when extreme weather events occur. During the 2003 heat wave in Europe, energy production in France's nuclear power stations fell because the river water was too hot for adequate cooling. In the United States, power plants discharging cooling water often face restrictions on the temperature of the discharge water and sometimes have to limit operations when the ambient air and water temperature become too high, notably along the Gulf of Mexico, but also in the Great Lakes Region. Extreme heat also lowers the carrying capacity of electricity transmission lines. Hurricanes, storms, and extreme weather conditions can disrupt the production and distribution of energy. Hurricanes Katrina and Rita in 2005 damaged about 50 pipelines and destroyed more than 100 offshore oil platforms, including a major platform out of production for eight months.[19]

The 2003 Assessment included a study by Mendelsohn (2003a) that used a cross-sectional analysis (which makes use of different geographical areas with different climates to estimate potential responses) to estimate potential changes in net energy expenditures in California. Mendelsohn used data for different regions in the United States including portions of California. He used total energy expenditures as he did not have separate expenditure data for cooling and heating. His results project that net energy expenditures would increase most in California and in the southeastern desert areas. The northern maritime and high alpine counties have the smallest projected changes in energy expenditures.

Mendelsohn (2003a) estimated that by 2100 residential net energy expenditures could increase from $1.6 billion (a 4 percent increase) to $10.2 billion (a 17 percent increase over his baseline) because of climate change. Increases in net energy expenditures are a result of the estimated increases for air conditioning that more than offset the decreases in expenditures for heating.[20]

The 2008 Assessment Report focused mainly on two economic impacts to the energy sector. 1) changes in electricity demand, and 2) potential changes in hydroelectricity generation. Other impacts, such as reduced costs due to lower heating demand during the cooler season of the year are not addressed.

As indicated in Chapter I, Auffhammer and Aroonruengsawat (2008) combined four years of residential billing data for California's three largest utilities with daily temperature, pricing information, and socio-economic data to estimate per-household

[19] http://www.nola.com/katrina/pdf/091806_lra_ritareport.pdf

[20] It should be noted that, in California, the energy used for wintertime heating is generally baseload power, while the energy used for summertime cooling is generally peak power, which is more expensive than baseload power

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temperature consumption response functions by climate zone for the residential sector (however, the resolution is at the level of U.S. mail zip code zones). The main advantage of this study is the use of California-specific data, which avoids the use of expenditure data from outside California as these states may not have the same level of energy efficiency requirements. The researchers only reported A2 and B1 scenario data for the National Center for Atmospheric Research's (NCAR) Parallel Climate Model (PCM). The authors estimated the changes in energy demand using the baseline population projections reported by Sanstad et al. (2008) and assuming constant per capita electricity consumption until the end of the century.[21] Under these conditions, total incremental annual electricity expenditures in the residential sector changed by -$0.3 and +$3.5 billion by 2050 and 2100, respectively under the B1 scenario. For the A2 scenario these costs were +$1.6 and +$15 billion, respectively.[22]

Hydropower generation in California comes from units associated with relatively large reservoirs (low elevation units) and units in high-elevations. Medellín-Azuara et al. (2008) reported very negligible changes in annual electricity generation from low-elevation units in part due to the fact that surface water reservoirs (behind dams) seem to be able to dampen the changes in the seasonal runoffs. For high-elevation hydropower units, Medellín-Azuara et al. (2008) reported up to 20 percent decreases in annual electricity generation for approximately 150 high-elevation hydropower units available in California. Total annual generation is a strong function of the amount of precipitation falling in California. As shown in Figure 4 in Chapter I, most global climate models used for this assessment suggest reductions in precipitation levels. If we assume a cost of generation of about five cents per kilowatt-hour, a reduction of 20 percent of electricity generation from high-elevation units would translate to an annual loss of about $1 billion.[23] Of course, the cost of electricity generation by the middle and the end of this century is highly uncertain so this number is, again, just an order of magnitude estimate.

[21] From Table 3 in Auffhammer et al. (2008) we selected the results from the BCSD downscaling model for the scenario with increase prices of electricity of 30 percent by 2020 and constant prices after that for the rest of the century.

[22] The econometric relationships developed by Auffhammer and Aroonruengsawat include electricity rates as one of the independent variables. If electricity prices remain constant, in real terms, over the course of this century, demand for electricity would be even higher.

[23] The average hydroelectricity generation in California from 1996 to 2006 was about 39.7 Gigawatt-hours. This study conservatively assumed that about 50 percent of this generation comes from high-elevation units (Medellín-Azuara et al. (2008) report that this number is roughly 74 percent).

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Table 6 summarizes the estimated economic costs for the energy sector

Table 6

Estimated Incremental Costs to the Residential Sector and Estimated Costs for the Purchase of Electricity to Compensate for the Reduction of Hydropower Generation ($billion/year)

Climate Scenario	Impact	2050	2085
A2	Electricity demand	1.6	15
	Hydropower generation		1
B1	Electricity demand	-0.3	3.5
	Hydropower generation		<1

Electricity demand impacts from Auffhammer and Aroonruengsawat (2008)

Hydropower generation impacts form Medellin-Azuara et al. (2008)

Negative numbers represent cost reductions (i.e , economic gains).

Estimates do not include potential increases in electricity demand for additional urban or agriculture groundwater pumping or for desalination or wastewater recycling in response to reduced surface water deliveries. Nor do they reflect any changes in the price for electricity.

2.3.6 Economic Impacts on Air Quality

Ozone levels vary from day to day depending on meteorological conditions. Increasing future temperatures due to global warming are expected to exacerbate the state's serious ozone problems. Recent studies by Steiner et al. (2006) and Millstein and Harley (2008) examined the impact of climate change on ozone in four major air basins (Sacramento Valley, San Francisco Bay Area, San Joaquin Valley, South Coast) in California, concluding that globally driven climate changes lead to ozone increases throughout the study areas. Both studies used an air quality model to predict the effects of future temperature perturbations and emission control on high-ozone episodes during the summer. Future temperature changes were predicted at high spatial resolution in

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California for a scenario of doubled pre-industrial CO_2 concentrations (280 to 560 ppm) using results from a global and regional climate modeling study by Snyder et al (2002)

Future emissions were predicted starting from the baseline emissions inventory, factoring in expected population growth and likely advances in future emission control technologies. The effect of the temperature changes on biogenic hydrocarbon emissions were estimated using a vegetation model. Increases in background levels of ozone, methane, and carbon monoxide were also estimated.

The two studies conclude that, by 2050, the effects of climate change may partially or completely offset the benefits of the Air Resources Board (ARB) and local district emission control programs on ambient levels of ozone, especially in the San Francisco Bay Area. This off-setting of air quality improvements by climate change-induced temperature changes is known as the "climate change penalty."

The Steiner et al. (2006) and Millstein and Harley (2008) studies used emission scaling factors to estimate 2050 man-made emissions relative to present-day conditions. Using the same emission scaling factors, ARB staff estimated that additional reductions of 900 tons per day of reactive organic gases (ROG) emissions and 500 tons per day of nitrogen oxides (NO_X) emissions, in excess of the 2007 State Implementation Plan (SIP) requirements, would be needed in these four heavily populated regions of the state to attain the federal eight-hour ozone standard. While ozone levels in other regions of California are also likely to be impacted by climate change, it was not possible to estimate the additional emission reductions required for those regions.

To assess the climate change penalty in these four regions, ARB staff assumed that the ozone episodes modeled were reasonably representative of ozone design values that drive SIPs. The per-unit cost and cost effectiveness of additional emission reductions needed to meet the Federal ozone standard in 2050 would be the same as those estimated for the 2007 SIP. The cost-effectiveness estimates used for the most recent SIP analysis averaged $12,500 per ton of ROG emissions reduced and $21,000 per ton of NO_X emissions reduced for the state and federal strategies (in 2006 dollars). By multiplying these cost-effectiveness estimates by the amount of emissions to be reduced, the total annual control costs of the additional reductions needed because of climate warming is estimated at about $8 billion per year by the middle of this century.

Climate change may also increase ambient levels of particulate matter (PM) in California. Additional research is underway to assess the impacts of future climate change on ambient PM in California.

2.3.7 Ecological Services

The study of the economic value of ecosystem goods and services emerged and matured over the past two decades, but economic impacts assessments on the

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environment under different climate scenarios is still in its infancy. Only a few ecological services were examined by Shaw et al. (2008) for the 2008 Assessment but economic damage estimates due to the significant loss of species and biodiversity were not reported given the enormous scientific obstacles that have to be overcome to produce credible estimates. Thus, the expected results most likely severely underestimate the ecological impacts of climate change on economic activity in California and on quality of life.

As discussed in Chapter I (see Figure 10 there), Shaw et al. (2008) used a dynamic ecological model to estimate changes in above-ground carbon stocks in vegetation in California. The results are mixed: using the climate output produced by one climate model, the authors found an increase in carbon stock while estimating reductions when using the output from the other two climate models. The sequestration of carbon generates a direct market value, through the constructed markets for carbon emissions, as well as an indirect economic (and societal) value due to the fact that sequestered carbon does not contribute to climate change and thus generates a savings in foregone future damages. Shaw et al. (2008) reports a wide range of estimated economic impacts depending on what is assumed to be the cost of carbon in a future carbon market. Table 7 below views vegetation in California as a stock of carbon and summarizes the economic impacts on this stock as estimated from this study, assuming the price of carbon is $89.20 per metric ton($24.32 per ton of carbon dioxide), which is in agreement with recent prices (2008) in the European Union Emission Trading Scheme.

Table 7

Projected Economic Penalties due to Changes in Above-ground Carbon Stock
($billion/year)

Climate Scenario	2050	2085
A2	-2.3 to 11	-6.3 to 22
B1	-2.5 to 13	-8 to 11.8
Estimates from Shaw et al. (2008) include value of changes in carbon stock in forested ecosystems. Negative numbers are gains.		

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2.3.8 Other Impacts Not Considered

Several impacts have not been considered here, such as the potential benefits from reduced energy demand for winter heating or the adverse economic impact on the ski industry due to the loss of snowpack. In addition, not considered was the impacts of climate change induced shifts in marine ecosystems and their impacts on California's recreational and commercial fishing industries, or the effects of extreme weather events on the transportation and construction sectors. No estimates are yet available for the small business sector in California or elsewhere on climate change impacts. The value of human health impacts is not included, such as the economic cost of heat-related morbidity and mortality. Several studies on human health impacts and the costs of climate impacts associated with heat events and particulate matter pollution are expected to be complete by the summer of 2009.

2.4 Summary and Caveats

As indicated in the beginning of this chapter, the understanding of the economic valuations of potential impacts due to climate change is uncertain and continues to evolve. This chapter updates our current understanding of the potential impacts of climate change on California and the direct economic costs. The basic conclusion is that climate change will impose substantial costs to Californians in the order of tens of billions of dollars annually, but that costs will be substantially lower if global emissions of greenhouse gases are curtailed to levels suggested by the B1 or an even lower emissions scenario

Adaptation costs have only begun to be assessed. In some sectors they are significant, even for the B1 scenario, and increase substantially for the higher emissions scenario. While for other sectors, direct adaptation costs seem to be less costly. However, the full costs of climate change impacts and adaptation need further study. Moreover, the economic assessments undertaken to date do not consider indirect impacts of climate change or the cost of undesirable side effects of different adaptation options. For example, coastal armoring to protect coastal properties is a relatively low-cost option compared to the loss of property that would occur if sea levels were allowed to inundate developed land, but the ecological and distributional impacts have not been fully analyzed. In this case, years of further research both in the physical and economic sciences are needed, in addition to financial support.

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Chapter 3

3 Climate Change Research in California

3.1 Introduction

Scientific research is critical for understanding the causes and impacts of climate change, making informed decisions to mitigate human effects on climate, adapting the natural and built environments to climate impacts, and developing new strategies and technologies for adaptation and mitigation. A broad international scientific research effort has been invaluable for understanding climate change on a global scale. However, understanding the nature and potential consequences of climate change on a regional scale, and developing regional adaptation and mitigation approaches, has fallen to state and local governments

In California, state-funded research has illuminated regional impacts of climate change, shown cost-effective means of emissions mitigation, and highlighted adaptation issues, providing a scientific basis for California's leadership in climate change policy. An ongoing coordinated research program in California is improving our understanding of the causes of state- and regional-scale impacts of climate change, and identifying potential corrective actions. This critical research is helping to reduce scientific uncertainty associated with climate change

Identifying and implementing robust policies will require a series of evaluations, including estimating existing conditions, predicting changes and consequences under a variety of scenarios, exploring alternative strategies to manage or reduce impacts, and carefully monitoring the results of decisions for unintended consequences. Climate change research and policy-making are mutually dependent. California State agencies have recognized the need to be closely engaged in designing and supporting research that will help guide critical decision making as they fulfill their core missions.

A number of California State agencies have been, and continue to be, considering the impacts of climate change in strategic planning. For example, the Department of Water Resources began addressing climate change in 2005 and plans to have specific recommendations in its 2010 State Water Plan. The Air Resources Board's *Strategic Plan for Research: 2001 to 2010* (April 2003 update) identifies greenhouse gas (GHG) emissions regulation as a driver of the agency's research program. Since 2003, the California Energy Commission (Energy Commission) has considered the implications of climate change in its "*Integrated Energy Policy Report.*" The Department of Fish and Game's 2007 report titled "*California Wildlife Action Plan*" specifically identifies climate change as a major issue to address. The Department of Forestry and Fire Protection considered the effects of climate change in the 2003 Fire and Resource Assessment Report and will do so again in its 2009 update. The California Coastal Conservancy's 2007 *Strategic Plan* incorporates 13 objectives that require consideration of the best

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available science on climate change in the design, siting and management of infrastructure, and natural resource projects.

The greenhouse gas mitigation strategies developed under the requirements of the Global Warming Solutions Act (AB 32) rely on research sponsored by the State Additionally, the Resources Agency recently initiated a long-range planning effort for adapting to climate change. To support this work, research must assess climate change impacts on energy demand and generation, water resources, ecosystems, coastal resources, regional air quality, and the California economy. These comprehensive scientific research assessments are helping agency decision-makers design the most appropriate strategies to adapt and mitigate increasingly complex multi-sector issues.

The need for coordination and common planning assumptions has increased with the growing recognition of the interdependency between efforts to develop and protect infrastructure, conserve natural resources, and protect public health. For example:

- The potential impacts to the snowpack from climate change have serious implications for water supply and the availability of hydroelectricity. Thus, working with the Energy Commission, the Department of Water Resources is developing regional climate models designed to allow strategic planning for water availability and related planning for electricity supply.
- The increased reliance on renewable energy as a GHG reduction strategy, including increased use of biomass-to-energy, fosters joint research between the Department of Forestry and other agencies to develop analytical tools to balance forest health with the removal of fuel for fire protection and bio-energy. Although there are clear benefits to this removal, the methods and amounts must be consistent with the protection of sensitive species and habitats and the adaptation of the forests to future climate conditions.
- Rising sea levels are predicted to have serious impacts to critical infrastructure, and to coastal and bay resources. The Ocean Protection Council is coordinating the development of adaptation strategies to address these impacts and needs more information to support vulnerability assessments to target these efforts most effectively. Research will be important for agencies responsible for planning and maintaining critical infrastructure (e.g., Department of Transportation, Energy Commission, and Department of Water Resources), the agencies responsible for regulating development in the coastal and bay regions (e.g. State Lands Commission, Coastal Commission and Bay Conservation and Development Commission) and agencies working on public access to beaches and protection and restoration of coastal resources (e.g. Coastal Conservancy, Wildlife Conservation Board).
- Land-use planning to encourage less driving and more walking, bicycling, and use of public transportation has been shown to improve public health (Frumkin et al., 2004) as well as significantly reduce GHG emissions. The Department of Public Health, the Office of Planning and Research, and local and regional governments need additional research on ways to promote these behaviors for integration into general planning throughout the state.

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These examples illustrate the importance of the integration of analysis, which will increase with time as activities relating to climate change increase within these agencies.

For California, much is at stake, and coordinated scientific research is needed to make informed policy choices. Increasingly, research is focused on sustainable development in which natural resources are used to meet human needs while preserving the environment so that these needs can be met into the future. Thus, this research is critical to the State's ability to respond to the local effects of a global issue and to ensure that optimal solutions to these highly complex issues are identified. Beyond the impacts to health, well-being, and the environment, the cost of inaction—failing to address climate change vulnerabilities—could be in the billions of dollars (as partially enumerated in Chapter 2 of this report) That is why the Climate Action Team places a high priority on research. The following sections provide an overview of federal and state-sponsored research programs, and describe future research needs for California

3.2 Overview of Research Programs

Climate change is the focus of intense national and international research designed to improve understanding of human-induced climate change, its observed and projected impacts, and options for adaptation and mitigation. State agencies actively monitor this research and use it as a framework for identifying research gaps and possible collaboration[24]

3.2.1 National climate change research Programs and Funding

3.2.1.1 Overview of federal programs

Two interagency working groups coordinate most federal climate change research. The goal of the Climate Change Science Program (CCSP) is to support informed discussion of climate change science and to guide future research. The CCSP publishes Synthesis & Assessment Reports. The Climate Change Technology Program (CCTP) seeks to accelerate the development and deployment of technologies that reduce net GHG emissions. Key programs funded by the federal government:

- *The Integrated Earth Observation System* seeks to provide a single framework for collecting and maintaining data on Earth systems for use in scientific research and policy–making;
- *The Global Climate Observing System, Global Ocean Observing System, and Global Terrestrial Observing System* provide infrastructure needed for

[24] As an example of collaboration, with funding from the Energy Commission, the Scripps Institute was able to run regional climate models on the "Earth Simulator," a supercomputer in Japan.

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- *The Solar America Initiative (SAI)* accelerates the development of photovoltaic (PV or solar electricity) technologies with the goal of making solar electricity from PV cost competitive with conventional grid electricity by 2015;
- *The Solar America Cities Partnership* is working to accelerate the adoption of solar energy technologies. The goal is to power municipalities with clean, safe, reliable energy by developing a sustainable solar infrastructure that removes market barriers and encourages the adoption of solar energy by residents and businesses;
- *Freedom CAR* is a government-industry partnership to develop a personal transportation system free of air pollution and dependence on imported oil, possibly through hydrogen vehicles;
- *Clean Automotive Technology* is a U.S. Environmental Protection Agency (USEPA) program that works on cost-effective, high fuel economy, low-emissions vehicles;
- *The Generation IV Nuclear Energy Systems Initiative* investigates advances in reactor and fuel-cycle systems which may lead to dramatically improved economic performance, safety, and reduced risk of proliferation;
- *The Carbon Sequestration Program* is the U.S. Department of Energy (DOE) program to develop the potential to capture and sequester the CO_2 emissions of large point sources in geologic formations;
- *The Greenhouse Gas Reduction Through Agricultural Carbon Enhancement Network* measures and predicts sequestration and emissions at 30 agricultural sites with different agricultural, soil, and climate contexts;
- *ITER (originally, International Thermonuclear Experimental Reactor)* is an international project to design and demonstrate a fusion energy facility;
- *Building America* is a private/public partnership that develops energy solutions for new and existing homes

3.2.1.2 Federally funded programs in California

California benefits from federal research funds for climate-related research through several agencies and programs. Some of these agencies are not solely or primarily focused on climate change, but provide some funds for climate and otherwise relevant research and outreach. In addition, not all of these funds or programs are directed to California-specific issues and may be more global in focus.

Federal funding comes to the state, for example, through some 40 national research laboratories based in California. Some of the laboratories conduct important policy-relevant climate change and energy research; e.g., DOE's Lawrence Berkeley and

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Lawrence Livermore National Laboratories, NASA's Jet Propulsion Laboratory, and Sandia National Laboratories (CCST, 2006).

Several federally funded research programs in California include:

- Climate, weather, hydrology, agricultural and other monitoring stations are included in the Integrated Earth Observation System and other networks,
- *West CARB*, administered by the Energy Commission, is one of DOE's Regional Partnerships assessing the potential for geologic and terrestrial carbon sequestration,
- *CALFED* is a collaborative program of several state and federal agencies focused on the management of the San Francisco Bay-San Joaquin Delta region that has been giving increasing attention to climate change in its planning activities and science program,
- *The National Oceanic and Atmospheric Administration (NOAA)* funds a regional integrated sciences and assessment (RISA) center at Scripps Institution for Oceanography. The RISA is organizationally tied to the California Climate Change Center. Other NOAA funding supports coastal management research, increasingly focused on climate change impacts, which includes the work with the state's Coastal Commission, San Francisco Bay Conservation and Development Commission, and Coastal Conservancy. NOAA also provides support for the development of decision support tools in the face of climate variability and change that are currently being tested and refined for northern California reservoir management (INFORM Project). The Southwest Fisheries Science Center is a NOAA program that researches the impact of climate change on state fisheries,
- *The U.S. Department of Interior* provides federal funds for climate change impacts research through 1) the U.S. Geological Survey, for studies of sea level-rise inundation and beach and cliff erosion of the San Francisco Bay, 2) the National Park Service, and 3) the Fish and Wildlife Service, for research and outreach about climate change to visitors to California National Parks or Preserves;
- *The U.S. Department of Agriculture (USDA)* supports some climate change research and an emerging planning effort with the Forest Service, including national forest areas in the Sierra Nevada Mountains and elsewhere in California The USDA climate change strategy is organizing climate change research into four areas: effects, adaptation, mitigation, and decision support tools.

While these programs yield benefits to California, their results do not necessarily address important regional issues related to climate change. For example, there are only three monitoring stations in California related to the federal climate change monitoring programs, an insufficient number to understand impacts in our many climate zones. In addition, most federal modeling of climate change does not have detailed enough resolution to address the state's diverse regions. California-specific environments and resources like the Sierra snowpack, diverse agricultural crop

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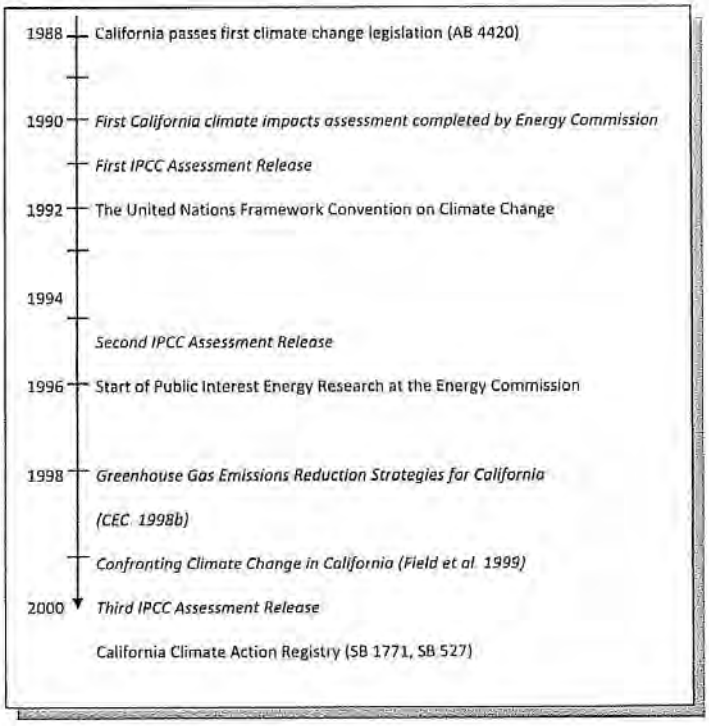
production, and the Pacific coastline are not sufficiently addressed in the federal program.

3.3 California state-sponsored and directed climate change research

California-sponsored and -directed climate research is designed to complement national and international efforts by focusing on regional distinctions critical to informed State climate change policy (e.g., down-scaling global climate modeling outputs)

California-sponsored climate change research started in 1988 with the adoption of AB 4420 (Sher, Chapter 1506, Statutes of 1988) which assigned the Energy Commission to assess the potential impacts of climate change on California and options for reducing GHG emissions in the state. The 1988 law led to two high-profile climate reports: "The Impacts of Global Warming on California," (CEC, 1989) and "Climate Change Potential Impacts and Policy Recommendations" (CEC, 1991). The political discussion generated from these reports helped pave the way for implementation of policies to address climate change (Figure 1)

During the late 1980s and 1990s, a number of significant coordinated research efforts and research programs that laid the foundation for future climate action were initiated. A series of high profile federal- and state-sponsored assessment reports highlighted for California policymakers the severity of the risks posed by unabated



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climate change and helped raise public support for climate action.
In 1999, the publication of *"Confronting Climate Change in California: Ecological Impacts on the Golden State: A Report by the Union of Concerned Scientists and the Ecological Society of America"* focused California policy-makers' attention on the potential impacts of climate change, and the need for decisive action on mitigation and adaptation.

At the same time that the U.S. Global Change Research Program published the first National Assessment (USGCRP, 2002) and NOAA established the RISA program, California initiated its own state-supported integrated climate research program via the Energy Commission's Public Interest Energy Research (PIER) Program. Under this program, the Energy Commission has developed roadmaps for research including regional climate modeling, GHG inventory methods, water resources, carbon sequestration, renewable energy, and energy efficiency. These roadmaps are designed to identify research gaps of high importance for California that are not adequately covered by existing research programs at the national or international levels. Technical staff from state agencies and researchers from California institutions participate in the development and review of these roadmaps. In addition to creating a broad foundation for technology development, this effort culminated with an integrated Strategic Climate Change Research Plan released at the end of 2003 and aimed at addressing the following policy-relevant questions:

- How is climate changing in California and what are plausible climate change scenarios?
- How would the physical impacts of climate change affect California's environment and economy?
- What are the merits of different mitigation and adaptation strategies?
- How would climate change affect energy supply and demand?
- How would climate change policies affect the economy?

To implement this research plan, the Energy Commission created a virtual research center, the California Climate Change Center, with core research at the University of California, Berkeley; the University of California, San Diego (Scripps Institution of Oceanography), and other research institutions[25] This research center is remarkable for being one of the first state-sponsored climate research programs in the United States. An important underpinning of its research is its use of ongoing national and international research efforts as the foundation for defining complementary research needs for California. Research results generated have been used to prepare the official statewide inventory of GHG gases in the state (CEC, 2002; CEC, 2006) and to identify preliminary mitigation strategies in different policy forums (CEC, 2005; CAT, 2006).

Among the many high-impact products produced from the various coordinated research programs were those highlighting the potentially severe threats that climate change

[25] The Center engages researchers at a variety of institutions including other UC campuses, private universities, national laboratories, and research institutes

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posed to California's water resources. This threat was first brought to the attention of the scientific community when the chief hydrologist for the California Department of Water Resources (DWR) released a study (Roos, 1987) showing that annual runoff occurring in the spring and summer months has been on the decline since records began in the early 1900s. This study, and other complementary studies, raised the awareness of water managers in California of the potential serious effects of a warming climate on water resources. The emergence of data like this with increasing levels of detail about potential climate change impacts in the region helped create the momentum necessary for meaningful climate policy formulation in California.

In June 2005, California once again demonstrated its leadership on climate issues when Governor Schwarzenegger signed Executive Order S-3-05 establishing GHG emissions targets for California. The Executive Order also mandated the preparation of a biennial science report describing the impacts climate change would have on water supply, forestry, public health, agriculture, and the coastline, and discussing coping and adaptation strategies that the state should consider.

Today, many state agencies conduct, support, or direct research related to climate change, and there is increased coordination among agencies in this research. Agencies routinely collaborate in research efforts by: 1) participating in each other's research review committees and research planning efforts; 2) partnering through interagency agreements; 3) leveraging research funding with project co-sponsorship from federal and nonprofit research institutions; 4) holding periodic interagency coordination meetings, and; 5) participating in the annual multiagency-sponsored climate change conference.

In the context of their mandated responsibilities, agencies are engaged in climate change research that addresses issues specific and often unique to California. For example, the Energy Commission has sponsored direct research on climate change since 2001 and has a longer history of sponsoring energy technology research (like renewable energy and energy efficiency programs) that indirectly help reduce the GHG impacts of energy. ARB's climate change-related research and responsibilities have increased to support implementation of AB 32 as well as achievement of long-term emissions reductions of 80 percent by 2050 (1990 baseline). Other state entities also have research programs and projects relating to climate change that apply to the mission of the specific agency. The research programs for many state departments are identified in Table 1.

Further details about these agency programs can be seen in the Climate Research Project Catalog and white papers on climate research priorities from the various agencies. The catalog and white papers will be included as an appendix to the final CAT Report. The Climate Research Catalog shows the diversity of climate change research efforts in California. While there are a number of direct and indirect research projects underway, there is very little duplication in the state research portfolio.

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Air Resources Board	ARB has initiated a suite of research projects to support AB 32 implementation as well as realization of long-term goals of 80 percent emissions reductions by 2050. These studies include projects in greenhouse gas emissions, mitigation support, policy and economic impacts analysis, climate change impacts on public health and regional air quality, and community/business tools and strategies.
California Coastal Commission	The Commission relies upon mitigation and adaptation research from NOAA, the Energy Commission and others for application in regulatory and land use planning decisions; the Commission helps disseminate climate change information to local and regional governments and other interested parties. Climate change efforts are done as part of the Commission's ongoing regulatory and land use planning work
California Coastal Conservancy	Research projects have focused on incorporating sea level rise and other climate change projected impacts into modeling and project design for coastal and bay wetland restoration projects; evaluating climate change impacts on Bay Area upland habitats; and measuring carbon sequestration in tidal wetlands.
Department of Conservation	Research projects related to geologic sequestration potential in California and impacts of recycling programs and conversion of agricultural lands on climate change are being conducted by the Department.
California Energy Commission	The Public Interest Energy Research program sponsors direct climate change research in the areas of climate modeling, emissions monitoring, impacts assessment, and carbon sequestration. Additional research is conducted in advanced generation, alternative transportation, renewables, energy efficiency, and other areas that relate to achieving reduced climate impacts from energy use
California Environmental Protection Agency	Cal/EPA funds interdisciplinary climate research to support policy decision-making. Recent examples include determination of indicators of the effects of climate change on human and natural systems, and expanding capacity in environmental justice and climate change.
Department of Fish and Game	Fish and Game is actively involved in collaborative research efforts related to wildlife corridors and sensitive species.
Department of Food and Agriculture	The Department has sponsored research on carbon sequestration in agricultural soils, research on emissions from dairy operations, and management practices for vineyards to reduce carbon footprint
Department of Forestry and Fire Protection	In conjunction with the Energy Commission, ongoing Department projects have helped establish the impact of forest management practices on GHG emissions and potential for carbon storage in wild-land and urban forests. Research is also ongoing to develop a

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	risk rating system to assist in evaluation of the climate benefits of fuel hazard reduction treatments
California Integrated Waste Management Board	A number of the Board's research projects are focused on reducing GHG emissions of California's waste stream. These include reducing methane emissions from landfills and better quantification of landfill collection efficiencies; developing green technologies that use landfill gas, municipal solid waste, food waste and other organic wastes to produce renewable fuels and electricity; conducting a life cycle assessment on organic materials management alternatives; completing economic analyses for recycling waste materials as resources; and developing best practices for composting
California Ocean Protection Council	Since its formation in 2004, OPC has provided for research on assessing vulnerability to sea level rise and other coastal/ocean climate change impacts and on modeling adaptation planning options.
California State Parks	Projects have focused on impact of climate change on California parks including animal and vegetation migration due to climate change, establishing resiliency through landscape linkages, and determining geographic hotspots of species evolutionary change.
Department of Public Health	The Department has allocated staff time and received federal support from the Centers for Disease Control and Prevention to study increases in heat-related illness and death in communities and workplaces. The studies identify vulnerabilities that need to be reduced or eliminated. The Department shares evidence and experience with local jurisdictions to create healthy general plans that tie together transportation, energy, land use, food production, and community design for smart growth and sustainability.
California Public Utilities Commission	Under direction of the CPUC, the California Investor Owned Utilities (IOUs) operate a ratepayer-funded technology research program that directly focuses on climate change and two additional indirect programs. These programs include a two-year direct research study on geologic carbon sequestration and indirect technology and policy research for IOU energy efficiency programs and the California Solar Initiative.
Department of Transportation	Caltrans sponsors research related to improving transportation and transportation planning towards increased efficiency and reduced emissions. A number of indirect research studies have implications for climate change.
Department of Water Resources	The Department uses information that may be available from sources such as research sponsored by NOAA and the Energy Commission for understanding how climate impacts California's water resources. The Department collaborates extensively with NOAA's RISA centers to keep informed of the latest developments
State Water Resources Control Board	The water boards have research projects related to the impact of climate change on coastal areas and technology for water re-use.

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The Climate Research Project Catalog is a key effort of the CAT research working group, as part of its mission to coordinate and prioritize climate change research. As part of this ongoing effort, The research working group will continue to update project information and include other linkages to make the catalog more useful to technical staff and other interested parties

Recent state-sponsored research has yielded notable successes. Some highlights from successful California programs in climate change research include:

- ARB-funded research ongoing at UC Davis is illuminating the impact of climate change on meteorology and regional air quality in California, with a focus on particulate matter;
- The Energy Commission has sponsored a series of studies to identify the utility investments in transmission upgrades essential to support renewable energy resources (wind, solar, biomass, etc.) for reaching renewable generation and 2020 GHG reduction goals. Importantly, these studies found that with significant expansion of transmission by 2020, it is feasible to operate the electricity system with 33 percent renewables. Transmission system upgrades are a key to efficient operation of tens of billions of dollars worth of new remotely located renewable power plants and require effective planning and coordination between power plant developers and utilities;
- The Energy Commission and Department of Forestry and Fire Protection sponsored a number of early research projects in the forest sector identifying an initial carbon stock baseline, set of carbon supply curves, and the effects of management practices on forest carbon stocks. The results of this effort were utilized in the development of the first industry-specific carbon accounting protocols adopted by the California Climate Action Registry and ARB. This work continues to be influential in the current protocol updating process.

State-sponsored and -mandated research is complementing national and international efforts and has provided a scientific framework for informed climate change policy in California. These research programs are beginning to address state-specific adaptation issues and developing optimal approaches to meet GHG reduction goals. Additionally, this research is highly valuable because of the dialogue between scientists and decision makers that it has fostered

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3.3.1 Regional climate modeling

Regional climate modeling is a major focus of climate change research being sponsored by the Energy Commission. This modeling is foundational and a key for understanding the impacts of climate change on our local California environments. Figure 2 shows down-scaled temperatures on a grid of about 12 by 12 kilometers (7.5 miles). These high-resolution results are being used for the impact studies reported in Chapters II and III of this report.

Several studies have shown that California is getting warmer due to increased concentration of GHG emissions in the atmosphere. At the same time, other factors, such as urbanization and agricultural irrigation, have affected local temperatures, with urbanization increasing temperatures and agricultural irrigation partially reducing the warming that would have occurred otherwise. The temperature signal is only one of the factors used to determine whether climate in California is changing. Other factors include hydrological signals such as the early melting of snow. In addition, other reports suggest changes in vegetation patterns and distribution of native fauna in California in the 20th century that is highly compatible with observed temperature trends. The climate change signal is emerging in California, but further advances in detection and attribution studies will come from more sophisticated global and regional climate models.

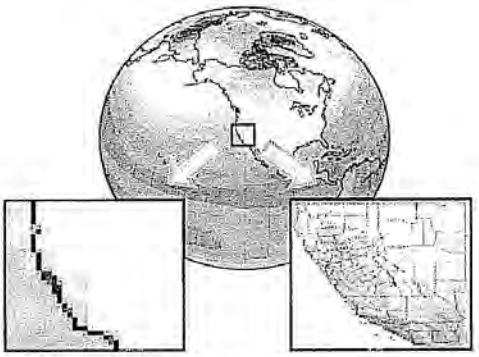

Figure 2. Comparison of outputs from a Global Climate Model and scaled outputs for California

Note: Color scale indicates maximum daytime temperature. The global model (center and lower left) has resolution of 500 km,

The long-term goal of climate modeling research is to provide insights on 1) how climate is changing in California and the reasons for these changes, and 2) how climate may change in the 21st century. The ability to more accurately model these and other topics will inform policy makers as they plan for the medium- and long-term future of the state. Key areas for future research include:

- Developing regional climate projections (including temperature and precipitation) based on newly developed downscaled regional climate models;
- Fundamental research to support a new generation of regional climate models under development. For example, this research includes improved understanding of the impact of snow reflectivity in the Sierra Nevada, i.e. darkening of snow due

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to air pollution, which may be a factor contributing to the already observed trend of early snow melting[26],

- Exploring how changes in vegetation patterns may affect the hydrological cycle with exploratory coupling of vegetation and atmospheric models,
- Improving reliability of precipitation forecasting. Further research is needed to develop the capability to predict seasonal to inter-annual climate patterns and, by extension, precipitation outlooks.

3.3.2 Impact and adaptation studies

As climate change has emerged as a critical policy priority in California, research programs have investigated potential climate change impacts, vulnerabilities, and response strategies. California must pursue a balanced approach to managing its climate risks: both reducing the drivers of climate change, and minimizing its impacts. The State's goal is to ensure public safety and welfare, ecological integrity, continued economic vitality, and a rich and functional natural environment on which people and the economy depend.

Though research is ongoing, there is significant uncertainty about many aspects of climate change impacts. Further research is needed in:

- *Heat Waves and Public Health*
  - The relationship between temperature, air pollution episodes, and several health endpoints, to protect vulnerable subgroups;
  - Changes in atmospheric chemistry that change human exposure to certain air pollutants;
  - Differential risk to populations that are vulnerable due to physiological, socioeconomic, or occupational factors.
- *Energy supply, demand, and delivery*
  - Availability of energy resources and fuels.
    - Electricity generation, including hydroelectricity and other renewable resources;
    - Mid- to long-term, to supply alternatives to petroleum for transportation,

[26] The Energy Commission has other projects addressing this issue and a major field program proposed for 2009/2010 as a coordinated research effort supported by ARB, NOAA, and the Energy Commission.

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- Long-term planning capability and to investment guidance in emerging energy technologies

- *Wildfires*
  - The increased risk of wildfire impacts on sensitive species and natural communities, especially ecosystem conversions and adaptation strategies. Climate change has been linked to an increased risk of wildfires in California which result in significant ecosystem changes and large increases in respiratory emergency room visits (SDADIC, 2007);
  - The types of human health conditions and priority interventions for sensitive populations, such as those with pre-existing respiratory or cardiovascular disease, smokers, the elderly, and children, during wildfire events
- *Sea level rise*
  - Analytical techniques to evaluating coastal storm surge and flooding. They must operate at multiple scales, for the entire California coast, for a range of future sea level rise scenarios, and for a number of different tidal data, such as mean sea level and mean high water;
  - Implementing a statewide, systematic program to identify and mark maximum overtopping, run-up heights, and locations on sandy beaches during large wave/storm events to determine which areas are most vulnerable to sea level rise;
  - Development and evaluation of effective sea level rise adaptation strategies to minimize impacts to coastal development and ecosystems
- *Ecosystem Impacts*
  - Monitoring and modeling on a bio-region scale to identify impacts to ecosystems (e g., the effects of early snow melt on alpine forests);
  - Establishing adaptation measures, which should be designed to minimize the number of at-risk species and protect biodiversity;
  - Ecosystem restoration, including support for decisions on restoration processes and on where and when to restore;
  - Increasing resilience of ecosystems, as well as how to develop and adapt landscape reserves to support biodiversity and the migration of species in response to changing climatic conditions;
  - How climate change will influence the integration of habitat connectivity and wildlife corridors into land use planning and management
- *Floods and Droughts*
  - Prediction of storm events with the potential to generate major regional flooding;

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- Increases in risk of flooding and repeated drought/flooding cycles due to extreme variability in rainfall patterns and more-rapid spring snowmelt, which can impact both the natural environment and agricultural productivity,
- Extreme weather swings that can affect the dynamics of disease transfer between animal and human populations (Droughts reduce water quality, and subsequent flooding can cause sewer overflows and microbial contamination (Tibbets, 2007), as well as an increase in the growth in rodent and mosquito populations) To understand disease risk, more research is necessary in
  - Assessment of innovative techniques for improving flood risk evaluations;
  - Regional analysis of the vulnerability of drinking water systems to contamination, especially in areas in flood plains and near potential levee breaks,
  - Analysis to determine which populations in California are most vulnerable to water borne disease outbreaks (e g., elderly, immuno suppressed populations);
  - Analysis to decrease outbreak events for diseases not limited to water borne events,
  - Analysis of capacities of local and state public health departments to conduct rapid surveillance and response during water contamination events,
  - Analysis and future scenario modeling of impacts of continued droughts and reduced snowpack melt on drinking water quality.

- *Air quality/respiratory health*
  - The relationship between predicted ecological shifts and the potential for increased pollen production, which could result in worsening allergy symptoms in vulnerable populations. Studies should identify the geographic regions where impacts would most likely occur
- *Community design and land use*
  - Assessment of how land-use decisions influence the amount of GHGs generated by a community and affect local climate, for example, how transportation routes, school siting, waste management options, and food production decisions influence community vulnerability to temperature, hydrologic and other climate change impacts.
- *Health behaviors/communication*
  - The policies/incentives that encourage more walking, bicycling, and use of public transportation,
  - Ways to incorporate health impact assessments into land use planning.

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- *Surveillance*
  - Determining key environmental and health indicators that need to be monitored on an ongoing basis for trends in the effects of climate change on human and ecosystem health
- *Mapping*
  - GIS mapping capability to identify regions and populations most vulnerable to various climate change impacts as a planning tool for local agencies;
  - High resolution mapping in coastal and bay regions to support sea level rise vulnerability assessments and evaluation of adaptation options for sea level rise and storm impacts on shoreline development and ecosystems.

3.3.3 Greenhouse gas inventory methods

The Intergovernmental Panel on Climate Change (IPCC) has issued guidelines on how GHG emissions should be estimated for regional and national inventories (IPCC, 2006). In the United States, USEPA is responsible for producing the annual national inventory that is submitted to the United Nations in accord with its Framework Convention on Climate Change (UNFCC). In California, ARB is responsible for producing the official state inventory. ARB released its first inventory in November 2007 (ARB, 2007) California has been producing time-series GHG inventories since 1990 (CEC, 1990; CEC, 1998; CEC, 2002; CEC, 2006). Estimated emissions have changed over time due to several factors, such as improved activity data, identification of new sources, and improvements to inventory methods and models. Research is needed to further reduce remaining uncertainty.

ARB and the Energy Commission have complementary and collaborative ongoing and planned studies to refine fuel consumption estimates and resolve discrepancies between energy consumption data from different sources. Mandatory reporting of major sources of GHG emissions will also be used to update the inventory

Additional research is needed to support improved estimates of emissions and sinks from land use, land use change, and forestry. The prevailing scarcity of information to characterize these emissions sources is such that some important categories are omitted from the current California inventory (e.g., soils CO_2 fluxes and GHG emissions attributable to land use change)

Research by the CIWMB on organic materials will provide lifecycle assessment information and regional and statewide infrastructure models to provide a systems approach to optimizing GHG emission reductions for solid waste management and recycling. ARB, the U.S. Forest Service and the Department of Forestry and Fire

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Protection are undertaking an effort to update the "Forest Inventory Assessment" for California to reduce the uncertainty in determining emission from forestlands Ongoing research at ARB will improve the GHG inventory by reconciling non-CO_2 emissions calculated using 'bottom-up' and 'top-down' approaches Discrepancies between bottom-up and top-down inventories for individual GHGs may point to un-inventoried or unknown sources of the GHG in question

3.3.4 Greenhouse gas emissions reduction: Emerging technologies and strategies

Research on GHG mitigation strategies is essential for effective implementation of AB 32 and other climate change policies The 2020 goal set by AB 32 will establish California as a leader in climate change policy and was informed by research specific to California's economy, environment, and vulnerabilities However, long-term stabilization of climatic effects on Earth's life support systems requires further mitigation in line with the Governor's goal (Exec Order S-3-05) of 80 percent reductions in GHG emissions by 2050

California's GHG emissions come mostly from transportation, utilities (electricity and natural gas), and other industries such as refining, cement, manufacturing, forestry, and agriculture Meeting these goals will require new policies and technological advances Emissions in all sectors of the economy must shrink dramatically, through sustainable practices in which the land and natural resources used and the resulting pollution loading from air, water, and toxic and solid waste streams do not create significant impacts to already damaged ecosystems, water basins and air basins in California, the United States, and around the world Achieving the 2050 goal will depend on the development and deployment of technologies that are currently not cost effective, or often do not yet exist Research gaps that are critical to meeting the state's climate goals are identified below for each of these sectors

3.3.5 Transportation

Transportation accounted for approximately 40 percent of total California GHG emissions in 2004 About 80 percent of that came from road transportation Since 1990, total emissions associated with the transportation sector have increased from 150 to 182 million metric tons of CO_2 equivalents (MMT CO_2e), an increasing share of the state's overall GHG emissions This trend must be reversed to achieve AB 32 goals and dramatically reduce GHG emissions from transportation to reach California's 2050 goal

3.3.5.1 Vehicle and Fuel Technologies

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Critical research needs with regard to California's fuels and vehicles include:

- Technical and economic analysis of low-carbon fuel production, distribution technologies and strategies (including hydrogen, cellulosic biofuels, natural gas, and electricity);
- Improved lifecycle modeling of transportation fuel pathways including direct and indirect land-use effects;
- Evaluation of other sustainability metrics associated with transportation fuel pathways including effects on food prices, water quality and availability, and natural habitat;
- Vehicle-to-grid infrastructure and management technologies and strategies, and strategies to support and evaluate smart recharging of electric vehicles and plug-in hybrid electric vehicles, e.g., time-of-day pricing;
- Vehicle and fuel market demand studies to support deployment efforts and effective market segmentation;
- Demonstrations of promising innovative mobility services, including integration of services with neighborhood electric vehicles and bus rapid transit;
- Effectiveness and implementation of road pricing models

3.3.5.2 Land use and smart growth

To meet California's target of 80 percent GHG emissions reductions by 2050, the transportation sector must move beyond vehicle and fuel technologies. While often focused on transportation, land use and smart growth research also encompasses and complements research needs described later for building and community-scale energy efficiency. Effective climate policy must engage land-use strategies, transit infrastructure, pricing signals, and transportation conservation programs, including:

- Development of advanced travel and land use modeling to support regional planning in evaluating the effects of land use, transit, and pricing strategies and monitoring GHG reduction targets;
- Identification and evaluation of critical lessons associated with alternative policies for bringing about changes in land use, including local, regional, and state policy approaches, and incorporation of these lessons in the application of travel, land use, and emission models to support "best practices" recommendations, future monitoring and GHG enforcement;
- Development of methods for identifying priority conservation areas that will both discourage sprawl and minimize the number of species that are projected to become extinct due to climate change;
- Quantification of uncertainty in projections made by advanced travel and land use models;

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- Development of cost effective methods of collecting vehicle-miles-travelled (VMT) data in California at regular intervals to support model development efforts, model validation efforts, and monitoring and enforcement of GHG reduction targets;
- Investigation of the "self-selection" bias in empirical analyses of the relationship between land use and VMT, moving beyond cross-section designs and employing more sophisticated quasi-experimental approaches;
- Development and validation models to identify, quantify, evaluate, and verify GHG impacts of planning practices and designs. Using life cycle studies or system analysis, identify the costs, benefits and the GHG impacts of alternative community designs

3.3.6 Electricity and natural gas

Reductions in GHG emissions from electricity and natural gas use come in two forms: consuming less energy and reducing the GHG intensity of energy sources. Energy use can be reduced by energy efficiency by the user, producer or distributer, or reduced demand by the user. Net demand can be reduced by users by process changes such as recycling of aluminum and other waste materials. GHG emissions from electricity generation can be reduced by from coal to renewable energy resources, natural gas, nuclear, or other low GHG energy sources, or sequestering the emissions from fossil fuel power plants. Although current knowledge and technology support large increases in energy efficiency and renewable energy, more research is needed to improve the performance and cost effectiveness of current and emerging technologies. Research is also needed to improve capability to predict the effects of climate change on the supply and demand for energy services.

3.3.6.1 Demand response and energy efficiency

Since the 1970s, California's distinguished efforts in developing energy efficiency have led to no net increase in per capita electricity consumption despite growth in per capita income. Research to support a climate-friendly buildings sector must extend beyond past and current initiatives, which, with notable exceptions, can be loosely characterized as emphasizing incremental component-level improvements. Reducing electricity and natural gas consumption through decreasing demand for energy services (e.g., turning off the lights) requires behavioral research for public outreach and education. However, technology research also has a key role. Key ongoing and future research needs include the following:

- Improvements in energy efficiency and zero-carbon energy supply, addressing both new and existing buildings
- Systems integration to boost energy efficiency and energy management systems, to facilitate use of distributed renewable energy technologies.

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demand in response to real-time or forecast grid conditions, such as compressor loads for chillers in large commercial buildings[27]

- Detailed modeling of the effects and response to climate changes for energy infrastructure including transmission and demand centers.
- Continued development of a full lifecycle cost/benefit analysis for renewable energy and fossil fuel energy sources.
- Continued development of commercial-scale technologies that produce renewable energy from waste materials and byproducts rather than agricultural sources.

The strategies presented above describe GHG reduction opportunities within the electricity and natural gas sectors. As noted in the AB 32 scoping plan, all sectors of the state economy must participate in a comprehensive GHG reduction strategy for California. Policymakers need a rational means for prioritizing these different strategies in deciding how and when to allocate effort to each strategy.

3.3.7 Low greenhouse gas technologies for other sectors

Other sectors may offer other non-energy options for reducing GHG. These options need to be better quantified to identify potential reductions. Some areas where further research is needed to make performance improvements are.

- *Cement*: Alternative cement and concrete products and processes to reduce CO_2 emissions;
- *Forestry*: Additional research on forest management and technology to improve terrestrial carbon storage and reduce wildfire risk;
- *Agriculture and Landscaping*: Better emissions quantification, best practices evaluation, and development of ways to reduce GHG emissions associated with conventional fertilization and irrigation.
- *Water Resources*: Continue research on improved efficiency in water distribution, end use, and cleanup;
- *Recycling and Waste Management*: Life cycle models to identify GHG reductions associated with the development, manufacturing, use, and disposal of consumer products. Improved methods for community-scale assessment of indirect GHG emission reductions for alternative waste treatment (e.g., recycling).

3.3.8 Carbon Sequestration

[27] For further information on this topic, see the research recommendations for renewable energy in the California Energy Commission's Committee Draft 2008 IEPR Update, p. 36-37. For discussion of the CA ISO's interest in variable compressor loads for chillers, see p. 21.

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Carbon sequestration has the potential to substantially lower or offset California's CO_2 emissions. There are two classes of technologies applicable to the state: terrestrial and geologic

3.3.8.1 Terrestrial Sequestration

Terrestrial sequestration refers to carbon stored in plants and soils. California can improve carbon storage in the state's forests, rangelands, wetlands, and agricultural lands through changes in land management practices that increase carbon uptake and/or reduce CO_2 emissions from these ecosystems. Because terrestrial sequestration removes CO_2 that is already in the air, it can help offset emissions from other sectors. Studies have shown that afforestation (tree planting) and agricultural soil management offer significant terrestrial storage opportunities in California. Research needs for terrestrial sequestration in California include:

- Forest management approaches, including incentives, to help reduce CO_2 emissions from wildfires;
- Agriculture management approaches for sequestration in annual and perennial crops and quantification of lifecycle CO_2, N_2O, and CH_4 emissions impacts for these practices;
- How projected changes in climate will affect existing carbon stocks and terrestrial sequestration options in the state;
- Effects of urban development on terrestrial sequestration; policy options to minimize GHG emissions; research on the role of urban forests and greenscapes in providing mitigation opportunities and other co-benefits to public health, water management, and energy savings;
- Carbon sequestration rates in habitats other than forests, including wetlands and perennial grasslands; geographic sensitivity, species composition, and management options for increasing carbon sequestration in these habitats;
- Potential impacts of expanded terrestrial sequestration on climate change (e.g., albedo effects), sensitive species and habitats and water use/availability.

3.3.8.2 Geologic Sequestration

Geologic sequestration, also known as CO_2 capture and storage, involves modifying industrial facilities to remove CO_2 from process or exhaust gases before emission and injecting it into secure geologic formations for long-term storage.

Large industrial facilities such as power plants, refineries, and cement plants constitute California's second largest source of CO_2 emissions. Initial screening of potential

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geologic storage sites and estimates of geologic storage capacity indicate that California's deep sedimentary basins, particularly those underlying the Central Valley, could store hundreds to thousands of years' worth of the state's industrial CO_2 emissions.

Critical areas of research for developing geologic sequestration in California include:

- More detailed mapping and characterization of the state's sedimentary basins to qualify storage sites and refine capacity estimates;
- New or improved technologies for reducing the cost of capturing CO_2;
- Technology validation and demonstration projects that serve as a basis for formulating regulations for commercial projects.

3.3.9 Economic impacts and considerations

Understanding the economic aspects of climate change is crucial for reaching emission reduction goals both in California and globally. One research gap in the economics of GHG mitigation is in the area of induced technological innovation. Economic theory predicts that if a market mechanism puts a price on GHG emissions, then the economy will find ways of reducing the cost of getting the needed emission reductions. There are multiple examples of the role of government in induced technology innovation, but in general, these effects are not captured by macroeconomic models used for developing policy. Technological innovation involves a complex interaction between engineers, managers, financiers, and policymakers. Research is needed to develop next generation sector and macroeconomic modeling capability, including:

- The impact of pricing of GHG emissions on technological innovation on key industries (e.g., energy efficiency and alternative fuels);
- State government policies to encourage induced technological innovation;
- Leveraging state incentives for research and development for promising technologies;
- Incentives to stimulate widespread use of emerging technologies to support the state's renewable energy and GHG emission reduction goals.

Another area of needed research is in GHG mitigation strategy evaluation. An extension of life cycle cost analysis is needed, one which takes into account the value of co-benefits such as air pollution emission reductions, water pollution reduction, solid waste reductions, and the adaptive value of a strategy.

Finally, the State needs to continue to fund research on the economic impact of the effect of ongoing and future climate change on California. As other research efforts produce clearer understanding of climate change impacts, policy makers need to understand the costs of this impacts and the costs of adapting to them.

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3.3.9.1 Social science to support implementation, education, and outreach

Social science research is crucial for effective implementation of climate change policy Education and outreach are needed to educate the public on the risk posed by climate change, to develop a green workforce, to foster effective management practices among the state's professionals, and to inform the businesses, households, local governments, and schools whose decisions help determine California's GHG emissions and adaptive capacity Social science research is needed to guide development and implementation of educational programs Further social science research, including investigation of legal and administrative structures, may be needed to help the State cope with adaptation, promote robust laws and institutions, and partner with entities beyond California's jurisdiction.

The national Climate Change Science Program named "decision support" a priority in its 2003 strategic plan and re-emphasized the importance of decision-supporting social sciences in its 2008 revision to the research plan (CCSP, 2003; CCSP, 2008). In California the CPUC, in partnership with the California Institute for Energy and Environment, has commissioned a series of white papers on consumer behavior and energy consumption, which will inform development of a strategic plan to guide the CPUC's research, development, and demonstration Among the social science research gaps that need California-specific investigation to support effective climate strategies are:

- The role of lifestyles and behavior (versus technological factors) in forecasting studies (e.g., fuel switching, comfort and lighting control, and telecommuting);
- Identification and improvement of models and assumptions that are sensitive to behavioral components;
- Education, outreach, and social/behavioral change strategies so that voluntary and outreach programs can be compared to conventional regulatory and emerging market mechanisms;
- How residential energy efficiency is affected by decisions of home builders, home equipment manufacturers, mortgage lenders, rental housing owners and managers, heating and cooling system contractors, and appliance retailers and repair personnel

3.3.10 Environmental justice impacts and considerations

Climate change is an issue of great importance for human rights, public health, and social equity because of its potential disproportionate impact on vulnerable and socially marginalized populations. Without proactive policies to address equity concerns, climate change could reinforce and amplify current and future socioeconomic disparities, leaving low-income, minority, and politically marginalized groups with fewer economic

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opportunities and more environmental and health burdens. The incidence of mortality and morbidity associated with mounting physical and biological impacts and economic consequences will increase. Moreover, community vulnerability to climate change is determined by its ability to anticipate, cope with, resist, and recover from the impact of major weather events (Blakie et al., 1994). Therefore, to understand concerns regarding climate justice, it is critical to explore disparities in the costs and benefits of climate change and the abilities of different groups to adapt to it.

To better inform the mitigation and adaptation strategies as they relate to environmental justice concerns and communities, additional research is needed and should include consideration of the following (adapted from Pastor, 2008):

- *Co-pollutants:* Develop methods for determining the relationship between CO_2 and various co-pollutants in terms of both the co-benefits of cleanup and any potential worsening of pollution under climate change or climate policies. These assessments should look at pollution sources and both immediate and regional impact areas,
- *Displacement:* Vulnerability assessments and GIS capability for identifying where populations may be displaced due to sea-level rise, increased flood threat, water availability, and other potential impacts of climate change;
- *Jobs:* Where job losses and gains will occur, geographically and in which industries and job markets;
- *Capacity to adapt:* How multiple stressors (e.g., rising energy expenses and job losses) affect the ability to adapt to climate change, one of many stressors felt by low-income residents

3.4 Conclusion: Research and the 2050 challenge

The ambitious goal of reducing emissions to 80 percent below 1990 levels by 2050 may yield tremendous benefits in energy diversification and the creation of a green economy in California, but will also require new policies and technological innovation. Accomplishing the goal will require the state economy to transition to become almost carbon-free. It will also require scientifically validated policies that reflect the true costs and benefits of emissions and emissions reductions. Adaptation, planned or not, will also be well under way by 2050. Investments to adapt to the coming impacts of climate change will be most effective if they are guided by scientific research and monitoring necessary to support effective adaptive management. These three threads of research—climate change impacts, new technologies, and the analysis needed to guide policy decisions—are the subjects of ongoing coordinated research that must continue to expand in order to reach the 2050 goal.

Advancement and diffusion of technologies will play a decisive role in achieving GHG emissions reductions. Technologies for reducing the energy burden of the built environment, increasing the role of renewables and carbon capture in the energy sector,

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and new technologies and fuels in the transportation sector are all areas that require research focus.

Up-to-date scientific research is needed by State and other public agencies, policy makers, land managers and the general public to make short term, mid-term, and long-term decisions about the most effective ways of mitigating and adapting to climate change impacts. Accessibility of this information will facilitate rapid incorporation of emerging science into management and funding decisions, and will assist State agencies in identifying research gaps, critical needs, and in avoiding duplication of funding specific projects. Integrated assessment of economic, social, ecological, public health, and environmental justice impacts will be needed to support decision-making. Continued State-sponsored and directed climate change research will help California protect its citizens and environment and create a secure future for 2050 and beyond. The Climate Action Team will continue ongoing activities to support and enhance coordination and collaboration of State-sponsored climate change research.

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Chapter 4

4 State Efforts to Adapt to Current and Future Effects of Climate Change

4.1 Introduction

The first three chapters of this report show California has been, and will be, at greater risk to climate change in the foreseeable future than it has been in the past. Unfortunately, public and private entities are not prepared to address a potential eight-fold increase in sea levels rising in the next century compared to the last century, or a decrease in overall precipitation and snow pack, or greater extreme temperature events. We can no longer plan for the future using historical information since climate change is changing at such a fast and unpredictable scale.

A new, more comprehensive planning effort is required that *links* new and rapidly growing climate change science with new and existing infrastructure, human health, and environmental planning policies and funding. With this in mind, Governor Schwarzenegger issued Executive Order S-13-08, the "Climate Adaptation and Sea Level Rise Planning Order" that provides clear direction for how the State should plan for future climate impacts, as discussed below.

As climate change science continues to improve, so will our need to plan for expected climate change impacts. All current planning efforts recognize society is at the beginning of understanding the scale and extent of how climate change is impacting our communities, state, nation, and planet. Implementing low-cost (or revenue-generating), high-return strategies now will benefit our long-term efforts to reduce California's vulnerability to current and future climate change impacts while providing long-term health and cost savings.

4.1.1 Executive Order S-13-08: the Climate Adaptation and Sea Level Rise Planning Directive

On November 14, 2008, Governor Arnold Schwarzenegger issued Executive Order (EO) S-13-08 (http://gov.ca.gov/press-release/11035/) calling for the State to implement a number of actions to reduce vulnerability to climate change. In particular, there are four key actions including:

(1) Initiate California's first statewide Climate Change Adaptation Strategy (CAS) that will assess the state's expected climate change impacts,

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identify where California is most vulnerable and recommend climate adaptation policies;

(2) Request the National Academy of Science establish an expert panel to report on sea level rise impacts in California in order to inform State planning and development efforts,

(3) Issue interim guidance to State agencies for how to plan for sea level rise in designated coastal and floodplain areas for new and existing projects; and

(4) Initiate studies on critical infrastructure projects, and land-use policies, vulnerable to sea level rise

Article 7 of the Governor's order states the overall structure of the CAS as follows.

By June 30, 2009, the California Resources Agency, through the Climate Action Team, shall coordinate with local, regional, State, and federal public and private entities to develop a state Climate Adaptation Strategy. The strategy will summarize the best known science on climate change impacts to California (led by CEC's PIER program), assess California's vulnerability to the identified impacts, and then outline solutions that can be implemented within and across State agencies to promote resiliency A water adaptation strategy will be coordinated by Department of Water Resources with input from the State Water Resources Control Board, an ocean and coastal resources adaptation strategy will be coordinated by the Ocean Protection Council, an infrastructure adaptation strategy will be coordinated by the California Department of Transportation, a biodiversity adaptation strategy will be jointly coordinated by the California Department of Fish and Game and California State Parks, a working landscapes adaptation strategy will be jointly coordinated by the California Department of Forestry and Fire Protection and the California Department of Food and Agriculture, and a public health adaptation strategy will be jointly coordinated by the California Department of Public Health and the California Air Resources Board, all as part of the larger strategy. This strategy will be facilitated through the Climate Action Team and will be coordinated with California's climate change mitigation efforts.

Article 7 continues in explaining the overall goal of the CAS.

"The goal of State climate adaptation planning efforts is to help State agencies and stakeholders better understand the rate, scale, and timing of

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known and unknown climate change impacts, develop preliminary strategies to reduce the State's vulnerability to these impacts, and to prioritize actions the State can and should complete in the near term to ultimately reduce fiscal, health, and environmental risks.

4.1.2 California's Dual Climate Strategy: Mitigation and Adaptation

Climate change mitigation efforts, through reductions in greenhouse gas emissions, are the foundation for eventually reaching a stable level of greenhouse gases in the atmosphere. If greenhouse gas emissions continue at the current pace, the consequences and impacts could be disastrous, and eventually beyond our capacity for effective adaptation without severe costs and sacrifices. Chapter 2 of this report provides an initial set of assessments for the costs of climate change impacts in California. The basic conclusion reached from these assessments is that climate change will impose substantial costs to Californians on the order of tens of billions of dollars annually, but that costs will be substantially lower if global emissions of greenhouse gases are curtailed to levels suggested by lower GHG emissions scenarios.

Accordingly, California has undertaken a number of aggressive initiatives to reduce greenhouse gas emissions in the state, including implementation of the Global Warming Solutions Act (AB 32), the Renewable Energy Portfolio Standard, and the Low Carbon Fuel Standard. These measures, if matched by the rest of the nation and the global community, will continue to provide the best defense against long-term climate change consequences and ensure that greenhouse gas emissions never reach critically dangerous levels resulting in catastrophic outcomes.

Regardless of how successful these actions prove in limiting greenhouse gas emissions, however, some impacts of climate change have already occurred and will continue to occur inevitably occur as a result of past or current greenhouse gas emissions. Even if all greenhouse gas emissions were stopped today, temperatures would continue to rise through the rest of the century, inevitably resulting in some degree of climate change. As detailed in Chapter 1 and 2, California's impacts from climate change are likely to include shifting precipitation patterns, increasing temperatures, sea level rise, increasing severity and duration of wildfires, earlier melting of snow pack, and effects on habitats and biodiversity.

To ignore these unavoidable impacts of climate change would place California's economy, natural resources, and infrastructure at risk, as well as the health and well-being of people and communities across the state. Consequently, a pro-active climate change plan must include the development of parallel efforts that

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both mitigate climate change through emissions reductions and prepare for existing and anticipated impacts through adaptation planning

Mitigation and adaptation efforts can also be mutually beneficial, as illustrated in the adoption of forestry management practices that reduce the risk of wildfires, thereby protecting forest lands and limiting greenhouse gas emissions that result from considerable wildfires. In other cases, mitigation and adaptation goals could potentially work at cross purposes. The increased use of air conditioning, for example during heat waves, would help stave off some health effects associated with extreme heat, while at the same time it would increase energy usage and associated emissions of greenhouse gases.

Similarly, compact and mixed land-use strategies--while helpful in reducing emissions from a reduction in vehicle miles traveled--could in some cases lead to increased residential and commercial developments concentrated in neighboring floodplains. Moving development out of at-risk floodplains on the other hand, could potentially increase sprawl and related emissions. These examples point to the need for continuing collaboration between agencies, boards, and departments involved in both efforts at State and local levels of government working on both climate change mitigation and adaptation strategies. Through these parallel climate change actions, the State will continue working to prevent the most severe impacts of climate change while also acknowledging and preparing for known impacts already beginning to occur, with the aim of providing the maximum benefit to California in both the short- and long-term.

4.2 Development of a Climate Adaptation Strategy

The CAS effort, as outlined in EO S-13-08, is being led by the California Natural Resources Agency and coordinated across five State agencies and numerous departments. The CAS will work toward developing the first comprehensive State strategy to address climate impacts while understanding that a more in-depth assessment will be needed once complete.

The CAS is expected to summarize what we know about current climate change impacts to California, use State agency policy expertise to understand what strategies could be implemented, and to assist in prioritizing near- and long-term actions. The science summary is utilizing research sponsored by the California Energy Commission's Public Interest Energy Research (PIER) program, much of it highlighted in Chapter 1 of this report. The strategy efforts are being led by a host of departments, as listed in Article 7 of EO S-13-08 as listed in this report, and include:

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Box 4.1: Agencies and Departments Responsible for Developing 2008 CAS

• California Environmental Protection Agency
• California Business, Housing and Transportation Agency
• California Health and Human Services Agency
• California Natural Resources Agency
• California Department of Food and Agriculture
• Department of Water Resources
• State Water Resources Control Board
• Ocean Protection Council
• Department of Public Health
• Air Resources Board
• Department of Forestry and Fire Protection
• Department of Fish and Game
• State Parks
• California Energy Commission

4.2.1 CAS Components: Science, Policy and Action

The development of the CAS involves three major components: a review of the latest science, identification of policy strategies, and a listing of short- and long-term actions. Strong scientific data will serve as the foundation for understanding how climate change will affect the state and ensure that the appropriate adaptation efforts are undertaken. A major component of this scientific data is garnered from the 2008 Climate Change Assessment and its underlying studies prepared and sponsored by the California Energy Commission. This information will be used to assess the risks that California is facing in regard to its natural resources, economic assets, and the protection of vulnerable populations. Future scientific research will attempt to identify the degree of vulnerability as well as the State's ability to respond to potential impacts.

The main objective of the CAS is the development of a comprehensive set of strategies that will address the impacts of climate change in California. These strategies will include a wide range of approaches, including proposals for specific projects, new policies, updates to existing policies, potential legislation, regulations, and future recommendations for scientific research.

The first CAS will serve as a guidance document with a primary focus on State-level strategies while including preliminary policies that can be adopted by local jurisdictions. Future versions will need to fully integrate local, regional, State, and federal adaptation strategies to ensure the greatest coordination possible, and the elimination of barriers that may arise from multiple goals, rules, and regulations. The CAS will include a diverse set of strategies to account for the

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foreseeable uncertainties that relate to projections of when, where, and how climate impacts will become apparent in specific regions and locations. In addition to sector-specific strategies, the CAS will outline those cross-sector measures designed to reduce the risks from climate change.

The third and final component of this climate adaptation analysis is the development of specific actions that will be implemented in priority areas. The nature of climate change, and the considerable degree of uncertainty remaining in many projections of climate change impacts, requires that the State work within a risk management framework. Because of climate change, policymakers and planners can no longer rely on historical records to predict future weather conditions related to average and extreme weather events.

While the scientific and economic analyses conducted to inform the CAS provides an important foundation for the development of adaptation strategies, uncertainty may remain in regard to precise magnitudes, timing, and effects of climate change impacts. Effective adaptation planning will require action based on probabilities and risk assessments that provide the best measurements and estimates of how climate change will impact California.

4.3 Sector Working Groups

Development of the CAS is structured around six Climate Adaptation Working Groups, each representing a major sector of California that will be impacted by climate change, as outlined in Article 7 of the Governor's executive order. These working groups form the core of a bottom-up process that drives the CAS, bringing together experts from across State agencies and departments and drawing on the input from stakeholders. Numerous opportunities have been provided for public comment and feedback. It should be remembered that this CAS is considered an early effort to understand how the State should plan for future climate change impacts. It is expected future CAS efforts will be much broader in scope, and include even greater scientific and stakeholder input to the process.

Each working group is responsible for assembling relevant information synthesized into the final CAS report. With the assistance of advisors from the California Energy Commission and the Resources Agency, each working group is completing a preliminary risk assessment for impacts related to their sector. The working groups will propose and prioritize multiple adaptation strategies to prepare for these impacts. This will include a complete assessment of policy mechanisms and resources required for the implementation of these strategies. In addition, the working groups will provide information on the potential barriers to implementation, as well as recommendations for future research needs. These findings will be summarized in white papers from each working group which will

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be compiled into the complete CAS to be released in February 2009 for public comment

4.3.1 Water

California's water sector faces significant impacts from climate change. These will exacerbate the stresses on an already stressed state water system. A projected reduction of the Sierra Nevada snowpack by at least 25 percent by 2050[28] will pose severe water supply challenges for California, which relies on the proper timing and quantity of the spring melt in order to provide a reliable water source throughout the summer and fall. Changing precipitation patterns will result in longer and drier droughts and decreased groundwater levels, coupled with a higher frequency and severity of extreme flooding events. Sea-level rise will add additional complications to an already critical situation in the Sacramento-San Joaquin Delta by placing additional pressure on an already vulnerable levee system, and magnifying sea-level rise driven saltwater intrusion into coastal groundwater resources in the face of decreasing freshwater recharge. The Public Policy Institute of California estimates that a single occurrence of catastrophic levee failure in the Delta could result in economic damages of up to $16 billion and significantly disrupt water supply throughout the state[29]. The devastating nature of these expected impacts clearly demonstrates the need for careful planning and aggressive action to improve resiliency and limit vulnerability to climate change in the water sector.

The Department of Water Resources, in collaboration with other departments and stakeholders, has initiated a number of projects to begin climate change adaptation planning for the water sector. The recent incorporation of climate change impacts into the California Water Plan is an essential step in ensuring that all future decisions regarding water resources management address climate change. Central to these efforts will be the implementation of Integrated Regional Water Management (IRWM) plans, which address regionally appropriate management practices that incorporate climate change adaptation. These plans will evaluate and provide a comprehensive, economical and sustainable water use strategy at the watershed level for California.
The Department of Water Resources also plans to promote and pursue the following:

[28] Scenarios of Climate Change in California: An Overview. FINAL report from California Energy Commission, Public Interest Energy Research (PIER) Program, California Climate Change Center, publication # CEC-500-2005-186-SF, posted: February 27, 2006 - This is taken from this paper: "In the Sierra Nevada by the 2035–2064"

[29] Comparing Futures for the Sacramento-San Joaquin Delta. Jay Lund, Ellen Hanak, William Fleenor, William Bennett, Richard Howitt, Jeffrey Mount, and Peter Moyle. PPIC. July 2008

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- Aggressive water conservation programs, including updated urban water management plans, wider use of recycled water where appropriate, and incentives for water-efficient appliances and systems,
- Increases and improvements in both surface and groundwater storage capacity, including the protection of groundwater recharge areas and feasibility studies for reservoir expansion,
- Integrated flood management programs, including improved emergency preparedness and recovery plans as well as structural and non-structural projects for flood protection that account for climate change impacts,
- Preservation and enhancement of ecosystems to preserve biodiversity and also improve flood management and water supply functions;
- Expansion of monitoring and data collection capabilities, in order to better track and understand climate change impacts to the water sector,
- Plan for anticipated sea-level rise, and
- Fund research studies on climate impacts and system vulnerabilities.

4.3.2 Transportation

Climate change will have significant impacts on California's transportation and energy infrastructure Given the long timeframes involved in many construction projects in this sector, early planning efforts are essential for effective adaptation Major impacts include sea-level rise, an increase in the frequency and severity of heat events and changes in hydrologic patterns Sea-level rise could potentially inundate California's major transportation infrastructure, including San Francisco and Oakland airports and neighboring communities A sea-level rise of merely one foot would result in "100-year" flood events as occurring on average every ten years[30]

The anticipated regional or microclimate changes facing transportation infrastructure in California could have variable impacts on the economy, environment, and transportation infrastructure and operations due to increased temperatures, sea-level rise, and changes in the timing, intensity, and variability of precipitation The degree of vulnerability or risks for transportation infrastructure depends on regional and local characteristics–natural, built, and human environment--as well as location, types and function of transportation facilities or assets

[30] Our Changing Climate Assessing the Risks to California CEC-500-2006-077

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Impacts may include flooding of tunnels, coastal highways, runways, and railways; buckling of highways and railroad tracks; submersion of dock facilities; drainage and hydrological facilities; and shifts in demand for transportation. Increased frequency of precipitation, storms, extreme events, and wave run-up could disrupt system operations and services and the safety of transportation. Highway capacity and throughput is reduced during storm or rain, lowering speed and impeding mobility. The emergency and evacuation routes could be vulnerable to climate extremes, particularly in low-lying coastlines.

California has over 1,100 miles of coastline and 1,000 miles of enclosed bay with variable regional, micro climate environments that serve to provide major economic activities, tourism and recreation. Gradual changes in sea level or waterways, particularly at high tide during storm events, or increases in extreme events given potential wave run-up will threaten transportation operations and will damage low-lying coastal infrastructure. Rising sea level could also erode beaches and wetlands, increase flooding from storm surges and rainstorms, and enable saltwater to advance upstream. Rises in the water levels of inland waterways may also affect transportation and shipping into and out of the ports and may necessitate more frequent dredging of channels. Many coastal airports built on wetland are vulnerable to flooding. This includes Oakland and San Francisco airports that were built on bay fill.

These prospects could have strategic security as well as transportation implications. They require transportation agencies to recognize the prospect of climate change and have proper organizational structure and tools for assessing risks and economic costs, and initiate strategic planning in addressing adaptation that satisfy climate change concerns.

4.3.3 Oceans and Coastal Resources

This sector comprises the state's ocean resources as well as coastal land areas along California's 1,100 miles of open ocean coast and another 1,000 miles along San Francisco Bay, including its bays, lagoons, estuaries and wetlands. In addition to the extensive recreational, economic, and cultural resources located along the coast, these areas are home to a large number of vital ecosystems and species. All of these resources including infrastructure, human environments and communities, and natural habitats are at considerable risk from climate change impacts. These include inundation from sea-level rise, increased flooding and erosion, higher storm surges, loss of coastal habitats such as beaches and wetlands, salinity changes, increased ocean acidity, and biodiversity reduction due to species loss. Given the tremendous value of these coastal resources to the state and the potentially devastating consequences of climate change, adaptation planning is of utmost importance in this sector.

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The Ocean Protection Council and the San Francisco Bay Conservation and Development Commission, along with several groups and stakeholders, have worked to propose adaptation strategies in the coastal sector which fall into several major categories. The first involves strategies for existing development, including existing infrastructure and other resources located in potentially vulnerable areas. Strategies for addressing climate change impacts include rolling easements, relocation incentives from high-risk areas, government purchase of vulnerable property, seawalls and levees to protect critical infrastructure, planned retreat (gradually moving buildings and other structures) and rebuilding restrictions for those structures located in vulnerable areas following climate-related disasters

The second major category involves strategies for new development. Adaptation strategies for new development include the use of new building materials, an increasing emphasis on design for climate resiliency, the encouragement of smart growth and clustered development in low-risk areas, mandatory setbacks to restrict development within a certain distance of vulnerable areas, required "warning" notices to developers and buyers on the potential impacts from future climate change, and the development of expendable or movable structures in high-risk areas.

The third major category targets ecosystems and habitat and includes beaches, wetlands, subtidal habitats, and fisheries. Strategies to protect and preserve these ecosystems in the face of climate change include regional sediment management planning to help restore natural sources of coastal sediment, beach nourishment to replace areas lost to sea-level rise or erosion, creation of additional "buffer zones" to allow for wetland migration as the climate changes, creation of new wetlands to replace lost areas, fishery management plans that set catch limits with future climate change in mind, subtidal habitat enhancement, and the creation of Marine Protected Areas. In addition to these major concerns the Ocean Protection Council will address insurance-related policies that encourage responsible development in vulnerable areas, additional legislative and funding opportunities to further adaptation planning, and strategies for the coordination between local, State, and federal governments.

4.3.4 Forestry

California's forests face significant vulnerability to climate change impacts, including changes in water supply and timing of snowmelt runoff, upward shifts in the distribution of wildlife and vegetation, more frequent and intense wildfires, longer fire seasons, more frequent outbreaks of pests and diseases, and changes in growth rates and productivity of forest trees and vegetation.

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In order to adapt to these changes and increase resiliency of California's forest resources, the Department of Forestry and Fire Protection and the Board of Forestry (BOF), in coordination with other agencies and stakeholders, plan to implement a new vision for California forest management that will include a strong framework for climate change adaptation.

While forests will "adapt" in some fashion to climate change, management actions may increase the likelihood of achieving desired conditions by enhancing the resiliency of existing forests, establishment of future stands, and improving the ability to cope with disturbance and related impacts to climate change. In addition, land-use decisions and management actions can also have adverse effects that create environmental stress and weaken the resiliency of ecosystems. Actions taken to reduce the current stress on forest and range ecosystems can also improve chances for successful adaptation (e.g. unintended adverse impacts on current forest health from fire suppression). In some cases, environmental effects from climate change have already been observed in California forest and rangelands. This includes shifts in species ranges, changes in the frequency of disturbance from wildfires and pests, and effects on forest productivity.

Rapid climate change may challenge the capacity of forest species and habitats to adapt. Temperature and precipitation changes can affect regeneration, tree growth and vigor, and forest health and productivity. In addition, temperature, drought, and forest health can interact to enhance the level or occurrence of disturbances such as fire and pests. Human uses of the land (e.g. forest management and fire suppression), along with population growth and development, create additional stress that affects forest health and may increase vulnerability to impacts from climate change. It is this vulnerability assessment that is essential when proposing actions that lead to climate resiliency. There are no standard methods for assessing vulnerability from climate change, but given the increasing body of knowledge and the nature of forests and their impact on many long-lived species, a flexible or adaptive management plan is an integral part of any adaptation strategy.

Adaptative management of forests should prioritize the management of forests and range lands for resilience, restoration, and recovery while promoting adaptation in land use, public safety, and economic infrastructure that leads to the identification of private and public investment considerations. Certainly the continued funding of research models that allow for experimentation and feedback are also beneficial when it comes to thoughtful adaptative management planning and the encouragement of forest health and monitoring activities.

The introduction of prioritized planning efforts that identify geographic "hot spots" and develop contingencies to monitor, assess, and react to abrupt climate change is instrumental in preparedness planning.

Adaptative land-use planning should also be encouraged in order to prevent or decrease the impacts of climate change disturbance, and assist with recovery. This

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should include improving land-use planning and implementation to reduce conversion and wildfire risks and include regional readiness to respond to disasters, improvements in local land-use planning, and by working with local agencies to decrease risk and hazards and increase public safety options. It is also important to include climate change into planning for fire protection services and encourage other agencies to incorporate adaptation principles into permitting programs for land conversions, forest practice general plans, and individual development projects. Improved rangeland management that supports private sector efforts by identifying economic opportunities for low carbon footprint, biofuel production, and riparian forest restoration are also important as climate coping mechanisms for California.

The improvement of analytical tools for assessment, strategic planning, and tactical planning should be developed in order to facilitate long-term planning, and provide decision support guidance that will help government agencies and landowners prepare for climate change and make informed decisions. This includes modeling capacities, improvements in the existing scientific knowledge base, establishment of assessment criteria, and collaborative efforts that address indicators of forest and range health that are sensitive to climate change, as well as ongoing work with reporting agencies to establish standardized reporting procedures and formats.

4.3.5 Agriculture

The California Department of Food and Agriculture has identified, with stakeholder input, climate change impacts including changes in average and extreme temperatures and precipitation patterns which influence crop yields, pest and weed ranges, and the length of the growing season. Extreme events, such as heat waves, floods, and droughts, may be among the most challenging of impacts on agriculture since they can result in significant economic losses. It is also anticipated that water deliveries to agriculture will be reduced due to overall drier conditions concurrent with increased urban demand.

Agriculture will be directly affected by increased warming. some crop yields may increase, while other yields may decrease. Higher average temperatures can also cause increases in mortality and reproduction, and decreases in the productivity of livestock, leading to declining meat, egg, and dairy production unless adaptive measures are taken to reduce heat stress on animals. The ability of fruit and nut crops to set fruit is influenced by the number of chill hours in the winter. An increase in average temperatures reduces the numbers of chill hours, and without a sufficient number of chill hours in a growing season, these crops will have decreased fruit quality and economic yield.

Impacts on agriculture are further complicated by difficulties in introducing new management practices, the potential need for increased irrigation, and crop

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switching. Agricultural production also may need to relocate to other regions, due for instance to sea-level rise and saltwater intrusion increasing the salinity of soils and groundwater, or when higher temperatures do not allow certain crops to be grown in the regions where they had been previously.

Warmer winters, longer growing seasons, and higher temperatures overall will encourage the proliferation and survival of pathogens and parasites, affecting both crops and livestock. Therefore, efforts sponsored by the State will be necessary to support research and the identification of crop varieties capable of adapting to climate change and to guide grower crop and livestock selection. Efforts to alter planting, thinning, and harvesting practices in order to adapt to new and expanded crop pests and diseases may be needed to prepare for and manage climate change impacts.

A number of climate impacts can be addressed through farm management practices that prevent erosion, build soil fertility, and increase the water-holding capacity of soils, such as conservation tillage, crop rotations, manure management, fallowing, cover crops, and more efficient use of fertilizers. Many of these practices serve both adaptation and mitigation purposes. Other measures will need to address water availability through irrigation and new crop regimes.

4.3.6 Habitat and Biodiversity

California's unique natural ecosystems and species make the state an area of exceptional biodiversity. The state has long had a strong commitment to preservation of natural landscapes and wildlife, but these efforts face considerable challenges due to the changing climate. Most climate impacts, including sea-level rise, water availability and water quality changes, extreme weather events and more severe wildfires, will have a significant effect on both individual species and entire ecosystems in the state. Moreover, climate change will interfere with ecosystem functions, migration patterns, and species interactions as seasonal timing of life cycles and natural processes become disrupted. Habitat loss and the increased prevalence of invasive species and disease-causing organisms may also be dramatically impacted by climate change.

The Department of Fish and Game and California State Parks, together with other departments and stakeholders, are working to outline strategies to best preserve California's natural landscapes and biodiversity and facilitate adaptation components in all State plans given changing climatic conditions. The Department of Fish and Game has assembled a climate change task force that will coordinate all climate adaptation efforts within the department. The Department of Fish and Game has initiated stakeholder outreach and hosted workshops to discuss potential climate impacts and adaptation strategies for each of the state's nine bioregions.

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A primary goal of climate analysis for habitat and biodiversity is the recent update the California Wildlife Action Plan Primary areas of focus include landscape level conservation efforts, aggressive measures to control invasive species, assurance of adequate water supply and quality and recommendations for future research within each bioregion Early strategies include improved monitoring of ecosystem health, identification of indicator species that could provide early warning of climate change impacts, and improved modeling that will serve to predict shifts in ecosystem function and composition following climate change

State Parks has also begun incorporating climate change considerations into all of its planning and operations In the face of potentially severe impacts from climate change that result in unavoidable species loss, the department has acknowledged that the previous approach of protecting individual species must be set aside in favor of a new paradigm based on protecting large reserves that represent California ecosystems. State Parks will focus on adding a number of large reserves that increase size and connectivity, which promotes the survival and adaptability of species within protected areas. State Parks will acquire those areas that have high numbers of endemic species, are evolutionary hotspots, or are highly diverse and heterogeneous in wildlife, vegetation, soil type, elevation, and other factors. By considering these important factors in the creation and expansion of reserves, State Parks will ensure the maximum ability for ecosystems to evolve and adapt to climate change while minimizing the risk and loss of functionality. With climate change as a priority concern, State Parks will continue to increase its understanding of wildfire impacts, beach and shoreline issues, and water management.

4.3.7 Public Health

A changing climate will undoubtedly affect public health across the state, requiring updates to existing emergency and preparedness response plans in order to minimize climate impacts as it relates to public health and safety. A major impact of a climate change will be an increased frequency, duration, and severity of heat events. The heat wave that occurred in California in July 2006 was the longest on record since 1948, and resulted in approximately 140 heat-related deaths. These occurrences are likely to increase with climate change and will disproportionately affect the elderly, infants, the infirmed, outdoor workers, and other vulnerable populations. Public health impacts from climate change also include increases in other extreme weather events such as droughts, flooding, increased particulate matter, frequent wildfires, increased allergens, spread of water- and vector-borne diseases, and the availability and quality of adequate food and water supplies These multiple impacts have the potential to increase

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morbidity and mortality, chronic diseases, communicable diseases, and psychological distress

Potential strategies for reducing risks and vulnerabilities from these impacts include providing better access to health care, expanding and building upon existing surveillance and modeling capabilities to better understand and track public health hazards, and updating emergency plans to better deal with extreme climate events

4.4 Cross-Sector Interactions

Climate change impacts, as well as adaptation strategies, may overlap between two or more sectors, requiring cross-sector coordination and collaboration in order to identify benefits for both sectors. It should also be noted that adaptation strategies proposed by one sector may also compete with, or complicate proposed actions of, another sector

In order to facilitate cross-sector communication, representatives from each working group of the Climate Adaptation Strategy reviewed the strategies of all other sectors and met to discuss implications on their strategies in preparation of the CAS.

In order to maximize the overall benefits to all sectors, it is essential that the adaptation analysis addresses any potential "unintended consequences" of individual department actions. As such, cross-sector collaboration should continue for long-term adaptation planning.

Here is an illustration showing connections between different sectors, as an example of the complications of linking different sectors

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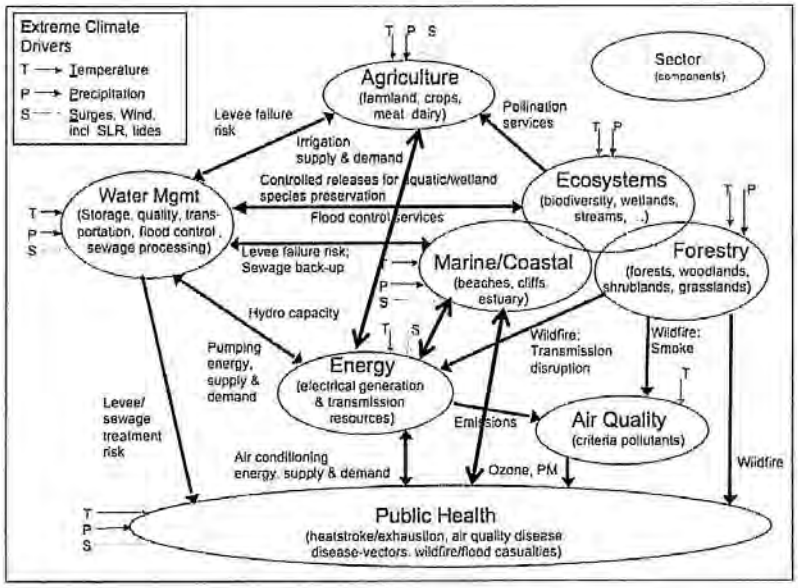
Figure 3: Cross Sector Adaptation Strategy Links



4.5 Early Actions - Climate Adaptation Efforts

Throughout the CAS development process, the Climate Adaptation Working Groups will continue to look for early action adaptation strategies that can be introduced in the short term, while long term strategies are investigated further. Examples of early actions include, but are not limited to the following:

- Executive Order (EO) S-13-08 requires the development of the first California Sea-Level Rise Assessment Report, to be completed no later than December 1, 2010. The result of this study will be used to develop coastal management planning guidance for sea-level rise through the state's coastal management agencies, offices, and commissions, thereby ensuring preservation of terrestrial and aquatic species in coastal areas.

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- The California Ocean Protection Council will coordinate with the Coastal States Organization to continue to ensure climate change adaptation is a priority for State and federal partners;
- The California Department of Fish and Game has identified climate change as a key threat in its core planning document, *the State Wildlife Action Plan*, and is actively working to determine the climate impacts faced by their managed lands and the species residing on those lands All of California's land management agencies will adjust plans and expenditures based on updated climate science;
- The Department of Water Resources has completed the 2008 State Water Plan Update that will guide water expenditures and planning for the next century and has climate change as a major planning priority

4.6 Climate Adaptation Tools for Stakeholders

Individuals, organizations, or State agencies interested in planning for future climate change impacts can access a number of tools and reports to help. The following organizations provide useful resources for stakeholders interested in learning more about adaptation planning.

ICLEI	http://www.iclei-usa.org/programs/climate/Climate_Adaptation
Pew Center for Climate Change: State Adaptation Plans	http://pewclimate.org/node/5860
Centers for Disease Control	http://www.cdc.gov/climatechange/
2007 IPCC Report on Impacts, Adaptation, and Vulnerability	http://www.ipcc.ch/ipccreports/ar4-wg2.htm
Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments	http://www.cses.washington.edu/db/pdf/snoveretalgb574.pdf
Adaptation Wizard – UK Climate Impacts Programme (UKCIP)	http://www.ukcip.org.uk/resources/tools/adapt.asp

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Row #	Scoping Plan Measure	Measure #	Page #	Responsible Agency (ies) (Lead in bold)	Timeline	Implementation Date	Million Tons of GHG Reductions in 2020	Type of Action (Regulation, Voluntary etc.)	Staff Contact
1	Pavley (AB 1493)	T-1	C-57	ARB	Sep-04 (Adopted)	2009-2016	27 7	Regulation	Paul Hughes
2	Ship Electrification at Ports (Discrete Early Action)	T-5	C-66	ARB	Dec-07 (Adopted)	2010	0 2	Regulation	Grant Chin
3	Port Drayage Trucks	T-6	C-68	ARB	Dec-07 (Adopted)	Beginning 2010	3 5*	Regulation	Mike Miguel
4	Limit High GWP Use in Consumer Products (Discrete Early Action) Pressurized Gas Duster GWP Limit of 150	H-4	C-179	ARB	Jun-08 (Adopted)	2010	0 23	Regulation	David Mallory
5	Heavy-Duty Vehicle GHG Emission Reduction (Aerodynamic Efficiency) (Discrete Early Action)	T-7	C-73	ARB	Dec-08 (ARB Approved)	Phased-In Schedule for large fleets: Beginning 2010; Final compliance 2013	0 93	Regulation	David Chen
6	Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing (Discrete Early Action)	H-1	C-175	ARB	Jan-09 (ARB Approved)	2010	0 26	Regulation	Tao Huai
7	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	H-2	C-176	ARB	Feb-09 (ARB Approved)	2010	0 10	Regulation	Elizabeth Scheehle
8	Reduction of Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)	H-3	C-177	ARB, Local Air Districts	Feb-09 (ARB Approved)	2012	0 18	Regulation	Dale Trenschel
9	Tire Pressure Program (Discrete Early Action)	T-4	C-63	ARB	Mar-09 (ARB Approved)	2010	0 55	Regulation	Mike Miguel
10	Low Carbon Fuel Standard (Discrete Early Action)	T-2	C-64	ARB	Apr-09 (ARB Approved)	2010	16	Regulation	John Courtis
11	Landfill Methane Control Measure (Discrete Early Action)	RW-1	C-160	ARB	June-09	2010	1	Regulation	Richard Boyd
12	Cool Car Standards and Test Procedures	T-4	C-63	ARB	June-09	2012	0 89	Regulation	Marijke Bekken
13	Stationary Equipment Refrigerant Management Program- Refrigerant Tracking/Reporting/ Repair/Deposit Program	H-6	C-183	ARB	Sept-09	2010	11	Regulation	Pamela Gupta

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Source: ARB

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14	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	C-150	ARB	Oct-09	2010	N/A	Regulation	Lisa Williams
15	Sulfur Hexafluoride (SF_6) Emission Reductions from the Electricity Sector and Particle Accelerators	H-6	C-166	ARB	Dec-09	2011	0 1	Regulation	Michelle Garcia
16	Mitigation Fee on High GWP Gases	H-7	C-169	ARB	May-10	2010	5	Regulation	Elizabeth Scheehle
17	Tire Tread Program	T-4	C-53	CEC	2009	2010	0 3	Regulation	Ray Tuvell
18	Oil and Gas Extraction GHG Emission Reduction	I-2	C-153	ARB, Local Air Districts	Mar-10	2015	0 2	Regulation	Joe Fischer
19	Transport Refrigeration Units Cold Storage Prohibition and Energy Efficiency	T-6	C-68	ARB	2010	TBD	3 5*	Regulation (cold storage) and Guidelines (energy efficiency)	TRU
20	Foam Recovery and Destruction Program	H-6	C-185	ARB	Dec-10	2011	0 3	Regulation	Glenn Gallagher
21	Cap-and-Trade		C-11	ARB	Nov-10	2012	34 4	Regulation	Lucille Van Ommering
22	Pavley II	T-1	C-56	ARB	2010	2017	4 1	Regulation	Paul Hughes
23	High GWP Reductions from Mobile Sources Low GWP Refrigerants for New Motor Vehicle Air Conditioning Systems	H-5	C-179	ARB	2010	2015	2 5	Regulation	Tao Huai
24	Refinery Flare Recovery System Improvement	I-4	C-155	ARB, Local Air Districts	Dec-10	2012	0 33	Regulation	Mike Waugh
25	Removal of Methane Exemption from Existing Refinery Regulations	I-5	C-156	ARB, Local Air Districts	Dec-10	2012	0 01	Regulation	Reza Lorestany
26	GHG Leak Reduction from Oil and Gas Transmission and Distribution	I-3	C-154	ARB, Local Air Districts	Dec-10	2015	0 9	Regulation	Win Setiawan
27	Alternative Suppressants in Fire Protection Systems	H-6	C-187	ARB, Cal Fire	Dec-11	2012	0 1	Regulation	Elizabeth Scheehle

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28	Stationary Equipment Refrigerant Management Program- Specifications for Commercial and Industrial Refrigeration	H-6	C-182	ARB and CEC	2011 (CEC)	2012	4	Regulation	Pamela Gupta
29	Low Friction Engine Oil	T-4	C-63	ARB	TBD	TBD	2 8	Regulation	Sharon Lemieux
30	Medium- and Heavy-Duty Vehicle Hybridization	T-6	C-73	ARB	TBD	TBD	0 5	Regulation	Stephan Lemieux
31	Reuse Urban Runoff	W-4	C-134	SWRCB	TBD	2020	0 2**	Regulation	Rob Duvall
32	Public Goods Charge for Water	W-6	C-136	DWR, ARB, CPUC, SWRCB	TBD	2012	TBD	Regulation	Rob Duvall
33	Water Recycling	W-2	C-133	SWRCB, DWR	TBD	2030	0 3**	Regulation	Rob Duvall
34	Feebates (in lieu of Pavley regs)	T-1	C-61	ARB	TBD	TBD	31 7	Regulation (if needed)	Matt Zaragoza
35	Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers	H-5	C-181	ARB	2010	2012	0 2	Regulation/ Program	Tao Huai
36	Solar Water Heating: AB 1470	CR-2	C-118	CPUC	2010	2020	0 1	Incentive	Nicolas Chaset
37	Million Solar Roofs: 3,000 MW by 2017	E-4	C-120	CPUC, CEC ARB	Current Program	Through 2016	2 1	Incentive	Nicolas Chaset
38	Residential Refrigeration Early Retirement Program	H-6	C-188	ARB	Dec-10	2011	0 1	Incentive Partnership w/ Utilities	Charles Seidler
39	Commercial Recycling	RW-3	C-161	CIWMB	2010	2020	5**	Mandate	Johnnie Raymond
40	High Speed Rail	T-9	C-85	HSRA	NA	2020	1	NA	Kris Deutschman
41	Green Buildings	GB-1	C-142	DGS, ARB, CEC, CPUC, HCD	Ongoing	TBD	26**	NA	Dana Papke Waters
42	Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems	H-5	C-182	ARB	2009	2010	0 1	Partnership	Tao Huai

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43	Air Conditioner Refrigerant Leak Test During Vehicle Smog Check	H-5	C-180	ARB, BAR	2010	2012	0 5	Partnership	Tao Huai
44	Water Use Efficiency	W-1	C-132	DWR, SWRCB, CEC, CPUC ARB	Spring 2009	2020	1 4**	Various	Rob Duvall
45	Renewables Portfolio Standards (33% by 2020 for IOUs & POUs)	E-3	C-126	CPUC, CEC ARB	2009	2020	21 3	Various	Paul Douglas
46	Increasing Combined Heat and Power Use by 30,000 GWh	E-2	C-122	CPUC, CEC ARB	2009	2020	6 7	Various	Gary Collord
47	Regional Transportation-Related Greenhouse Gas Targets	T-3	C-74	ARB, Local Governments, Regional Planning Agencies	Sep-10	Set targets by 2010 Local actions have begun already in some areas	5	Various	Doug Ito
48	Energy Efficiency Measures (Electricity)	E-1	C-99	CEC, CPUC ARB	Ongoing	Through 2020	15 2	Various	Bill Knox
49	Energy Efficiency (Natural Gas)	CR-1	C-99	CPUC, CEC ARB	Ongoing	Through 2020	4 3	Various	Bill Knox
50	Local Government Assistance	NA	C-49	ARB, CalTrans, CEC, CTC, HCD, OPR	Ongoing	NA	NA	Various	Webster Tasat
51	Sustainable Forest Target	F-1	C-166	Board of Forestry and Fire Protection	TBD	Through 2020	5	Various	Shelby Livingston
52	State Government	NA	C-25	Cal/EPA, ARB, DGS	TBD	Ongoing	1-2**	Various	DGS
53	N_2O collaborative research	NA	C-195	ARB, CEC CDFA	Feb-09	Sept 2012	NA	Voluntary	Shelby Livingston
54	Local Government Toolkit	NA	C-54	ARB	May-09	Ongoing	NA	Voluntary	Dana Papke Waters
55	Small Business Toolkit	NA	86	ARB	Apr-09 (update)	Ongoing	NA	Voluntary	Kyra Naumoff
56	Cargo Handling Equipment-Anti-Idling, Hybrid, Electrification	T-6	C-68	ARB	2010	2010-2011	3 5*	Voluntary	Cherie Rainforth

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57	Goods Movement System-Wide Efficiency Improvements	T-6	C-67	ARB	2009-2012	2012-2015	3 5*	Voluntary	Peggy Taricco
58	Methane Capture at Large Dairies	A-1	C-194	ARB	2014	2017-2020	1**	Voluntary	Kitty Howard
59	Increase Production and Markets for Compost (studies underway for data development)	RW-3	C-161	CIWMB	2009	Ongoing	2**	Voluntary	Johnnie Raymond
60	Greening New and Existing State Buildings	GB-1	C-142	DGS	Ongoing	TBD	TBD	Voluntary	Dana Papke Waters
61	Greening Public Schools	GB-1	C-143	DGS	Ongoing	TBD	TBD	Voluntary	Dana Papke Waters
62	Forest Conservation, Forest Management, Afforestation/Reforestation, Urban Forestry, and Fuels Management	NA	C-167	Cal Fire	Ongoing	2020	Potentially 2**	Voluntary	Shelby Livingston
63	Extended Producer Responsibility (EPR)	RW-3	C-162	CIWMB	Pending Legislation	2020	TBD**	Voluntary	Johnnie Raymond
64	Commercial Harbor Craft-Maintenance and Design Efficiency	T-6	C-68	ARB	2009-2010	2010-2011	3 5*	Voluntary	Kirk Rosenkranz
65	Increasing the Efficiency of Landfill Methane Capture	RW-2	C-160	CIWMB	June-09	2020	TBD**	Voluntary	Jacques Franco
66	Anaerobic Digestion	RW-3	C-162	CIWMB	TBD	2020	2**	Voluntary	Pat Paswater
67	Environmentally Preferable Purchasing (EPP)	RW-3	C-162	CIWMB, DGS	TBD	TBD	TBD**	Voluntary	Kathy Frevert
68	Water System Energy Efficiency	W-3	C-133	CEC, CPUC, DWR, SWRCB	TBD	2020	2**	Voluntary	Rob Duvall
69	Increase Renewable Energy Production (from Water sector)	W-5	C-135	CEC, CPUC	TBD	2020	0 9**	Voluntary	Rob Duvall
70	Clean Ships	T-6	C-68	ARB	TBD	TBD	3 5*	Voluntary/ Regulation	Peggy Taricco

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71	Vessel Speed Reduction	T-6	C-68	ARB	2009-2010	2010	3 5*	Voluntary/ Regulation	Michelle Komlenic
72	Greening New Residential and Commercial Construction	GB-1	C-145	CEC, CPUC Building Standards Commission	Ongoing	TBD	TBD	Voluntary/ Incentive	Dana Papke Waters
73	Greening Existing Homes and Commercial Buildings	GB-1	C-146	CEC, CPUC	Ongoing	TBD	TBD	Voluntary/Incentive	Dana Papke Waters

* All of the T-6 measures together add up to 3 5 MMTCO2e
** Not counted toward the 2020 total of 174 MMTCO2e
For General Questions Please Contact Rob Duvall at 916-324-5930

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EDMUND G. BROWN JR.
Attorney General

State of California
DEPARTMENT OF JUSTICE

The California Environmental Quality Act
Addressing Global Warming Impacts at the Local Agency Level

Under the California Environmental Quality Act (CEQA), local agencies have a very important role to play in California's fight against global warming – one of the most serious environmental effects facing the State today Where local agencies undertake projects directly, they can and should design sustainable projects from the start, incorporating global warming related considerations into their projects at the earliest stages Further, local agencies can encourage well-designed, sustainable private projects by analyzing and disclosing to the public the environmental benefits of such projects in any required environmental documents And where projects as proposed will have significant global warming related effects, local agencies can require feasible changes or alternatives, and impose enforceable, verifiable, feasible mitigation to substantially lessen those effects By the sum of their decisions, local agencies will help to move the State away from "business as usual" and toward a low-carbon future

This document provides information that may be helpful to local agencies in carrying out their duties under CEQA as they relate to global warming Included in this document are various measures that may reduce the global warming related impacts of a project As appropriate, the measures can be included as design features of a project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees) The measures set forth in this package are examples; the list is not intended to be exhaustive Moreover, the measures cited may not be appropriate for every project The decision of whether to approve a project – as proposed or with required changes or mitigation – is for the local agency, exercising its informed judgment in compliance with the law and balancing a variety of public objectives

The first section of this document lists examples of measures that could be applied to a diverse range of projects where the lead agency determines that the project under consideration will have significant global warming related effects In general, a given measure should not be considered in isolation, but as part of a larger set of measures that, working together, will reduce greenhouse gas emissions and the effects of global warming

The second section of this document lists examples of potential greenhouse gas reduction measures in the general plan context. This section is included both to suggest how the measures set forth in the first section could be incorporated into a general plan, as well as to identify measures that are general plan specific. The measures in the second section may also be appropriate for inclusion in larger scale plans, including regional plans (*e g* , blueprint plans) and in specific plans Including these types of measures at the larger planning level, as appropriate, will help to ensure more sustainable project-specific development

The third section provides links to sources of information on global warming impacts and emission reduction measures. The list is not complete, but may be a helpful start for local agencies seeking more information to carry out their CEQA obligations as they relate to global warming.

The endnotes set forth just some of the many examples of exemplary emission reduction measures already being implemented by local governments and agencies, utilities, private industry, and others As these examples evidence, California at every level of government is taking up the challenge, devising new and innovative solutions, and leading the charge in the fight against global warming

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(1) **Generally Applicable Measures**

Energy Efficiency[1]

- Design buildings to be energy efficient [2]
- Install efficient lighting and lighting control systems. Site and design building to take advantage of daylight.
- Use trees, landscaping and sun screens on west and south exterior building walls to reduce energy use.
- Install light colored "cool" roofs and cool pavements.[3]
- Provide information on energy management services for large energy users.[4]
- Install energy efficient heating and cooling systems, appliances and equipment, and control systems.[5]
- Install light emitting diodes (LEDs) for traffic, street and other outdoor lighting.[6]
- Limit the hours of operation of outdoor lighting.
- Use solar heating, automatic covers, and efficient pumps and motors for pools and spas.[7]
- Provide education on energy efficiency.[8]

Renewable Energy

- Install solar, wind, and geothermal power systems and solar hot water heaters. Educate consumers about existing incentives.[9]
- Install solar panels on carports and over parking areas.[10]
- Use on-site generated biogas, including methane, in appropriate applications.***
- Use combined heat and power in appropriate applications.[11]

Water Conservation and Efficiency[12]

- Create water-efficient landscapes.[13]
- Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.
- Use reclaimed water for landscape irrigation in new developments and on public property. Install the infrastructure to deliver and use reclaimed water.
- Design buildings to be water-efficient. Install water-efficient fixtures and appliances.
- Use graywater. (Graywater is untreated household waste water from bathtubs, showers, bathroom wash basins, and water from clothes washing machines.) For example, install dual plumbing in all new development allowing graywater to be used for landscape irrigation.[14]
- Restrict watering methods (*e.g.*, prohibit systems that apply water to non-vegetated surfaces) and control runoff.
- Restrict the use of water for cleaning outdoor surfaces and vehicles.

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- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment (Retaining storm water runoff on-site can drastically reduce the need for energy-intensive imported water at the site.)[15]
- Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include many of the specific items listed above, plus other innovative measures that are appropriate to the specific project.
- Provide education about water conservation and available programs and incentives.[16]

Solid Waste Measures

- Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
- Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.
- Recover by-product methane to generate electricity.[17]
- Provide education and publicity about reducing waste and available recycling services.[18]

Land Use Measures

- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods.[19]
- Educate the public about the benefits of well-designed, higher density development.[20]
- Incorporate public transit into project design.
- Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio.
- Develop "brownfields" and other underused or defunct properties near existing public transportation and jobs.
- Include pedestrian and bicycle-only streets and plazas within developments. Create travel routes that ensure that destinations may be reached conveniently by public transportation, bicycling or walking.[21]

Transportation and Motor Vehicles

- Limit idling time for commercial vehicles, including delivery and construction vehicles.
- Use low or zero-emission vehicles, including construction vehicles.
- Promote ride sharing programs *e.g.*, by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles, and providing a web site or message board for coordinating rides.
- Create car sharing programs. Accommodations for such programs include providing parking spaces for the car share vehicles at convenient locations accessible by public transportation.[22]
- Create local "light vehicle" networks, such as neighborhood electric vehicle (NEV) systems.[23]

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- Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (*e g* , electric vehicle charging facilities and conveniently located alternative fueling stations)
- Increase the cost of driving and parking private vehicles by, *e g* , imposing tolls and parking fees
- Institute a low-carbon fuel vehicle incentive program [24]
- Build or fund a transportation center where various public transportation modes intersect
- Provide shuttle service to public transit
- Provide public transit incentives such as free or low-cost monthly transit passes
- Promote "least polluting" ways to connect people and goods to their destinations [25]
- Incorporate bicycle lanes and routes into street systems, new subdivisions, and large developments
- Incorporate bicycle-friendly intersections into street design
- For commercial projects, provide adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience. For large employers, provide facilities that encourage bicycle commuting, including, *e g* , locked bicycle storage or covered or indoor bicycle parking
- Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.[26]
- Work with the school district to restore or expand school bus services.
- Institute a telecommute and/or flexible work hours program [27]. Provide information, training, and incentives to encourage participation. Provide incentives for equipment purchases to allow high-quality teleconferences
- Provide information on all options for individuals and businesses to reduce transportation-related emissions. Provide education and information about public transportation.

Off-Site Mitigation

If, after analyzing and requiring all reasonable and feasible on-site mitigation measures for avoiding or reducing greenhouse gas-related impacts, the lead agency determines that additional mitigation is required, the agency may consider additional off-site mitigation. The project proponent could, for example, fund off-site mitigation projects (*e g* , alternative energy projects, or energy or water audits for existing projects) that will reduce carbon emissions, conduct an audit of its other existing operations and agree to retrofit, or purchase carbon "credits" from another entity that will undertake mitigation.

The topic of offsets can be complicated, and a full discussion is outside the scope of this summary document. Issues that the lead agency should consider include:

- The location of the off-site mitigation. (If the off-site mitigation is far from the project, any additional, non-climate related benefits of the mitigation will be lost to the local community.)
- Whether the emissions reductions from off-site mitigation can be quantified and verified.
- Whether the mitigation ratio should be greater than 1:1 to reflect any uncertainty about the effectiveness of the offset.

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(2) **General Plan Measures**[28]

Global warming measures may be reflected in a general plan as goals, policies, or programs; in land use designations; or as additional mitigation measures identified during the CEQA review process. Many of the measures listed above may be appropriate for inclusion in a general plan. In addition, a non-exhaustive list of measures specific to the general plan context follows. The examples are listed under required general plan elements. A given example may, however, be appropriate for inclusion in more than one element, or in a different element than listed. Global warming measures may, alternatively, be included in an optional Climate Change or Energy element.

Conservation Element[29]

- Climate Action Plan or Policy: Include a comprehensive climate change action plan that includes: a baseline inventory of greenhouse gas emissions from all sources; greenhouse gas emissions reduction targets and deadlines; and enforceable greenhouse gas emissions reduction measures.[30] (Note: If the Climate Action Plan complies with the requirements of Section 15064(h)(3) of the CEQA Guidelines, it may allow for the streamlining of individual projects that comply with the plan's requirements.)
- Climate Action Plan Implementation Program: Include mechanisms to ensure regular review of progress toward the emission reduction targets established by the Climate Action Plan, report progress to the public and responsible officials, and revise the plan as appropriate, using principles of adaptive management. Allocate funding to implement the plan. Fund staff to oversee implementation of the plan.
- Strengthen local building codes for new construction and renovation to require a higher level of energy efficiency.[31]
- Require that all new government buildings, and all major renovations and additions, meet identified green building standards.[32]
- Ensure availability of funds to support enforcement of code and permitting requirements.
- Adopt a "Green Building Program" to require or encourage green building practices and materials.[33] The program could be implemented through, *e.g.*, a set of green building ordinances.
- Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, and promote effective use of daylight. Building orientation, wiring, and plumbing should optimize and facilitate opportunities for on-site solar generation and heating.
- Provide permitting-related and other incentives for energy efficient building projects, *e.g.*, by giving green projects priority in plan review, processing and field inspection services.[34]
- Conduct energy efficiency audits of existing buildings by checking, repairing, and readjusting heating, ventilation, air conditioning, lighting, water heating equipment, insulation and weatherization.[35] Offer financial incentives for adoption of identified efficiency measures.[36]
- Partner with community services agencies to fund energy efficiency projects, including heating, ventilation, air conditioning, lighting, water heating equipment, insulation and weatherization, for low income residents.
- Target local funds, including redevelopment and Community Development Block Grant

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resources, to assist affordable housing developers in incorporating energy efficient designs and features

- Provide innovative, low-interest financing for energy efficiency and alternative energy projects For example, allow property owners to pay for energy efficiency improvements and solar system installation through long-term assessments on individual property tax bills [37]
- Fund incentives to encourage the use of energy efficient vehicles, equipment and lighting [38] Provide financial incentives for adoption of identified efficiency measures.
- Require environmentally responsible government purchasing [39] Require or give preference to products that reduce or eliminate indirect greenhouse gas emissions, *e g* , by giving preference to recycled products over those made from virgin materials [40]
- Require that government contractors take action to minimize greenhouse gas emissions, *e g* , by using low or zero-emission vehicles and equipment.
- Adopt a "heat island" mitigation plan that requires cool roofs, cool pavements, and strategically placed shade trees [41] (Darker colored roofs, pavement, and lack of trees may cause temperatures in urban environments to increase by as much as 6-8 degrees Fahrenheit as compared to surrounding areas [42]) Adopt a program of building permit enforcement for re-roofing to ensure compliance with existing state building requirements for cool roofs on non-residential buildings.
- Adopt a comprehensive water conservation strategy. The strategy may include, but not be limited to, imposing restrictions on the time of watering, requiring water-efficient irrigation equipment, and requiring new construction to offset demand so that there is no net increase in water use [43] Include enforcement strategies, such as citations for wasting water [44]
- Adopt water conservation pricing, *e g* , tiered rate structures, to encourage efficient water use [45]
- Adopt fees structures that reflect higher costs of services for outlying areas [46]
- Adopt water-efficient landscape ordinances [47]
- Strengthen local building codes for new construction and implement a program to renovate existing buildings to require a higher level of water efficiency.
- Adopt ordinances requiring energy and water efficiency upgrades as a condition of issuing permits for renovations or additions, and on the sale of residences and buildings [48]
- Provide individualized water audits to identify conservation opportunities [49] Provide financial incentives for adopting identified efficiency measures.
- Provide water audits for large landscape accounts. Provide financial incentives for efficient irrigation controls and other efficiency measures.
- Require water efficiency training and certification for irrigation designers and installers, and property managers [50]
- Implement or expand city or county-wide recycling and composting programs for residents and businesses. Require commercial and industrial recycling.
- Extend the types of recycling services offered (*e g* , to include food and green waste recycling).
- Establish methane recovery in local landfills and wastewater treatment plants to generate

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electricity [51]

- Implement Community Choice Aggregation (CCA) for renewable electricity generation. (CCA allows cities and counties, or groups of them, to aggregate the electric loads of customers within their jurisdictions for purposes of procuring electrical services. CCA allows the community to choose what resources will serve their loads and can significantly increase renewable energy.)[52]
- Preserve existing conservation areas (*e.g.*, forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, and groundwater recharge areas) that provide carbon sequestration benefits.
- Establish a mitigation program for development of conservation areas. Impose mitigation fees on development of such lands and use funds generated to protect existing, or create replacement, conservation areas.
- Provide public education and information about options for reducing greenhouse gas emissions through responsible purchasing, conservation, and recycling.

Land Use Element[53]

- Adopt land use designations to carry out policies designed to reduce greenhouse gas emissions, *e.g.*, policies to minimize or reduce vehicle miles traveled, expand development near existing public transportation corridors, encourage alternative modes of transportation, and increase infill, mixed use, and higher density development.
- Identify and facilitate the development of land uses not already present in local districts – such as supermarkets, parks and recreation fields, and schools in neighborhoods; or residential uses in business districts – to reduce vehicle miles traveled and allow bicycling and walking to these destinations.
- Create neighborhood commercial districts.
- Require bike lanes and bicycle/pedestrian paths.
- Prohibit projects that impede bicycle and walking access, *e.g.*, large parking areas that cannot be crossed by non-motorized vehicles, and new residential communities that block through access on existing or potential bicycle and pedestrian routes.
- Site schools to increase the potential for students to walk and bike to school.[54]
- Enact policies to limit or discourage low density development that segregates employment, services, and residential areas.[55]
- Where there are growth boundaries, adopt policies providing certainty for infill development.[56]
- Require best management practices in agriculture and animal operations to reduce emissions, conserve energy and water, and utilize alternative energy sources, including biogas, wind and solar.

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Circulation Element[57]

- In conjunction with measures that encourage public transit, ride sharing, bicycling and walking, implement circulation improvements that reduce vehicle idling. For example, coordinate controlled intersections so that traffic passes more efficiently through congested areas [58]
- Create an interconnected transportation system that allows a shift in travel from private passenger vehicles to alternative modes, including public transit, ride sharing, car sharing, bicycling and walking. Before funding transportation improvements that increase vehicle miles traveled, consider alternatives such as increasing public transit or improving bicycle or pedestrian travel routes
- Give funding preference to investment in public transit over investment in infrastructure for private automobile traffic [59]
- Include safe and convenient bicycle and pedestrian access in all transportation improvement projects
- Ensure that non-motorized transportation systems are complete, connected and not interrupted by impassable barriers, such as freeways [60]
- Require amenities for non-motorized transportation, such as secure and convenient bicycle parking [61]
- Provide adequate and affordable public transportation choices including expanded bus routes and service and other transit choices such as shuttles, light rail, and rail where feasible
- Assess transportation impact fees on new development in order to maintain and increase public transit service [62]
- Provide public transit incentives, including free and reduced fare areas [63]
- Adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation [64] For example, reduce parking for private vehicles while increasing options for alternative transportation; eliminate minimum parking requirements for new buildings; "unbundle" parking (require that parking is paid for separately and is not included in rent for residential or commercial space); and set appropriate pricing for parking
- Develop school transit plans to substantially reduce automobile trips to, and congestion surrounding, schools. (According to some estimates, parents driving their children to school account for 20-25% of the morning commute) Plans may address, *e.g.*, necessary infrastructure improvements and potential funding sources; replacing older diesel buses with low or zero-emission vehicles; mitigation fees to expand school bus service; and Safe Routes to School programs[65] and other formal efforts to increase walking and biking by students.
- Create financing programs for the purchase or lease of vehicles used in employer ride sharing programs
- Enter into partnerships to create and expand polluting vehicle buy-back programs to include vehicles with high greenhouse gas emissions
- Provide public education and information about options for reducing motor vehicle-related greenhouse gas emissions Include information on trip reduction; trip linking; public transit;

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biking and walking; vehicle performance and efficiency (*e g* , keeping tires inflated); low or zero-emission vehicles; and car and ride sharing

Housing Element[66]

- Improve the jobs-housing balance and promote a range of affordable housing choices near jobs, services and transit
- Concentrate mixed use, and medium to higher density residential development in areas near jobs, transit routes, schools, shopping areas and recreation
- Increase density in single family residential areas located near transit routes or commercial areas For example, promote duplexes in residential areas and increased height limits of multi-unit buildings on main arterial streets, under specified conditions
- Encourage transit-oriented developments.[67]
- Impose minimum residential densities in areas designated for transit-oriented, mixed use development to ensure higher density in these areas
- Designate mixed use areas where housing is one of the required uses
- In areas designated for mixed use, adopt incentives for the concurrent development of different land uses (*e.g.*, retail with residential)
- Promote infill, mixed use, and higher density development by, for example, reducing developer fees;[68] providing fast-track permit processing; reducing processing fees; funding infrastructure loans; and giving preference for infrastructure improvements in these areas

Open Space Element[69]

- Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas and other open space that provide carbon sequestration benefits.
- Establish a mitigation program for development of those types of open space that provide carbon sequestration benefits Require like-kind replacement for, or impose mitigation fees on development of such lands Use funds generated to protect existing, or create replacement, open space.
- Allow alternative energy projects in areas zoned for open space where consistent with other uses and values
- Protect existing trees and encourage the planting of new trees. Adopt a tree protection and replacement ordinance, *e g* , requiring that trees larger than a specified diameter that are removed to accommodate development must be replaced at a set ratio.
- Connect parks and publicly accessible open space through shared pedestrian/bike paths and trails to encourage walking and bicycling.

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Safety Element[70]

- Address expected effects of climate change that may impact public safety, including increased risk of wildfires, flooding and sea level rise, salt water intrusion; and health effects of increased heat and ozone, through appropriate policies and programs.
- Adopt programs for the purchase, transfer or extinguishment of development rights in high risk areas.
- Monitor the impacts of climate change. Use adaptive management to develop new strategies, and modify existing strategies, to respond to the impacts of climate change.

Energy Element

Many of the goals, policies, or programs set forth above may be contained in an optional energy element. The resources set forth below may be useful to local agencies in developing an energy element or an energy conservation plan.

- The California Public Utilities Commission issued a report entitled California Long Term Energy Efficiency Strategic Plan in September 2008. The report serves as a road map for achieving maximum energy savings across all major groups and sectors in California. Section 12 of the report focuses on the role of local governments as leaders in using energy efficiency to reduce energy use and greenhouse gas emissions. The section includes numerous specific suggestions for local government policies designed to reduce energy use. The report is available at http://www.californiaenergyefficiency.com/index.shtml.
- The Local Government Commission produced a detailed report in 2002 entitled General Plan Policy Options for Energy Efficiency in New and Existing Development. The document sets forth energy saving policies suitable for inclusion in general plans. Policies range from exceeding State minimum building efficiency standards, to retrofitting buildings to reduce energy consumption, to implementing energy conservation strategies for roofs, pavement and landscaping. The report also contains suggested general plan language. The report is available here: http://www.redwoodenergy.org/uploads/Energy_Element_Report.pdf.
- The California Energy Commission summarizes the energy-related efforts of Humboldt County, City of Pleasanton, City of Pasadena, City and County of San Francisco, the Los Angeles area, City of Chula Vista, the San Diego region, City of San Diego, City and County of San Luis Obispo, and City of Santa Monica, in the 2006 Integrated Energy Policy Report at pp. 82-87, available here: http://www.energy.ca.gov/2006publications/CEC-100-2006-001/CEC-100-2006-001-CMF.PDF.
- In 2006, the Association of Monterey Bay Area Governments published a regional energy plan, available here: http://www.ambag.org/programs/EnergyWatch/regional_plan.html. Part 1 describes the plan's goals and course of action. Part 2 describes actions that local agencies already have taken and identifies the most cost-effective measures in each sector. The appendices list existing energy programs that may provide support and funding for energy efficiency projects, suggest language for energy-related provisions to be included in general plans, and list and give brief explanations of more than one hundred energy-saving measures.
- The California Local Energy Efficiency Program (CALeep) has available on its website, http://www.caleep.com/default.htm, various resources and documents, including an energy

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"Workbook." The Workbook lays out a process for instituting local energy efficiency programs based in part on information developed in six California pilot projects (Inland Empire Utilities Agency, City of Oakland, San Joaquin Valley, Sonoma County, South Bay Cities Council of Governments, and Ventura County Regional Energy Alliance). The Workbook is designed to be used by local officials to initiate, plan, organize, implement, and assess energy efficiency activities at the local and regional level.

(3) **Resources About Global Warming and Local Action**

The following web sites and organizations provide general information about mitigating global warming impacts at the local level. These sites represent only a small fraction of the available resources. Local agencies are encouraged to conduct their own research in order to obtain the most current and relevant materials.

- The U.S. Conference of Mayors' Climate Protection Agreement contains valuable information for the many local agencies that are joining the fight against global warming. The Agreement is available here: http://www.coolcities.us/resources/bestPracticeGuides/USM_ClimateActionHB.pdf. Over one hundred and twenty California cities have joined the "Cool Cities" campaign, which means they have signed the U.S. Mayor's Climate Protection Agreement and are taking concrete steps toward addressing global warming. These steps include preparing a city-wide greenhouse gas emissions inventory and creating and implementing a local Climate Action Plan. Additional resources, including various cities' Climate Action Plans, are located at the Cool Cities website: http://www.coolcities.us/resources.php.
- In July 2007, Alameda County became one of twelve charter members of the "Cool Counties" initiative. Participating counties sign a Climate Stabilization Declaration, which is available at the website for King County (Washington State): http://www.metrokc.gov/exec/news/2007/0716dec.aspx. Participating counties agree to work with local, state, and federal governments and other leaders to reduce county geographical greenhouse gas emissions to 80% below current levels by 2050 by developing a greenhouse gas emissions inventory and regional reduction plan. Current member counties are recruiting new members and are committed to sharing information. Cool Counties contact information is available at: http://www.kingcounty.gov/exec/coolcounties.
- Local Governments for Sustainability, a program of International Cities for Local Environmental Initiatives (ICLEI), has initiated a campaign called Cities for Climate Protection (CCP). The membership program is designed to empower local governments worldwide to take action on climate change. Many California cities have joined ICLEI. More information is available at the organization's website: http://www.iclei.org/.
- The Institute for Local Government (ILG), an affiliate of the California State Association of Counties and the League of California Cities, has instituted a program called the California Climate Action Network (CaliforniaCAN!). The program provides information about the latest climate action resources and case studies. More information is available at the CaliforniaCAN! website: http://www.cacities.org/index.jsp?displaytype=&section=climate&zone=ilsg.

  ILG's detailed list of climate change "best practices" for local agencies is available at http://www.cacities.org/index.jsp?displaytype=&section=climate&zone=ilsg&sub_sec=climate_local

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ILG maintains a list of local agencies that have adopted Climate Action Plans. The list is available here: http://www.cacities.org/index.jsp?zone=ilsg&previewStory=27035. According to ILG, the list includes Marin County and the cities of Arcata, Berkeley, Los Angeles, Palo Alto, San Diego, and San Francisco. Many additional local governments are in the process of conducting greenhouse gas inventories.

- The non-profit group Natural Capitalism Solutions (NCS) has developed an on-line Climate Protection Manual for Cities. NCS states that its mission is "to educate senior decision-makers in business, government and civil society about the principles of sustainability." The manual is available at http://www.climatemanual.org/Cities/index.htm.
- The Local Government Commission provides many planning-related resources for local agencies at its website: http://www.lgc.org/.

  In cooperation with U.S. EPA, LGC has produced a booklet discussing the benefits of density and providing case studies of well-designed, higher density projects throughout the nation. Creating Great Neighborhoods: Density in Your Community (2003) is available here: http://www.lgc.org/freepub/PDF/Land_Use/reports/density_manual.pdf.
- The Pew Center on Global Climate Change was established in 1998 as a non-profit, non-partisan and independent organization. The Center's mission is to provide credible information, straight answers, and innovative solutions in the effort to address global climate change. See http://www.pewclimate.org. The Pew Center has published a series of reports called Climate Change 101. These reports provide a reliable and understandable introduction to climate change. They cover climate science and impacts, technological solutions, business solutions, international action, recent action in the U.S. states, and action taken by local governments. The Climate Change 101 reports are available at http://www.pewclimate.org/global-warming-basics/climate_change_101.
- The Climate Group, www.theclimategroup.org, is a non-profit organization founded by a group of companies, governments and activists to "accelerate international action on global warming with a new, strong focus on practical solutions." Its website contains a searchable database of about fifty case studies of actions that private companies, local and state governments, and the United Kingdom, have taken to reduce GHG emissions. Case studies include examples from California. The database, which can be searched by topic, is available at http://theclimategroup.org/index.php/reducing_emissions/case_studies.
- The Bay Area Climate Solutions Database features over 130 climate-related projects, programs and policies in the San Francisco Bay Area that are being undertaken by businesses, public agencies, non-government organizations, and concerned individuals. The database is available at http://www.bayareaclimate.org/services.html.
- U.S. EPA maintains a list of examples of codes that support "smart growth" development, available here: http://www.epa.gov/piedpage/codeexamples.htm. Examples include transit-oriented development in Pleasant Hill and Palo Alto, rowhouse design guidelines from Mountain View, and street design standards from San Diego.
- In November 2007, U.S. EPA issued a report entitled "Measuring the Air Quality and Transportation Impacts of Infill Development." This report summarizes three regional infill development scenarios in Denver, Colorado; Boston, Massachusetts; and Charlotte, North

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Carolina The analysis shows how standard transportation forecasting models currently used by metropolitan planning organizations can be modified to capture at least some of the transportation and air quality benefits of brownfield and infill development. In all scenarios, more compact and transit oriented development was projected to substantially reduce vehicle miles traveled. As the agency found, "The results of this analysis suggest that strong support for infill development can be one of the most effective transportation and emission-reduction investments a region can pursue." The report is available at http://www.epa.gov/smartgrowth/impacts_infill.htm

- The Urban Land Institute (ULI) is a nonprofit research and education organization providing leadership in responsible land use and sustainability. In 2007, ULI produced a report entitled, "Growing Cooler: The Evidence on Urban Development and Climate Change," which reviews existing research on the relationship between urban development, travel, and greenhouse gases emitted by motor vehicles. It further discusses the emissions reductions that can be expected from compact development and how to make compact development happen. "Growing Cooler" is available at http://www.smartgrowthamerica.org/gcindex.html

- The California Department of Housing and Community Development, http://www.hcd.ca.gov/, has many useful resources on its website related to housing policy and housing elements and specific recommendations for creating higher density and affordable communities. See http://www.hcd.ca.gov/hpd/hrc/plan/he/

- The California Transportation Commission (CTC) recently made recommendations for changes to regional transportation guidelines to address climate change issues. Among other things, the CTC recommends various policies, strategies and performance standards that a regional transportation agency should consider including in a greenhouse reduction plan. These or analogous measures could be included in other types of planning documents or local climate action plans. The recommendation document, and Attachment A, entitled Smart Growth/Land Use Regional Transportation Plan Guidelines Amendments, are located at http://www.dot.ca.gov/hq/transprog/ctcbooks/2008/0108/12_4.4.pdf

- The California Energy Commission's Research Development and Demonstration (RD&D) Division supports energy research, development and demonstration projects designed to bring environmentally safe, affordable and reliable energy services and products to the marketplace. On its website, http://www.energy.ca.gov/research/reports_pubs.html, RD&D makes available a number of reports and papers related to energy efficiency, alternative energy, and climate change.

- The Governor's Office of Planning and Research (OPR) provides valuable resources for lead agencies related to CEQA and global warming at http://opr.ca.gov/index.php?a=ceqa/index.html Among the materials available are a list of environmental documents addressing climate change and greenhouse gas emissions and a list of local plans and policies addressing climate change. In addition, OPRs' The California Planners' Book of Lists 2008, which includes the results of surveys of local agencies on matters related to global warming, is available at http://www.opr.ca.gov/index.php?a=planning/publications.html#pubs-C

- The California Air Pollution Control Officers Association has prepared a white paper entitled "CEQA and Climate Change" (January 2008). The document includes a list of mitigation measures and information about their relative efficacy and cost. The document is available at

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http://www.capcoa.org/ceqa/?docID=ceqa

- The Attorney General's global warming website includes a section on CEQA. See http://ag.ca.gov/globalwarming/ceqa.php. The site includes all of the Attorney General's public comment letters that address CEQA and global warming.

(4) **Endnotes**

1 Energy efficiency leads the mitigation list because it promises significant greenhouse gas reductions through measures that are cost-effective for the individual residential and commercial energy consumer.

2 Leadership in Energy and Environmental Design (LEED) administers a Green Building Ratings program that provides benchmarks for the design, construction, and operation of high-performance green buildings. More information about the LEED ratings system is available at http://www.usgbc.org/DisplayPage.aspx?CategoryID=19. Build it Green is a non-profit, membership organization that promotes green building practices in California. The organization offers a point-based, green building rating system for various types of projects. See http://www.builditgreen.org/guidelines-rating-systems. Lawrence Berkeley National Laboratories' Building Technologies Department is working to develop coherent and innovative building construction and design techniques. Information and publications on energy efficient buildings are available at the Department's website at http://btech.lbl.gov. The California Department of Housing and Community Development has created an extensive Green Building & Sustainability Resources handbook with links to green building resources, available at http://www.hcd.ca.gov/hpd/green_build.pdf.

3 For more information, see Lawrence Berkeley National Laboratories, Heat Island Group at http://eetd.lbl.gov/HeatIsland/.

4 See California Energy Commission, "How to Hire an Energy Services Company" (2000) at http://www.energy.ca.gov/reports/efficiency_handbooks/400-00-001D.PDF.

5 Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy that certifies energy efficient products and provides guidelines for energy efficient practices for homes and businesses. More information about Energy Star-certified products is available at http://www.energystar.gov/. The Electronic Product Environmental Assessment Tool (EPEAT) is a system that ranks computer products based on their conformance to a set of environmental criteria, including energy efficiency. More information about EPEAT is available at http://www.epeat.net/AboutEPEAT.aspx.

6 LED lighting is substantially more energy efficient than conventional lighting and can save money. See http://www.energy.ca.gov/efficiency/partnership/case_studies/TechAsstCity.pdf (noting that installing LED traffic signals saved the City of Westlake about $34,000 per year). As of 2005, only about a quarter of California's cities and counties were using 100% LEDs in traffic signals. See California Energy Commission (CEC), Light Emitting Diode Traffic Signal Survey (2005) at p. 15, available at http://www.energy.ca.gov/2005publications/CEC-400-2005-003/CEC-400-2005-003.PDF. The CEC's Energy Partnership Program can help local governments take advantage of energy saving technology, including, but not limited to, LED traffic signals. See http://www.energy.ca.gov/efficiency/partnership/.

7 See Palm Desert Energy Partnership at http://www.sce.com/rebatesandsavings/palmdesert. The City, in partnership with Southern California Edison, provides incentives and rebates for efficient equipment.

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See Southern California Edison, Pool Pump and Motor Replacement Rebate Program at http://www.sce.com/RebatesandSavings/Residential/pool/pump-motor

8 Many cities and counties provide energy efficiency education. See, for example, the City of Stockton's Energy Efficiency website at http://www.stocktongov.com/energysaving/index.cfm. See also "Green County San Bernardino," http://www.greencountysb.com/ at pp. 4-6. Private projects may also provide education. For example, a homeowners' association could provide information and energy audits to its members on a regular basis.

9 See http://www.gosolarcalifornia.ca.gov/documents/CEC-300-2007-008-CMF.PDF. At the direction of Governor Schwarzenegger, the California Public Utilities Commission (CPUC) approved the California Solar Initiative on January 12, 2006. The initiative creates a $3.3 billion, ten-year program to install solar panels on one million roofs in the State. See http://www.gosolarcalifornia.ca.gov/nshp/index.html.

10 For example, Alameda County has installed two solar tracking carports, each generating 250 kilowatts. By 2005, the County had installed eight photovoltaic systems totaling over 2.3 megawatts. The County is able to meet 6 percent of its electricity needs through solar power. See http://www.acgov.org/gsa/Alameda%20County%20-%20Solar%20Case%20Study.pdf.

11 Many commercial, industrial, and campus-type facilities (such as hospitals, universities and prisons) use fuel to produce steam and heat for their own operations and processes. Unless captured, much of this heat is wasted. Combined heat and power (CHP) captures waste heat and re-uses it, *e.g.*, for residential or commercial space heating or to generate electricity. See U.S. EPA, Catalog of CHP Technologies at http://www.epa.gov/chp/documents/catalog_of_%20chp_tech_entire.pdf. The average efficiency of fossil-fueled power plants in the United States is 33 percent. By using waste heat recovery technology, CHP systems typically achieve total system efficiencies of 60 to 80 percent. CHP can also substantially reduce emissions of carbon dioxide. http://www.epa.gov/chp/basic/efficiency.html. Currently, CHP in California has a capacity of over 9 million kilowatts. See list of California CHP facilities at http://www.eea-inc.com/chpdata/States/CA.html.

12. The California Energy Commission has found that the State's water-related energy use – which includes the conveyance, storage, treatment, distribution, wastewater collection, treatment, and discharge – consumes about 19 percent of the State's electricity, 30 percent of its natural gas, and 88 billion gallons of diesel fuel every year. See http://www.energy.ca.gov/2007publications/CEC-999-2007-008/CEC-999-2007-008.PDF. Accordingly, reducing water use and improving water efficiency can help reduce energy use and associated greenhouse gas emissions.

13. The Water Conservation in Landscaping Act of 2006 (AB 1881) requires the Department of Water Resources (DWR), not later than January 1, 2009, to update the Model Water Efficient Landscape Ordinance. The draft of the entire updated Model Water Efficient Landscape Ordinance will be made available to the public. See http://www.owue.water.ca.gov/landscape/ord/updatedOrd.cfm.

14. See Graywater Guide, Department of Water Resources, Office of Water Use Efficiency and Transfers at http://www.owue.water.ca.gov/docs/graywater_guide_book.pdf. See also The Ahwahnee Water Principles, Principle 6, at http://www.lgc.org/ahwahnee/h2o_principles.html. The Ahwahnee Water Principles have been adopted by City of Willits, Town of Windsor, Menlo Park, Morgan Hill, Palo Alto,

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Petaluma, Port Hueneme, Richmond, Rohnert Park, Rolling Hills Estates, San Luis Obispo, Santa Paula, Santa Rosa, City of Sunnyvale, City of Ukiah, Ventura, Marin County, Marin Municipal Water District, and Ventura County.

15 See Office of Environmental Health Hazard Assessment and the California Water and Land Use Partnership, Low Impact Development, at http://www.coastal.ca.gov/nps/lid-factsheet.pdf.

16 See, for example, the City of Santa Cruz, Water Conservation Office at http://www.ci.santa-cruz.ca.us/wt/conservation; Santa Clara Valley Water District, Water Conservation at http://www.valleywater.org/conservation/index.shtm; and Metropolitan Water District and the Family of Southern California Water Agencies, Be Water Wise at http://www.bewaterwise.com. Private projects may provide or fund similar education.

17 See Public Interest Energy Research Program, Dairy Power Production Program, Dairy Methane Digester System, 90-Day Evaluation Report, Eden Vale Dairy (Dec. 2006) at http://www.energy.ca.gov/2006publications/CEC-500-2006-083/CEC-500-2006-083.PDF. See also discussion in the general plan section, below, relating to wastewater treatment plants and landfills.

18 Many cities and counties provide information on waste reduction and recycling. See, for example, the Butte County Guide to Recycling at http://www.recyclebutte.net. The California Integrated Waste Management Board's website contains numerous publications on recycling and waste reduction that may be helpful in devising an education project. See http://www.ciwmb.ca.gov/Publications/default.asp?cat=13. Private projects may also provide education directly, or fund education.

19. See U.S. EPA, Our Built and Natural Environments, A Technical Review of the Interactions between Land Use, Transportation, and Environmental Quality (Jan. 2001) at pp. 46-48 http://www.epa.gov/dced/pdf/built.pdf.

20 See California Department of Housing and Community Development, Myths and Facts About Affordable and High Density Housing (2002), available at http://www.hcd.ca.gov/hpd/mythsnfacts.pdf.

21. Palo Alto's Green Ribbon Task Force Report on Climate Protection recommends pedestrian and bicycle-only streets under its proposed actions. See http://www.city.palo-alto.ca.us/civica/filebank/blobdload.asp?BlobID=7478.

22. There are a number of car sharing programs operating in California, including City CarShare http://www.citycarshare.org/ and Zip Car http://www.zipcar.com/.

23 The City of Lincoln has a NEV program. See http://www.lincolnev.com/index.html.

24. The County of Los Angeles has instituted an alternative fuel vehicle purchasing program open to County employees, retirees, family members, and contractors and subcontractors. See http://www.lacounty.gov/VPSP.htm.

25. Promoting "least polluting" methods of moving people and goods is part of a larger, integrated "sustainable streets" strategy now being explored at U.C. Davis's Sustainable Transportation Center. Resources and links are available at the Center's website. See http://stc.ucdavis.edu/outreach/ssp.php.

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26 See, for example, Marin County's Safe Routes to Schools program at http://www.saferoutestoschools.org ; see also California Center for Physical Activity's California Walk to School website at http://www.cawalktoschool.com.

27 Through a continuing FlexWork Implementation Program, the Traffic Solutions division of the Santa Barbara County Association of Governments (SBCAG) is sponsoring flexwork consulting, training and implementation services to a limited number of Santa Barbara County organizations that want to create or expand flexwork programs for the benefit of their organizations, employees and the community. See http://www.flexworksb.com/read_more_about_the_fSBp.html

28. For information on the general plan process, see Governor's Office of Planning and Research, General Plan Guidelines (1998), available at http://ceres.ca.gov/planning/genplan/gpg.pdf.

29. The Conservation Element addresses the conservation, development, and use of natural resources including water, forests, soils, rivers, and mineral deposits. Measures proposed for the Conservation Element may alternatively be appropriate for other elements. In practice, there may be substantial overlap in the global warming mitigation measures appropriate for the Conservation and Open Space Elements.

30. See the Attorney General's settlement agreement with the County of San Bernardino, available at http://ag.ca.gov/cms_pdfs/press/2007-08-21_San_Bernardino_settlement_agreement.pdf; Attorney General's settlement agreement with the City of Stockton, available at http://ag.ca.gov/cms_attachments/press/pdfs/n1608_stocktonagreement.pdf. See also Marin County Greenhouse Gas Reduction Plan (Oct. 2006) at http://www.co.marin.ca.us/depts/CD/main/pdf/final_ghg_red_plan.pdf; Marin Countywide Plan (Nov. 6, 2007) at http://www.co.marin.ca.us/depts/CD/main/fm/cwpdocs/CWP_CD2.pdf; Draft Conservation Element, General Plan, City of San Diego at http://www.sandiego.gov/planning/genplan/pdf/generalplan/ce070918.pdf.

31. Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards establish a process that allows local adoption of energy standards that are more stringent than the statewide Standards. More information is available at the California Energy Commission's website. See http://www.energy.ca.gov/title24/2005standards/ordinances_exceeding_2005_building_standards.html; see also California Public Utilities Commission, California Long Term Energy Efficiency Strategic Plan (Sept. 2008) at p. 92, available at http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf

32. See, *e.g.*, LEED at http://www.usgbc.org/DisplayPage.aspx?CategoryID=19; see also Build it Green at http://www.builditgreen.org/guidelines-rating-systems.

33. During 2007 and 2008, an unprecedented number of communities across the State adopted green building requirements in order to increase energy efficiency and decrease greenhouse gas emissions and other environmental impacts within their jurisdictions. The California Attorney General's office has prepared a document that identifies common features of recent green building ordinances and various approaches that cities and counties have taken. The document is available at http://ag.ca.gov/globalwarming/greenbuilding.php.

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34 See, *e g* , "Green County San Bernardino," http://www.greencountysb.com/. As part of its program, the County is waiving permit fees for alternative energy systems and efficient heating and air conditioning systems. See http://www.greencountysb.com/ at p. 3. For a representative list of incentives for green building offered in California and throughout the nation, see U S. Green Building Council, Summary of Government LEED Incentives (updated quarterly) at https://www.usgbc.org/ShowFile.aspx?DocumentID=2021.

35 For example, Riverside Public Utilities offers free comprehensive energy audits to its business customers. See http://www.riversideca.gov/utilities/busi-technicalassistance.asp.

36 Under Southern California Gas Company's Energy Efficiency Program for Commercial/Industrial Large Business Customers, participants are eligible to receive an incentive based on 50% of the equipment cost, or $0 50 per therm saved, whichever is lower, up to a maximum amount of $1,000,000 per customer, per year. Eligible projects require an energy savings of at least 200,000 therms per year. See http://www.socalgas.com/business/rebates.

37 The City of Berkeley is in the process of instituting a "Sustainable Energy Financing District." According to the City, "The financing mechanism is loosely based on existing 'underground utility districts' where the City serves as the financing agent for a neighborhood when they move utility poles and wires underground. In this case, individual property owners would contract directly with qualified private solar installers and contractors for energy efficiency and solar projects on their building. The City provides the funding for the project from a bond or loan fund that it repays through assessments on participating property owners' tax bills for 20 years." See http://www.cityofberkeley.info/Mayor/PR/pressrelease2007-1023.htm

The California Energy Commission's Public Interest Energy Research Program estimates that the technical potential for rooftop applications of photovoltaic systems in the State is about 40 gigawatts in 2006, rising to 68 gigawatts in 2016. See Public Interest Energy Research Program, California Rooftop Photovoltaic (PV) Resource Assessment and Growth Potential by County (2007), available at http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-500-2007-048

38 As described in its Climate Action Plan, the City of San Francisco uses a combination of incentives and technical assistance to reduce lighting energy use in small businesses such as grocery stores, small retail outlets, and restaurants. The program offers free energy audits and coordinated lighting retrofit installation. In addition, the City offers residents the opportunity to turn in their incandescent lamps for coupons to buy fluorescent units. See San Francisco's Climate Action Plan, available at http://www.sfenvironment.org/downloads/library/climateactionplan.pdf.

39 Among other strategies for reducing its greenhouse gas emissions, Yolo County is considering a purchasing policy that mandates all purchases of electrical equipment meet or exceed the PG&E Energy Star rating. This would require departments to purchase improved efficiency refrigerators, microwaves and related appliances that have greater power efficiencies and less GHG impacts. See http://www.yolocounty.org/Index.aspx?page=878.

40 See, for example, Los Angeles County Green Purchasing Policy, June 2007 at http://www.responsiblepurchasing.org/UserFiles/File/General/Los%20Angeles%20County,%20Green%20Purchasing%20Policy,%20June%202007.pdf. The policy requires County agencies to purchase

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products that minimize environmental impacts, including greenhouse gas emissions. See also California Energy Commission, Existing Green Procurement Initiatives, available at http://www.cec.org/files/pdf/ECONOMY/Green-Procurement_Initiatives_en.pdf.

41 Some local agencies have implemented a cool surfaces programs in conjunction with measures to address storm water runoff and water quality. See, for example, The City of Irvine's Sustainable Travelways/Green Streets program at http://www.cityofirvine.org/depts/redevelopment/sustainable_travelways.asp; The City of Los Angeles's Green Streets LA program at http://water.lgc.org/water-workshops/la-workshop/Green_Streets_Daniels.pdf/view; see also The Chicago Green Alley Handbook at http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/GreenAlleyHandbook_Jan.pdf.

42. See the website for Lawrence Berkeley National Laboratory's Urban Heat Island Group at http://eetd.lbl.gov/HeatIsland/LEARN/ and U.S. EPA's Heat Island website at www.epa.gov/heatisland/. To learn about the effectiveness of various heat island mitigation strategies, see the Mitigation Impact Screening Tool, available at http://www.epa.gov/heatisld/resources/tools.html.

43 For example, the City of Lompoc has a policy to "require new development to offset new water demand with savings from existing water users, as long as savings are available." See http://www.ci.lompoc.ca.us/departments/comdev/pdf07/RESRCMGMT.pdf.

44. The Eastern Municipal Water District imposes fines on all customers, including residential customers, for excessive runoff. See Water Use Efficiency Ordinance 72.23, available at http://www.emwd.org/usewaterwisely.

45 The Irvine Ranch Water District in Southern California, for example, uses a five-tiered rate structure that rewards conservation. The water district has a baseline charge for necessary water use. Water use that exceeds the baseline amount costs incrementally more money. While "low volume" water use costs $ 082 per hundred cubic feet (ccf), "wasteful" water use costs $7.84 per ccf. See http://www.irwd.com/AboutIRWD/rates_residential.php. Marin County has included tiered billing rates as part of its general plan program to conserve water. See Marin County Countywide Plan, page 3-204, PFS-2.q, available at http://www.co.marin.ca.us/depts/CD/main/fm/cwpdocs/CWP_CD2.pdf.

46. The Sacramento Regional Sanitation District has adopted a tiered sewer impact fee ordinance that charges less for connections to identified "infill communities" as compared to identified "new communities." See http://www.srcsd.com/pdf/ord-0106.pdf.

47 See the City of Fresno's Watering Regulations and Ordinances at http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/Conservation/WaterRegulation/WateringRegulationsandRestrictions.htm.

48. See, *e g*, the City of San Diego's plumbing retrofit ordinance at http://www.sandiego.gov/water/conservation/selling.shtml; City of San Francisco's residential energy conservation ordinance (fact sheet) at http://www.sfgov.org/site/uploadedfiles/dbi/Key_Information/19_ResidEnergyConsBk1107v5.pdf.

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49 The City of Roseville offers free water conservation audits through house calls and on-line surveys. See http://www.roseville.ca.us/eu/water_utility/water_conservation/for_home/programs_n_rebates.asp

50 See Landscape Performance Certification Program, Municipal Water District of Orange County at http://waterprograms.com/wb/30_Landscapers/LC_01.htm

51 For example, San Diego's Metropolitan Wastewater Department (SDMWD) installed eight digesters at one of its wastewater treatment plants. Digesters use heat and bacteria to break down the organic solids removed from the wastewater to create methane, which can be captured and used for energy. The methane generated by SDMWD's digesters runs two engines that supply enough energy for all of the plant's needs, and the plant sells the extra energy to the local grid. See http://www.sandiego.gov/mwwd/facilities/ptloma.shtml. In addition, the California Air Resources Board approved the Landfill Methane Capture Strategy as an early action measure. http://www.arb.ca.gov/cc/landfills/landfills.htm. Numerous landfills in California, such as the Puenta Hills Landfill in Los Angeles County (http://www.lacsd.org/about/solid_waste_facilities/puente_hills/clean_fuels_program.asp), the Scholl Canyon Landfill in the City of Glendale (http://www.glendalewaterandpower.com/the_environment/renewable_energy_development.aspx), and theYolo Landfill in Yolo County, are using captured methane to generate power and reduce the need for other more carbon-intensive energy sources.

52 On April 30, 2007, the Public Utilities Commission authorized a CCA application by the Kings River Conservation District on behalf of San Joaquin Valley Power Authority (SJVPA). SJVPA's Implementation Plan and general CCA program information are available at www.communitychoice.info. See also http://www.co.marin.ca.us/depts/CD/main/comdev/advance/Sustainability/Energy/cca/CCA.cfm. (County of Marin); and http://sfwater.org/mto_main.cfm/MC_ID/12/MSC_ID/138/MTO_ID/237 (San Francisco Public Utilities Commission). See also Public Interest Energy Research, Community Choice Aggregation (fact sheet) (2007), available at http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-500-2006-082

53 The Land Use Element designates the type, intensity, and general distribution of uses of land for housing, business, industry, open-space, education, public buildings and grounds, waste disposal facilities, and other categories of public and private uses.

54 The Center for Physical Activity within the California Department of Public Health supports school siting and joint use policies and practices that encourage kids to walk and bike to school; discourage car trips that cause air pollution and damage the environment; and position schools as neighborhood centers that offer residents recreational, civic, social, and health services easily accessible by walking or biking. The Center offers school siting resources on its website at http://www.caphysicalactivity.org/school_siting.html#resources.

55 Samples of local legislation to reduce sprawl are set forth in the U.S. Conference of Mayors' Climate Action Handbook. See http://www.iclei.org/documents/USA/documents/CCP/Climate_Action_Handbook-0906.pdf.

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56 For a list and maps related to urban growth boundaries in California, see Urban Growth Boundaries and Urban Line Limits, Association of Bay Area Governments (2006) at http://www.abag.ca.gov/jointpolicy/Urban%20Growth%20Boundaries%20and%20Urban%20Limit%20Lines.pdf.

57 The Circulation Element works with the Land Use element and identifies the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities

58. See Orange County Transportation Authority, Signal Synchronization at http://www.octa.net/signals.aspx Measures such as signal synchronization that improve traffic flow must be paired with other measures that encourage public transit, bicycling and walking so that improved flow does not merely encourage additional use of private vehicles

59 San Francisco's "Transit First" Policy is listed in its Climate Action Plan, available at http://www.sfenvironment.org/downloads/library/climateactionplan.pdf The City's policy gives priority to public transit investments and provides public transit street capacity and discourages increases in automobile traffic This policy has resulted in increased transit service to meet the needs generated by new development

60 The City of La Mesa has a Sidewalk Master Plan and an associated map that the City uses to prioritize funding. See http://www.ci.la-mesa.ca.us/index.asp?NID=699; see also Toolkit for Improving Walkability in Alameda County, available at http://www.acta2002.com/ped-toolkit/ped_toolkit_print.pdf; and U.S. EPA's list of transit-related "smart growth" publications at http://www.epa.gov/dced/publications.htm#air, including Pedestrian and Transit-Friendly Design: A Primer for Smart Growth (1999), available at www.epa.gov/dced/pdf/ptfd_primer.pdf Pursuant to the California Complete Streets Act of 2008 (AB 1358, Gov. Code, §§ 65040 2 and 65302), commencing January 1, 2011, upon any substantive revision of the circulation element of the general plan, a city or county will be required to modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users

61 See the City of Oakland's Bicycle Parking Requirements ordinance, available at www.oaklandpw.com/assetfactory.aspx?did=3337

62 San Francisco assesses a Downtown Transportation Impact Fee on new office construction and commercial office space renovation within a designated district The fee is discussed in the City's Climate Action plan, available at http://www.sfenvironment.org/downloads/library/climateactionplan.pdf.

63 For example, Seattle, Washington maintains a public transportation "ride free" zone in its downtown from 6:00 a.m. to 7:00 p.m. daily. See http://transit.metrokc.gov/tops/accessible/paccessible_map.html#fare.

64 See, for example, Reforming Parking Policies to Support Smart Growth, Metropolitan Transportation Commission (June 2007) at http://www.mtc.ca.gov/planning/smart_growth/parking_seminar/Toolbox-Handbook.pdf; see also the City of Ventura's Downtown Parking and Mobility Plan, available at

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http://www.cityofventura.net/community_development/resources/mobility_parking_plan.pdf, and its Downtown Parking Management Program, available at http://www.ci.ventura.ca.us/depts/comm_dev/downtownplan/chapters.asp

65 See Safe Routes to School Toolkit, National Highway Traffic Safety Administration (2002) at www.nhtsa.dot.gov/people/injury/pedbimot/bike/Safe-Routes-2002; see also www.saferoutestoschools.org (Marin County).

66 The Housing Element assesses current and projected housing needs. In addition, it sets policies for providing adequate housing and includes action programs for that purpose.

67 The U.S. Conference of Mayors cites Sacramento's Transit Village Redevelopment as a model of transit-oriented development. More information about this project is available at http://www.cityofsacramento.org/planning/projects/65th-street-village/. The Metropolitan Transportation Commission (MTC) has developed policies and funding programs to foster transit-oriented development. More information is available at MTC's website: http://www.mtc.ca.gov/planning/smart_growth/#tod. The California Department of Transportation maintains a searchable database of 21 transit-oriented developments at http://transitorienteddevelopment.dot.ca.gov/miscellaneous/NewHome.jsp.

68 The City of Berkeley has endorsed the strategy of reducing developer fees or granting property tax credits for mixed-use developments in its Resource Conservation and Global Warming Abatement Plan. City of Berkeley's Resource Conservation and Global Warming Abatement Plan p. 25 at http://www.baaqmd.gov/pln/GlobalWarming/BerkeleyClimateActionPlan.pdf.

69 The Open Space Element details plans and measures for preserving open space for natural resources, the managed production of resources, outdoor recreation, public health and safety, and the identification of agricultural land. As discussed previously in these Endnotes, there may be substantial overlap in the measures appropriate for the Conservation and Open Space Elements.

70 The Safety Element establishes policies and programs to protect the community from risks associated with seismic, geologic, flood, and wildfire hazards.

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RE: City of Sacramento General Plan 2030 Draft Environmental Impact Report
SCH # 2007072024

Dear Ms. Marshall:

The Attorney General submits these comments on the Draft Environmental Impact Report ("DEIR") for the City's proposed 2030 General Plan ("General Plan" or "Project").[1] We appreciate the additional time that the City provided for submittal of our comments.

The proposed General Plan estimates that by 2030 Sacramento will have an additional 195,000 new residents, 136,000 new jobs, and 97,000 new housing units. (DEIR, p. 3-37.) This is a significant level of growth. Because the General Plan will guide development in the City over the next two decades, it is critical that the DEIR adequately address the environmental impacts that will be experienced by, and result from, that development. It is also critical that the City adopt and enforce specific measures to limit greenhouse gas ("GHG") emissions that will result from the City's growth. As recognized by the California Air Resources Board, local governments have a very important role in the fight against global warming and are "essential partners in achieving California's greenhouse gas goals."[2]

[1] The Attorney General submits these comments pursuant to his independent power and duty to protect the natural resources of the State from pollution, impairment, or destruction in furtherance of the public interest. (See Cal. Const., art. V., § 13; Cal. Gov. Code, §§ 12511, 12600-12612; *D'Amico v. Board of Medical Examiners* (1974) 11 Cal.3d 1, 14-15.) While this letter sets forth some areas of particular concern, it is not intended to be an exhaustive discussion of the DEIR's compliance with CEQA.

[2] California Air Resources Board, Climate Change Draft Scoping Plan (June 2008), p.31, at http://www.arb.ca.gov/cc/scopingplan/document/draftscopingplan.htm (hereafter "Draft Scoping Plan.")

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We appreciate that the City took the time to meet with us to discuss the opportunities to address climate change in the DEIR and General Plan. The DEIR contains a lengthy list of climate change actions that demonstrate a great deal of thought and reflect the City's "smart" planning goals. The City aspires to be, in its words, the "regional leader in sustainable development," and we hope these comments are useful in assisting the City to achieve that objective.

Global Warming Under CEQA

CEQA requires that "[e]ach public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so." (Pub. Res. Code, § 21002.1, subd. (b).) This requirement is the "core of an EIR." (*Citizens of Goleta Valley v. Board of Supervisors of Santa Barbara County* (1990) 52 Cal.3d 553, 564-65.) Agencies must ensure that mitigation measures "are fully enforceable through permit conditions, agreements, and other measures." (Pub. Res. Code, § 21081.6, subd. (b).)

Global warming is an "effect on the environment" under CEQA, and an individual project's incremental contribution to global warming can be cumulatively considerable. (See Cal. Pub. Res. Code, § 21083.05, subd. (a); see also Sen. Rules Comm., Off. Of Sen. Floor Analyses, Analysis of Sen. Bill No. 97 (2007-2008 Reg. Sess.) Aug. 22, 2007.)

Comments on the DEIR

The DEIR does a very good job of describing the phenomenon of global warming, the types of GHG emissions, and the regulatory measures designed to reduce GHG emissions. Citing a NASA study, the DEIR states that climate models show that CO2 concentrations exceeding 450 ppm would result in dangerous consequences. Many experts believe that to avoid dangerous climate change, stabilization must occur at or below 450 ppm.[3] Scientists are also reporting that, based on recent observations, climate appears to be changing even faster than modeled in the IPCC's worst case scenarios.[4]

California recognizes that global warming is an urgent problem. As reflected in the California Global Warming Solutions Act of 2006 ("AB 32") and Executive Order S-3-05, the best available science establishes that we must substantially reduce our total GHG emissions,

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[3] J. Hansen et al, Dangerous human-made interference with climate: a GISS modelE study, 7 *Atmos. Chem. Phys.* 2287-2312 (2007) (article with 47 co- authors).

[4] S. Rahmstorf et al, Recent Climate Observations Compared to Projections, *Sciencexpress* (2007); M. Raupach et al., Global and Regional drivers of accelerating CO2 emissions, *Biological Sciences/Sustainability Science* (2007); J. Stroeve, Arctic Sea Ice Decline: Faster than Forecast? (2007) *Geophysical Research Letters*; The Climate Institute (November 2007) *Evidence of Accelerated Climate Change* (Climate Adaptation Science and Policy Initiative, University of Melbourne)

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achieving a low-carbon future by mid-century in order to stabilize atmospheric concentrations of GHGs at a level that will reduce the risk of the most catastrophic outcomes of climate change. If we fail to make better development decisions at all levels of government and at every opportunity, in a very short time, our climate goals may be out of reach. According to Rajendra Pachauri, Chairman of the United Nations Intergovernmental Panel on Climate Change ("IPCC"), "If there's no action before 2012, that's too late. What we do in the next two to three years will determine our future. This is the defining moment."[5]

As discussed below, there is substantial room for improvement in the DEIR's discussion of the impacts of climate change on the Project, in particular, water supply; the Project's GHG emissions as compared to the existing environmental baseline and the cumulative significance of those emissions; and specific, enforceable mitigation to control and mitigate those emissions.

1. Impact of Climate Change on Water Supply

The DEIR discusses generally the impact of climate change on water resources. The DEIR fails, however, to address several important issues. First, the DEIR discusses the impacts of reduced snowpack that are expected to occur between 2070 and 2099, but fails to address the potential impacts during the years covered by the General Plan, from 2008 until 2030. Second, the DEIR fails to discuss the impacts of climate change, and reduced snowpack, on the City's water resources specifically. This is significant because the City primarily depends on the Sacramento and American Rivers for its water, and flows in the American River depend on operations at Folsom Reservoir.

With a reduced snowpack, it becomes increasingly difficult to refill reservoirs in the late spring and early summer, reducing reservoir yields.[6] The DEIR thus needs to address the likelihood of reduced snowmelt affecting the availability of surface water, and should also discuss potential impacts of greater reliance on groundwater due to reduced surface water supplies. In California's changing climate, the DEIR cannot assume that the region's hydrology will not change.[7]

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[5]Rosenthal, *U.N. Chief Seeks More Leadership on Climate Change*, N.Y. Times (November 18, 2007).

[6] See California Department of Water Resources, *Progress on Incorporating Climate Change into Management of California's Water Resources*, (July 2006) pp. 2-22, 2-30 and 2-31 and Department of Water Resources, *California Water Plan Update 2005*, Volume 1 Strategic Plan, Chapter 4, p. 31, both available at http://www.water.ca.gov/climatechange/articles.cfm under "Reports."

[7] See, e.g., *Natural Resources Defense Council v. Kempthorne* (2007) 506 F. Supp.2d 322, 367-370 (Fish and Wildlife Service's Biological Opinion on Delta smelt should have looked at effect of various climate change scenarios on Delta hydrology).

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2. Baseline Used to Evaluate the Impacts of the Plan

In both the Climate Change and Water Quality sections, the DEIR uses the hypothetical full build-out under the 1988 General Plan as the baseline for calculating CO2 emissions, water demand, and accompanying environmental impacts. Both CEQA and case law are clear, however, that a planning document must describe the existing physical conditions in the environment, not only what could have been built under a previous plan.[8] "Before the impacts of a project can be assessed and mitigation measures considered, an EIR must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App 4th 931, 952.) Thus, the City should recalculate all projections and evaluate impacts using the correct baseline.[9]

3. GHG Emissions Analysis

There appear to be several flaws in the GHG emissions analysis and quantification in the DEIR. First, the DEIR does not disclose the City's current annual GHG emissions and how much emissions are projected to increase over current levels through 2030 (the time-frame of the new General Plan). Rather, the document only evaluates the difference between expected emissions in 2030 from the Project and the expected emissions under the 1988 General Plan.[10] As discussed above, the DEIR cannot rely solely on hypothetical buildout under the 1988 General Plan as the environmental baseline.

Moreover, while comparing emissions expected under the proposed new General Plan to the emissions expected under the 1988 General Plan may be relevant in the alternatives analysis, the limited comparative information about GHG emissions in 2030 that is provided in the DEIR is confusing and must be clarified. The DEIR contains the following inconsistencies:

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[8] See, e.g., Cal. Code Regs., tit. 14, § 15125, subd. (a), requiring a description of the physical environmental conditions in the vicinity of the project, *as they exist as the time the notice of preparation is published. . . .*" (emphasis added) and § 15123, subd. (e), requiring "[w]here a proposed project is compared with an adopted plan, the analysis shall examine the existing physical conditions at the time the notice of preparation is published . . . as well as the potential future conditions discusses in the plan."; *Woodward Park Homeowners Association, Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 706-710; *Environmental Planning and Information Council v. County of El Dorado* (1982) 131 Cal.App.3d 350, 354-358.

[9] An existing plan, and associated future environmental impacts under that plan, may be appropriate to evaluate as a "no action" alternative in the DEIR, as the City has done here. However, in this case, the "no action" alternative is not the same as the environmental baseline.

[10] It is also not clear whether the comparisons in Table 8-3 are valid because the 1988 General Plan addresses development through 2022, while the proposed Project addresses development through 2030.

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- Table 8-3 states that total projected additional GHG emissions are 738 tons/day, but page 8-55 of the DEIR states they are 291 tons/day.

- Table 8-3 states that projected additional mobile source emissions are 464 tons/day (which equals 169,360 tons/year), but page 8-38 of the DEIR states that mobile (vehicle) source emissions are 256 tons/day and 93,440 tons/year.

- Table 8-3 states that projected additional emissions from use of electricity are 241 tons/day (which equals 87,965 tons/year), but page 8-36 of the DEIR states that electricity emissions are 8 tons/day and 2,920 tons/year.

We inquired about these inconsistencies with City staff, and were informed that the numbers in Table 8-3 are correct, while the numbers elsewhere in the text are wrong. Therefore, it appears that the text of the DEIR significantly understates the GHG emissions from the proposed General Plan. Although not expressly stated in the DEIR, it appears that the proposed new Plan would increase GHG emissions by 269,370 tons per year (738 tons/day from Table 8-3 x 365 days) above the emissions that would occur under the 1988 General Plan [11]

Third, it appears that the DEIR does not include complete estimates of GHG emissions from the Project because it omits foreseeable emissions from construction activities and from conveyance and treatment of water and wastewater. For development of this scale, those emissions could be quite large [12] In its Technical Advisory *CEQA and Climate Change*, the Governor's Office of Planning and Research is clear that estimates of GHG emissions from a project should include "emissions associated with vehicular traffic, energy consumption, *water usage and construction activities*."[13]

4. GHG Analysis and Finding of Significance

The DEIR asserts that the significance of the Project's impacts on climate change cannot be determined because: there are no published State guidelines, thresholds, targets or methodologies for making the determination; and it is not known how much of the emissions

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[11] We note that the DEIR also states that the new Plan will result in a *reduction* in GHG emissions in the six county SACOG region in 2030, as compared with the 1988 General Plan (DEIR, p. 8-35 and Table 8-3). However, the DEIR does not explain how the City's proposed Plan relates to regional GHG emissions, or how the reduction relates to the City's project.

[12] See Department of Water Resources, *Progress on Incorporating Climate Change Into Management of California's Water Resources* (July 2006), p. 2-7, stating that significant uses of electrical power related to water in California include: pumping groundwater from wells; treating drinking water; delivering water to consumers; and treating wastewater and water reclamation.

[13] Governor's Office of Planning and Research, Technical Advisory *CEQA and Climate Change* (June 19, 2008), p.5.

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from new development are truly "new" or would be transferred from somewhere else. These arguments do not relieve the City of its obligation to determine if the Project has a potentially significant cumulative impact on climate change

As we have stated in previous Attorney General comment letters (and has been recognized by local agencies and in the Office of Planning and Research's Technical Advisory), the lack of an official threshold does not absolve the City from the obligation under CEQA to determine the significance of the anticipated GHG emissions of this project.[14] Nor does the lack of a 1990 emissions inventory or an adopted GHG reduction target for the City eliminate the obligation to determine if a proposed project's GHG emissions constitute a significant impact under CEQA. Finally, the difficulty in determining whether emissions are "new" or transferred from somewhere else (DEIR, at pp. 8-38, 8-55 and 8-56) is not a valid basis for declining to determine if the project's GHG emissions are significant. As the DEIR recognizes, the City is expected to experience substantial population and employment growth; unless there is persuasive evidence to the contrary, the buildings where the project's residents and employees previously lived and worked will continue to be used as homes and workplaces In addition, it is not possible to determine, as the DEIR purports to do, the extent and type of housing and job changes that will be made by people who move to the new housing and jobs in the City. For these reasons, all reasonably foreseeable GHG emissions associated with the City's future development must be considered in evaluating the impact of the proposed Plan on climate change.[15]

In addition, the EIR should address whether the projected GHG emissions are consistent with the need to greatly reduce the State's GHG emissions by 2050 (to 80% below 1990 levels, as set forth in Executive Order S-3-05). When this longer time-frame is considered, the Project's cumulative impact on climate change may be significant. The DEIR does not address this issue.

5. Mitigation of Climate Change Impacts

We appreciate the DEIR's organization of the climate change policies and mitigation measures. It is easy to locate the General Plan's policies and the specific policies that address the Attorney General's Office mitigation list. The City has proposed many good policies and mitigation measures, both in the General Plan and in its Sustainability Plan Many of the policies, however, are very general in nature and it is unclear what specific actions the City

[14] See Governor's Office of Planning and Research, Technical Advisory, *CEQA and Climate Change* (June 19, 2008) p. 6, stating: "As with any environmental impact, lead agencies must determine what constitutes a significant impact. In the absence of regulatory standards for GHG emissions ... individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice." Moreover, the CEQA Guidelines encourage, *but do not require*, agencies to publish thresholds of significance. (Cal.Code Regs., tit. 14, §15064.7(a).)

[15] See also California Air Pollution Control Officers' Association White Paper "CEQA and Climate Change," (January 2008), pp. 35 and 72, available at http://www.capcoa.org/

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intends to take to ensure that it meets its climate change goals. The following policies, for example, require the City to "promote" or "encourage" certain outcomes, where it may be feasible to adopt enforceable requirements: LU 2.6.3: "the City shall promote sustainable building practices;" LU 2.6.5: "the City shall encourage structures under renovation to be built to a green building standard;" and LU 2.6.6: "the City shall seek to reduce the 'heat island' effect by promoting such features as reflective roofing . . ." (DEIR, Technical Appendices, p. K-7.)

We recommend that the City take a second look at ways to improve its global warming mitigation measures to ensure that they serve the City's stated goals.[16] Below, we set forth some representative measures for the City's consideration. We are also available to discuss other options that may be available to the City

a. Climate Action Plan

A well-designed and enforceable Climate Action Plan or "CAP" integrated into the General Plan can serve as mitigation for projected development. The City's proposal for adopting a CAP is not contained in the General Plan, however, but is in a separate document entitled "Administration Implementation Programs." There is no target date by which the CAP will be adopted and it is unclear whether the CAP will include an inventory of GHG emissions, reduction targets, and specific tools and strategies to achieve the targets, or whether it will be incorporated into the General Plan.

An agency may only approve an EIR in reliance on a commitment to develop a mitigation plan in the future if the plan is sufficiently formulated that it provides a high level of assurance that the objective of the plan – real mitigation – will be achieved. (See *Sacramento Old City Assn. v. City Council* (1999) 229 Cal.App.3d 1011, 1020-22, 1028-30; *Lincoln Place Tenants Assn. v. City of Los Angeles* (2007) 155 Cal.App.4th 425, 446.) In its current form, the City's proposed CAP constitutes an improper deferral of mitigation. (See, e.g., *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 670 [holding that provision in EIR that allowed specifics of mitigation for biological impacts to be determined after future study violated CEQA where there were no specific criteria or standards of performance].)

To ensure that it does not run afoul of the rule against deferral, in general, a proposal in a General Plan for development of a CAP should include:

- a clear deadline for completion
- requirement for an inventory of emissions
- a reduction target
- specific mitigation strategies that will be considered for inclusion

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[16] See *Federation of Hillside and Canyon Associations v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1261 (agency must ensure that feasible mitigation measures identified the EIR will be implemented).

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- monitoring and reporting requirements
- adaptive management (to ensure that mitigation strategies are updated over time)
- interim provisions (to ensure that no major decisions that could be inconsistent with the CAP will be made before the CAP is completed)

It is also important that the completed CAP be incorporated into the General Plan so that it is enforceable, ensuring that future developments are required to be consistent with the elements of the CAP [17]

b. Green Building Program

Currently, the City's commitment to green building extends only to municipal buildings Most of the policies only "promote" or "encourage" developers to build, or owners to retrofit, with green technology. The Air Resources Board identifies building energy efficiency as the "cornerstone of California's energy strategy" which presents opportunities "to achieve significant energy savings . . ." (Draft Scoping Plan, Appendix C, p. C-55.) The Air Board also notes that increasing energy efficiency is particularly important in fast-growing and warmer areas of the state with more air conditioning use, such as Sacramento. (*Id.* at p. C-56.)[18] The City should therefore consider whether measures such as mandatory green building requirements for residential and non-residential buildings and mandatory energy efficiency upgrades for existing buildings undergoing substantial modifications would be feasible and assist in achieving its stated goal "to decrease dependence on renewable energy sources through energy conservation, [and] efficiency . . ." (Goal U 6.1.)

In addition, we encourage the City to consider evaluating the feasibility of creating a local assessment district or other financing mechanism to fund installation of energy efficiency measures, including rooftop solar systems[19] and evaluate requiring GHG-reducing retrofits as a potential mitigation measure for new development.

c. Transit Program

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[17] Provided that the Climate Action Plan is completed and integrated into the General Plan, the City and project proponents will be able to benefit substantially from CEQA's streamlining provisions. (See, e.g., CEQA Guidelines, §§ 15152(d), (f); 15130(d), (e) [discussing tiering and cumulative impacts]; see also Pub. Res. Code, § 21081.6(b).)

[18] Also see Sacramento Municipal Utilities District "SMUD") "Advantage Home" rebate program, where new homes exceed state energy standards for cooling by at least 30%, and "Solar Smart Home" rebate program where energy use is reduced by 23-42% (without including reduced electricity use from onsite solar generation). (See SMUD website at: http://www.smud.org/residential/docs/advantagelist_0407.pdf and http://www.smud.org/residential/solarsmart/index.html and attached SMUD slide.)

[19] See "Berkeley First," at http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=22620.

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Transportation is responsible for 38% of the GHG emissions in California. (Draft Scoping Plan, Appendix C, p. C-21.) Better land use planning, addressing such things as land use patterns, increased density, connected streets, and access to jobs, transit and services, has the potential to reduce driving and thus reduce GHG emissions.[20] According to the Air Resources Board, if we do not address growth in vehicle miles traveled, it will completely overwhelm the other advances that the State is making to control emissions. (Draft Scoping Plan, Appendix C, p. C-40.)

The DEIR has a number of well-intended transit policies, such as supporting many forms of transit, requiring development near transit stations, and requiring developments to be bicycle- and pedestrian-friendly. Two particularly good policies are one that allows for flexible Level of Service standards for traffic to permit increased densities and one that "shall require developer contributions for bus facilities and improvements." The City, however, could do more to require transit oriented development.

For example, the City could adopt a transit program requiring housing or other development projects of a certain threshold size (1) to provide financial or other support for transit use, with the fees sufficient to cover the development's fair share of the transit system, and (2) to meet density standards that will support the operation of transit.

d. Infill Program

It is clear from the General Plan policies, the DEIR and our discussions, that the City supports the concept of infill. The policies and mitigation measures in the General Plan and DEIR, however, are generally vague, and may not ensure that the City achieves its infill goals.

The City may consider adopting a more specific infill program, such as one in which it determines a certain percentage of new housing that will be located in an identified urban core area (determined by the City) and adopts monetary (lower fees) and non-monetary incentives to facilitate infill development. This is not a new concept in the region: the Sacramento County Regional Sanitation District charges different rates for sewer hookups based on location.[21]

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[20] See, e.g., U.S. Environmental Protection Agency, Our Built and Natural Environments: A Technical Review of the Interactions Between Land Use Transportation and Environmental Quality (2001); Ewing, R. & Cervero, R., Travel and the built environment: A synthesis (2001) 1780 *Transportation Research Record*, at pp. 87-114; Frank, L.D. Land Use and Transportation Interaction: Implications on Public Health and Quality of Life (2000) 20 *Journal of Planning Education and Research*, at pp. 6-22; Ewing, R., et al. *Growing Cooler The Evidence on Urban Development and Climate Change*, Urban Land Institute (Chicago 2007).

[21] A connection fee for a house in a new neighborhood is $7,450, while the fee for a new house in an existing urban area is $2,800. See http://www.srcsd.com/rates.php. Multi-family residential unit fees are handled the same way.

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Conclusion

We thank you for the opportunity to comment on the DEIR and are pleased that the City recognizes the imperative of expanding consistent with smart growth principles. We will be glad to work with the City in implementing our comments or in any other way

Sincerely,

/S/

LISA TRANKLEY
SANDRA GOLDBERG
Deputy Attorneys General

For EDMUND G. BROWN JR.
Attorney General

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November 5, 2008

Tom Pace
City of Sacramento Planning Department
New City Hall
915 I Street, 3rd Floor
Sacramento, CA 95814

RE: Draft Update to General Plan

Dear Tom:

We appreciate the opportunities we have had to meet with you, members of the Sacramento planning staff, and the City Manager and his staff on the Draft General Plan Update and Draft MEIR. In addition, it was very instructive to attend the Planning Commission meeting and hear the staff's presentation of the provisions in the Plan that are intended to address GHG and climate change. As we've discussed, however, we continue to disagree with the staff on several major issues and we would like to reiterate those for your consideration. We also would like to elaborate on some of our observations on infill that we were only able to briefly mention at our meeting.

GHG Emissions

We had raised several questions about the GHG emission figures, and just received an e-mail response from Erik de Kok on behalf of the City. We appreciate your addressing our questions, although it is difficult for us to fully understand the response without seeing the Final EIR. Our first question was: "Revised Table 8-3 in the City's draft response to our comment letter now indicates that total GHG emissions will go down from 2005 to 2030, despite the fact that population will increase by 195,000, there will be 136,000 new jobs, and 97,000 new housing units. Intuitively, that would suggest that GHG emissions would also increase. In any case, it is not clear how you reached the conclusion that GHG will decrease." Erik has responded that revisions to Table 8-3 now show an increase in GHG emissions, which will be reflected and explained in the Final EIR.

Our second question was: "The information in Table 8-3 seems to conflict with the VMT data in the City's draft response to the comment letter from the SMAQMD. The response to the SMAQMD has a table on page 5 that shows Daily VMT in 2005 as 18,318,977 and Daily VMT

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under the 2030 General Plan as 25,363,131, an increase of about 7 million VMT per day. That same table also predicts a per capita VMT increase from 36 8 in 2005 to 37.5 in 2030. That seems at odds with the GHG emission numbers in Table 8-3 and the projection that GHG will decrease." Erik has responded that this discrepancy has also been resolved.

Our third question was: "We are confused about how you are calculating that there will be a 13% VMT reduction under the 2030 General Plan. You stated to the Planning Commission that the 2030 Plan reduces VMT per capita by 13% The table on page 5 of the City's draft response to the SMAQMD also shows a -13.2% change in Daily VMT per capita. Since that same table shows an increase in per capita VMT from 2005 to 2030, we are wondering if the decrease in per capita VMT comes when you compare the 2030 General Plan to the buildout of the 1988 Plan As I recall, I believe you told the Planning Commission that the 13% reduction occurred when the 2030 General Plan is compared to the no project numbers. As we pointed out in our comment letter, CEQA requires that the impacts of the 2030 General Plan must be compared to the existing environment, not what could have been built under a previous plan. We thought the City, in response to our comment letter, had decided to use 2005 as the baseline, and that Table 8-3 uses 2005 as the baseline It appears, however, that the 1988 buildout numbers are used as the baseline in the table in the response to the SMAQMD and in your presentation to the Planning Commission We would appreciate a clarification of these numbers and conclusions." Erik responded that revisions to the analysis now show the baseline as 2005 He also confirmed that the decrease of 13% VMT is a comparison to the No Project scenario.

We will review the Final EIR, once it is published, to see if it clears up the issues we raised in our questions.

Lack of Significance Finding

The City has told us that it does not believe it has the tools to determine whether the GHG emissions will have a potentially significant impact. The City takes the position that because there are no published state guidelines, thresholds, or methodologies for making a significance determination, it would be speculative to attempt such a determination. It is true that no state agency has set any thresholds. As we have stated to many other jurisdictions, however, this lack of official thresholds does not relieve the City of its obligation under CEQA to determine if the project has a potentially significant cumulative impact on climate change. Our position is supported by agency guidance that has been published to date, case law, and the fact that many local agencies and project proponents have been able to make a significance determination.

As you are probably aware, the Air Resources Board has just published a preliminary proposal on significance thresholds. That proposal states, at page 1, that climate change is an

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environmental effect subject to CEQA, citing Senate Bill 97, and also states that "Lead agencies therefore are obligated to determine whether a project's climate change-related effects may be significant."[1] The Office of Planning and Research also has directed lead agencies to determine the significance of the impact from GHG emissions in its Technical Advisory (p. 6)

As we have pointed out, the City's failure to make a significance determination conflicts with several recent trial court decisions. For example, we sent you a copy of the case in which ECOS sued Caltrans on its proposed Highway 50 lane expansion. In that case, a Sacramento trial court judge explicitly rejected Caltrans' argument that addressing GHG emissions was too speculative because there was no accepted methodology for analyzing GHG emissions and climate change. The court stated, "Caltrans must meaningfully attempt to quantify the Project's potential impacts on GHG emissions and determine their significance, or at the very least explain what steps it has taken to show such impacts are too speculative for evaluation." (p. 11.)

In contrast to the City's assertion that it cannot make a significance determination, a number of other jurisdictions have analyzed the significance of GHG in EIR's for their general plans or other large-scale planning documents and were able to make a significance determination. We submitted three examples to you: the Napa County General Plan, the San Diego General Plan, and the San Diego Association of Governments' Regional Transportation Plan. Thus the City's arguments that it need not and cannot make a significance determination are contradicted by both trial court decisions and real-world experience.

It is important to stress that making a determination of significance is not merely an exercise in wordplay. A failure to make a significance determination has serious and practical consequences. Under CEQA, a project proponent is required to mitigate all significant impacts to the extent feasible. If an EIR fails to find that impacts from GHG emissions are significant, the EIR is not required to propose any enforceable mitigation measures for those impacts. The City argues that it has addressed climate change impacts in the Plan Update by proposing to adopt policies and programs. Many of these policies, however, only aim to "encourage," "support," or "study the feasibility" of making changes. While hortatory GHG policies are positive, they do not count as adequate mitigation because there is no certainty that the policies will be implemented. The City needs to go further and commit to specific, enforceable measures

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[1]http://www.arb.ca.gov/cc/localgov/ceqa/meetings/102708/prelimdraftproposal102408.pdf

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Moreover, even if the City's policies and programs were adequate to address climate change, the City's failure to make a significance determination sends the signal to other project applicants that the City will accept a project EIR that contains no significance finding on, or enforceable mitigation measures for, GHG emissions. We see an example of that problem in the draft EIR for Delta Shores. That draft EIR states, "[T]he City has determined that until such time as a sufficient scientific basis exists to ascertain the incremental impact of an individual project on global climate change, and to accurately project future climate trends associated with that increment of change, and guidance is provided by regulatory agencies on the control of GHG emissions and thresholds of significance, the significance of an individual project's contribution to global GHG emissions is too speculative to be determined." (pg 5.10-18)

The draft EIR includes a table (pg 5.10-26 to 27) of "GHG emissions reduction measures/design strategies." It also says the project "will adhere to several of the mitigation measures recommended by the CA AG to address global warming." The draft EIR is careful, however, not to call these "strategies" mitigation measures because it has not made a significance determination, and none of the "strategies" are included in the Delta Shores Mitigation Monitoring Report.

The City's failure to adequately address GHG emissions in its General Plan MEIR, therefore, has important and detrimental consequences for the environment as other projects follow suit and refuse to mitigate GHG emissions.

Infill Policies

Unfortunately, we did not get an opportunity to elaborate on our infill concerns at our meeting or fully discuss your responses to our questions concerning the Plan's approach to infill versus outlying area development. First, let us acknowledge that the City has had a number of exemplary infill projects and we applaud these projects as good models. Our concerns are based on our desire that the City continue to ensure that infill is a priority in future growth and that General Plan policies and programs clearly support that priority.

The City staff and Plan Update indicate there are five total Special Study Areas – two that are greenfield in character (Natomas Joint Vision and Fruitridge Florin Study Areas), two that are largely developed (Arden Arcade and Town of Freeport Study Areas), and one that is a brownfield/former mining area (East Study Area). The City acknowledged at our meeting that there is more than enough capacity within existing infill areas to accommodate the growth that is anticipated or needed through 2030. That raises the question of why the Plan Update allows planning for and, potentially, development in two greenfield areas and three other Special Study Areas. The City has told us that if the City does not plan for and develop these areas, the County will, and that the City cannot afford not to call for development of these areas. The City also

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noted that they are in the SACOG Blueprint as appropriate for development.

First, we note that the SACOG Blueprint has a 2050 planning horizon, so an area that may be suitable for development in 2050 may not be suitable for development in 2030. Second, the Draft General Plan Update states only that the City will "[phase] city expansion into Special Study Areas where appropriate." [LLU 1 1 9] It would be helpful to explain how the City intends to "phase" expansion, because there are no criteria spelled out for when expansion into Special Study Areas is considered "appropriate." Neither are there policies defining the circumstances under which the City could or should expand into those outlying areas within the planning horizon of the Plan Update. We believe the General Plan needs to include specific policies setting forth the criteria for planning and developing these areas. We realize that the City intends to update its 2002 Infill Strategy, but infill policies governing growth should be in this General Plan Update.

Our second concern is that, in light of the City's acknowledgement that it has sufficient growth capacity in infill areas, the City needs to provide an explanation of why the Reduced Footprint Alternative is not feasible. This alternative provides for future growth within the existing development footprint, and is the environmentally superior alternative in the Draft MEIR.

Green Building Ordinance

Finally, we are disappointed that the City of Sacramento, in contrast to many jurisdictions throughout the State, is proposing a green building ordinance that is merely voluntary. This decision has apparently been based on economic grounds, on the concern that if all the regional jurisdictions do not adopt a mandatory ordinance, Sacramento will be at a competitive disadvantage in attracting development.

We do not believe these objections are well-grounded, especially for commercial and residential buildings; while initial development costs may be slightly higher (although some studies suggest they are roughly the same), these costs are more than offset by energy and water savings within a few years. In addition, green buildings are becoming more and more attractive to consumers. In San Jose this spring, for example, one developer reported that new homes powered with solar electric power systems were selling more than twice as fast, on average, as new homes without solar. Numerous jurisdictions in California have adopted green building ordinances, (over two dozen; with others like Stockton committing to do so in the future), and the Air Resources Board's Scoping Plan strongly endorsed green building measures as a way to reduce GHG emissions at the local level.

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Thank you for taking the time to consider our comments. We would be happy to discuss these if you have any concerns or questions.

Sincerely,

/S/

LISA TRANKLEY
Deputy Attorney General

For EDMUND G. BROWN JR.
Attorney General

cc: Ray Kerridge, City Manager
Sabina Gilbert, Senior Deputy City Attorney
Erik de Kok , Senior Planner

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2030 GENERAL PLAN

FINAL MASTER ENVIRONMENTAL IMPACT REPORT

SCH No. 2007072024

ERRATA No. 2: February 26, 2009

The Draft Master Environmental Impact Report (Draft MEIR) was released for public review during the period July 9, 2008 to August 22, 2008. The Final MEIR has been prepared and distributed. The City has provided copies of responses to written comments on the Draft MEIR to persons and agencies submitting such comments. The City completed an Errata dated November 5, 2008.

The following changes are being made to the Final MEIR as circulated. The discussion below identifies the changes and the affected sections of the Final EIR.

1. Noise: Impact 6.8-2 (residential interior noise levels) and General Plan Policy 3.1.4

Impact 6.8-2 identified an impact on residential interior noise levels that could occur as a result of development under the 2030 General Plan. These impacts were identified for existing and new residential construction. The Draft MEIR concluded that impacts would be significant and unavoidable because it is unlikely that existing residences would be renovated, and there is no assurance that all new construction would meet needed standards.

Following distribution of the Final MEIR, staff has continued to examine the issue of residential interior noise levels as they relate to single-event noise. As described in the Draft MEIR, page 6.8-2, the SEL is a noise indicator used to characterize the severity of noise events of short duration. This could include airplane overflights or noise from trains. The 2030 General Plan utilized the SEL standard in Environmental Constraints (EC) Policy 3.1.4:

> **EC 3.1.4 Interior Noise Standards for Multiple, Loud Short-Term Events.** The City may require new development in areas subject to frequent, high-noise events (such as aircraft over-flights, or train and truck pass-bys) to meet the following interior noise standards during exposure to multiple noise events: 50 dBA SEL in bedrooms and 55 dBA SEL in other habitable rooms. In areas where high-noise events are especially frequent (e.g., major commercial airports, mainline railroad tracks, and major truck routes or freeways); the City can require more stringent SEL standards if the events are especially loud and frequent resulting in unacceptable sleep disturbance.

The primary concern raised regarding proposed EC Policy 3.1.4 is that it could result in establishing a threshold of significance for subsequent projects, and that such a threshold has not been evaluated with respect to its impact on new residential development. The City recognizes this as a legitimate concern. The primary focus of the proposed policy was to raise the issue of noise exposure and ensure that it is evaluated in the land use decision-making process. This can be achieved through a revision to the policy, as follows:

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E.C. 3.1.4 Interior Noise Review ~~Standards~~ for Multiple, Loud Short-Term Events. ~~The City may require~~ In cases where new development is proposed in areas subject to frequent, high-noise events (such as aircraft over-flights, or train and truck pass-bys) the City shall evaluate noise impacts on any sensitive receptors from such events when considering whether to approve the development proposal, taking into account potential for sleep disturbance, undue annoyance, and interruption in conversation, to ensure that the proposed development is compatible within the context of its surroundings. ~~to meet the following interior noise standards during exposure to multiple noise events: 50 dBA SEL in bedrooms and 55 dBA SEL in other habitable rooms. In areas where high-noise events are especially frequent (e.g., major commercial airports, mainline railroad tracks, and major truck routes or freeways), the City can require more stringent SEL standards if the events are especially loud and frequent resulting in unacceptable sleep disturbance.~~

The proposed policy would not establish a threshold of significance for single-event noise levels for residential construction, but would instead identify a relevant issue for new development. In appropriate cases the environmental document for new development would review the potential for sleep and conversation interruption, and annoyance, due to such noise events. The revision to Policy EC 3.1.4 does not alter in any manner the analysis of this impact in the DMEIR nor the conclusion that the impacts would be significant and unavoidable.

2. Transportation and Circulation

Several changes have been made in the Transportation and Circulation section for the purpose of clarification. The revisions did not change the impact conclusions set forth in the MEIR.

The Roadway level of Service (LOS) table in the technical appendices (CITE) was revised to separate the collector street designations into major collector and minor collector streets, revise the existing functional classifications used to determine the existing and General Plan No Project LOS values for several roadways, and to correct two street labels in the table. The LOS for minor collector streets is based on the capacity identified in Table 6.12-2 in the Draft MEIR, and the LOS for major collector streets is based on the capacity identified in Table A of the Street Design Guidelines.

The following figures have been revised and are attached:

Figure 6.12-7	Street Classifications
Figure 6.12-8	Street Classifications – Core Area
Figure 6.12-9	Number of Lanes
Figure 6.12-10	Number of Lanes – Core Area

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Table 6.12-2 on page 6.12-10 of the Draft MEIR is revised as follows:

TABLE 6.12-2

LEVEL OF SERVICE THRESHOLDS FOR ROAD SEGMENTS

Operational Class	Number of Lanes	ADT Level-of-Service Capacity Threshold				
		A	B	C	D	E
Freeway Segments	2	14,000	21,600	30,800	37,200	40,000
	4	28,000	43,200	61,600	74,400	80,000
	6	42,000	64,800	92,400	111,600	120,000
	8	56,000	86,400	123,200	148,800	160,000
	10	70,000	108,000	154,000	186,000	200,000
	12	84,000	129,600	184,800	223,200	240,000
Arterial – Low Access Control (Low access control roads generally have frequent driveways and 25-35 mph speeds)	2	9,000	10,500	12,000	13,500	15,000
	4	18,000	21,000	24,000	27,000	30,000
	6	27,000	31,500	36,000	40,500	45,000
Arterial – Moderate Access Control (Moderate access roads generally have limited driveways and 35-45 mph speeds)	2	10,800	12,600	14,400	16,200	18,000
	4	21,600	25,200	28,800	32,400	36,000
	6	32,000	37,800	43,200	48,600	54,000
Arterial – High Access Control (High access roads generally have no driveways and 45-55 mph speeds)	2	12,000	14,000	16,000	18,000	20,000
	4	24,000	28,000	32,000	36,000	40,000
	6	36,000	43,000	48,000	54,000	60,000
Collector Street - Minor	2	5,250	6,125	7,000	7,875	8,750
Collector Street - Major	4	16,800	19,600	22,400	25,200	28,000
	2	8,400	9,800	11,200	12,600	14,00
Local	2	3,000	3,500	4,000	4,500	5,000

Source: City of Sacramento, 1996.

Table 6.12-3 on page 6.12-13 of the Draft MEIR is revised to delete the portion of Elder Creek Road from Younger Creek to S. Watt; I Street from 21st to 22nd Streets; and Main Street between Norwood to Rio Linda as follows:

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TABLE 6.12-3

ROADWAY SYSTEM – EXISTING (2006-07) CITY ROAD SEGMENTS OPERATING AT LOS D OR WORSE

Roadway	Segment	Lanes	Daily Volume	Existing LOS
12th Street	F to G Streets	3	19,200	D
12th/14th Avenue	33rd to 34th Streets	2	18,000	F
43rd Avenue	S. Land Park to Holstein	2	7,100	D
65th Street	San Joaquin to 14th Avenue	4	29,500	D
Alhambra	Folsom to N	2	14,300	E
Arcade Boulevard	Marysville to Palmer	2	18,200	F
Arden Way	Harvard to Business 80	4	34,900	E
Blair Avenue	S. Land Park to Freeport	2	8,500	E
Broadway	58th to 59th Streets	2	15,600	D
El Camino Avenue	Auburn Blvd. to Business 80	4	29,900	D
El Camino Avenue	Business 80 to Howe	4	32,800	E
El Camino Avenue	Rio Linda to Del Paso	2	16,200	D
Elder Creek Road	Stockton to Elk Grove-Florin	2	12,800	F
~~Elder Creek Road~~	~~Younger Creek to S. Watt~~	~~2~~	~~11,300~~	~~F~~
Elkhorn Boulevard	SR 99 to E. Commerce	2	14,600	D
Florin Road	Greenhaven to I-5	4	38,000	E
Florin Road	UP Rail line to Luther	4	36,700	F
Florin Perkins Road	Fruitridge to Elder Creek	4	30,000	D
Folsom Boulevard	Howe to Bicentennial	4	39,300	F
Folsom Boulevard	UPRR to Jed Smith Drive	2	23,500	F
Freeport Boulevard	15th to 16th Avenue	4	30,200	F
Freeport Boulevard	Sutterville to Meer	4	29,200	D
Fruitridge Road	SR 99 to Martin Luther King	4	32,500	D
Fruitridge Road	44th Avenue to Ethel	4	32,000	D
Fruitridge Road	Franklin to SR 99	4	32,600	E
H Street	39th to 40th Streets	2	16,900	F
Howe Avenue	American River to Swarthmore	4	54,600	F
Howe Avenue	US 50 to Folsom	6	60,200	F
I Street	5th to 6th Streets	4	25,200	D
~~I Street~~	~~21st to 22nd Streets~~	~~2~~	~~10,800~~	~~F~~
I Street Bridge	3rd to 3rd Streets	2	12,700	D
J Street	5th to 6th Streets	3	21,900	E
Mack Road	Tangerine to Center Parkway	4	40,700	F
~~Main Avenue~~	~~Norwood to Rio Linda~~	~~2~~	~~8,400~~	~~E~~
Martin Luther King Blvd.	Broadway to 6th	2	9,300	F
Meadowview Road	Freeport to Mack	4	35,200	E
Northgate Boulevard	I-80 to W. El Camino	4	33,600	D
Power Inn Road	14th Avenue to Belvedere	4	36,800	F
Rio Linda Boulevard	Main to Bell	2	7,900	E
Roseville Road	Connie to I-80	2	14,800	D
W. El Camino Avenue	Northgate to American	2	15,200	D

Source: City of Sacramento and Fehr & Peers, 2008.

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Table 6.12-9 on page 6.12-67 of the Draft MEIR is revised to provide updated information for some roadway segments.

TABLE 6.12-9[5]

2030 CITY ROADWAY IMPACTS – SEGMENTS OPERATING AT LOS D, E, OR F CONDITIONS

Roadway	From	To	Current # of Lanes	Current LOS	2030 Conditions # of Lanes	2030 Conditions No Project LOS	2030 Conditions No Project V/C	2030 Conditions General Plan LOS	2030 Conditions General Plan V/C	Significant Project Impact[1]	Does Not Meet Old LOS C Goal[2]	Does Not Meet New LOS D/E Goal[2]	Cumulative Impact[4]
12TH ST	F ST	G ST	3	D	3	F	1.20	F	1.34	√	√	√	√
12TH/14TH AV	33RD ST	34TH ST	2	E	2	F	1.28	F	1.29		√	√	√
15TH ST	J ST	K ST	3	C	3	C	0.78	E	0.93	√	√		√
16TH ST	R ST	S ST	3	C	3	F	1.23	F	1.36	√	√	√	√
29TH ST	J ST	K ST	3	C	3	F	1.08	F	1.28	√	√	√	√
30TH ST	J ST	K ST	3	A	3	D	0.80	D	0.85	√	√		√
43RD AV	S. LAND PARK	HOLSTEIN	2	D	2	D	0.88	D	0.81		√		
65TH ST	SAN JOAQUIN	14TH AVE	4	D	4	F	1.06	F	1.08		√	√	√
ALHAMBRA BL	FOLSOM	N	2	E	2	E	0.95	E	0.95		√	√	
ARCADE BL	MARYSVILLE	PALMER	2	F	2	F	3.18	F	2.71		√	√	√
ARDEN WY	DEL PASO	ROYAL OAKS	4	B	4	D	0.88	E	0.91	√	√	√	√
ARDEN WY	POINT WEST	HERITAGE	8	B	8	D	0.84	E	0.94	√	√	√	√
BANNON ST	BERCUT	5TH	2	A	4	B	0.70	E	0.91	√	√		√
BLAIR AV/43RD AV	S. LAND PARK	FREEPORT	2	E	2	F	1.11	F	1.02		√	√	√
BROADWAY	16TH	17TH	4	C	4	F	1.04	F	1.15	√	√	√	√
BROADWAY	58TH	59TH	2	D	2	F	1.09	F	1.17	√	√	√	√
COLLEGE TOWN DR	LA RIVIERA	HORNET	4	B	4	D	0.81	D	0.86	√	√		√
COMMERCE PK	NEW MARKET	DEL PASO	4	A	6	C	0.74	D	0.89	√	√		√
DEL PASO RD	I-5	TRUXEL	6	A	6	C	0.74	E	0.97	√	√		√
EL CAMINO AV	RIO LINDA	DEL PASO	2	D	2	F	1.23	F	1.24		√	√	√
EL CAMINO AV	AUBURN BL	B-80	4	D	4	E	0.91	D	0.86		√		√
EL CAMINO AV	B-80	HOWE	4	E	4	E	0.98	E	0.99		√	√	√
ELDER CREEK RD	STOCKTON	ELK GROVE-FLORIN	2	F-D	4	F	1.05	D	0.85		√		
ELDER CREEK RD	65TH ST	BIBB	4	B	4	E	0.98	E	0.90		√	√	√
ELDER CREEK RD	YOUNGER CREEK	S WATT AVE	2	F-C	4	E	1.00	D	0.80		√		

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TABLE 6.12-9[5]

2030 CITY ROADWAY IMPACTS – SEGMENTS OPERATING AT LOS D, E, OR F CONDITIONS

Roadway	From	To	Current # of Lanes	Current LOS	2030 Conditions					Significant Project Impact[1]	Does Not Meet Old LOS C Goal[2]	Does Not Meet New LOS D/E Goal[3]	Cumulative Impact[4]
					# of Lanes	No Project LOS	No Project V/C	General Plan LOS	General Plan V/C				
ELKHORN BL	SR-99	COMMERCE	2	D	6	E	0.91	E	0.93	√	√	√	√
EXPOSITION BL	SR 160	TRIBUTE	4	A	4	C	0.78	D	0.82	√	√		√
FLORIN PERKINS	ELDER CREEK	FLORIN	4	B	4	E	0.91	D	0.81		√		√
FLORIN PERKINS	FRUITRIDGE	ELDER CREEK	4	D	4	F	1.21	F	1.08		√	√	√
FLORIN RD	GREENHAVEN	I-5	4	E	4	F	1.09	F	1.07		√	√	√
FLORIN RD	UP RAIL LINE	LUTHER	4	F	4	F	1.21	F	1.36	√	√	√	√
FOLSOM BL	HOWE	BICENTENNIAL	4	F	4	F	1.63	F	1.58		√	√	√
FOLSOM BL	UPRR	JED SMITH DRIVE	2	F	4	E	0.94	F	1.02	√	√	√	√
FREEPORT BL	SUTTERVILLE	MEER	4	D	4	E	0.96	D	0.87		√		√
FREEPORT BL	15TH AV	16TH AV	4	F	4	F	1.10	F	1.06		√	√	√
FRUITRIDGE RD	FRANKLIN	SR 99	4	E	4	E	0.98	E	0.91		√	√	
FRUITRIDGE RD	SR 99	MARTIN LUTHER KING BL	4	D	4	D	0.89	D	0.87		√		√
FRUITRIDGE RD	44TH ST	ETHEL	4	D	4	E	0.99	E	0.97		√	√	√
FRUITRIDGE RD	WALLACE	FLORIN-PERKINS	4	A	4	D	0.90	D	0.84		√		√
H ST	39TH	40TH	2	F	2	F	1.93	F	1.93		√	√	
HORNET DR	COLLEGE TOWN	WB 50 ON-RAMP	4	B	4	C	0.79	E	0.96	√	√		√
HOWE AV	AMERICAN RIVER	SWARTHMORE	4	F	6	F	1.12	F	1.11		√	√	√
HOWE AV	US 50	FOLSOM	6	F	6	F	1.25	F	1.24		√	√	√
I ST	5TH	6TH	4	D	4	F	1.06	F	1.27	√	√	√	√
I ST	21ST	22ND	2	F-A	2	~~F~~ F-B	~~1.39~~ 0.68	F	~~1.61~~ 1.01	√	√	√	√
I STREET BRIDGE	3RD	3RD	2	D	2	F	1.95	F	2.17	√	√	√	√

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TABLE 6.12-9[5]

2030 CITY ROADWAY IMPACTS – SEGMENTS OPERATING AT LOS D, E, OR F CONDITIONS

Roadway	From	To	Current # of Lanes	Current LOS	# of Lanes	2030 Conditions: No Project LOS	No Project V/C	2030 Conditions: General Plan LOS	General Plan V/C	Significant Project Impact[1]	Does Not Meet Old LOS C Goal[2]	Does Not Meet New LOS D/E Goal[2]	Cumulative Impact[4]
J ST	5TH	6TH	3	E	3	E	0.97	F	1.04	√	√	√	√
J ST	28TH	29TH	3	C	3	D	0.81	F	1.01	√	√	√	√
JACKSON RD	SOUTH OF	FOLSOM	2	C	4	E	0.94	D	0.86		√		√
L ST	5TH	6TH	3	B	3	C	0.80	F	1.04	√	√	√	√
MACK RD	MEADOWVIEW	FRANKLIN	4	C	4	E	0.93	E	0.91		√	√	√
MACK RD	TANGERINE	CENTER PKWY	4	F	4	F	1.20	F	1.16		√	√	√
MACK RD	CENTER PKWY	STOCKTON	4	C	4	F	1.35	F	1.27		√	√	√
MARTIN LUTHER KING BL	BROADWAY	6TH AV	2	F	2	F	1.27	F	1.22		√	√	√
MARYSVILLE BL	NORTH	GRAND	4	C	4	F	1.12	E	0.99		√	√	√
MEADOWVIEW RD	FREEPORT	MACK	4	E	4	F	1.10	E	0.98		√		
NATOMAS BL	N. BEND DRIVE	DEL PASO	6	A	6	C	0.77	D	0.83	√	√		√
NORTHGATE BL	DEL PASO	NORTH MARKET	4	C	4	F	1.15	F	1.11		√	√	√
NORTHGATE BL	NORTH MARKET	I-80	6	B	6	E	0.91	D	0.83		√		√
NORTHGATE BL	I-80	W EL CAMINO	4	D	4	F	1.17	F	1.09		√	√	√
NORTHGATE BL	HARDING	GARDEN HY	4	A	4	D	0.81	D	0.82		√		√
NORWOOD AV	LAS PALMAS	ELEANOR	2	B	2	E	0.98	D	0.85		√		√
RALEY BL	CITY LIMITS	BELL	2	C	4	E	0.99	D	0.82		√		√
RALEY BL	BELL	I-80	4	C	4	F	1.44	F	1.14		√	√	√
RICHARDS BL	BERCUT	5TH	4	A	4	B	0.70	E	0.91	√	√	√	√
RIO LINDA BL	MAIN	BELL	2	E-A	2	~~F~~ E	~~4.55~~ 0.91	F	1.39		√	√	√
ROSEVILLE RD	CONNIE	I-80	2	D	4	D	0.90	E	0.93	√	√	√	√
ROYAL OAKS DR	SR 160	SOUTHGATE	2	C	2	F	~~4.76~~ 1.10	F	~~1.90~~ 1.19	√	√	√	√
SAN JUAN RD	EL CENTRO	ORCHARD	~~2~~	A	~~2~~	D	~~0.86~~	D	~~0.89~~	√	√		√
SAN JUAN RD	TRUXEL	ROCKHAMPT	4	B	4	D	0.85	D	0.83		√		√

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TABLE 6.12-9[5]

2030 CITY ROADWAY IMPACTS – SEGMENTS OPERATING AT LOS D, E, OR F CONDITIONS

Roadway	From	To	Current # of Lanes	Current LOS	2030 Conditions					Significant Project Impact[1]	Does Not Meet Old LOS C Goal[2]	Does Not Meet New LOS D/E Goal[2]	Cumulative Impact[4]
					No Project			General Plan					
					# of Lanes	LOS	V/C	LOS	V/C				
		ON											
SILVER EAGLE RD	NORTHGATE	NORWOOD	2	C	2	F	1.18	E-F	0.94 1.21		√	√	√
TOWER BRIDGE	3RD	3RD	4	A	4	F	1.13	F	1.23	√	√	√	√
TRUXEL RD	GATEWAY PARK	I-80	8	C	8	F	1.08	F	1.22	√	√	√	√
VALLEY HI DR	CENTER	FRANKLIN	2	C	2	D	0.89	D	0.86		√		√
WEST EL CAMINO AV	NORTHGATE	AMERICAN	2	D	2	F	1.33	F	1.31		√	√	√

Notes:
1. Significant Project Impact – 2030 General Plan creates a significant impact, based on level of service and v/c thresholds, when compared to the 2030 No Project.
2. Does Note Meet LOS C Goal – 2030 General Plan does not meet the LOS C goal in the old version of the General Plan.
3. Does not Meet LOS D/E Goal – 2030 General Plan does not meet the LOS D/E goal in the new 2030 General Plan.
4. Cumulative Impact – a significant cumulative impact occurs, based on level of service and v/c thresholds, when comparing the 2030 General Plan to existing conditions.
5. Segments that would operate at LOS A, B or C under the 2030 General Plan are not listed in this table, but are shown in Figure 6.12-14.

LOS = Level of Service; V/C = Volume/capacity ratio.
Source – Fehr & Peers, 2008.

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The second to last sentence at the end of the first paragraph on page 6.12-71 is revised as follows.

This portion of Elvas Avenue would operate at LOS B conditions if the planned number of through lanes were reduced to two lanes with a median. A reduction in the number of planned lanes, to two through lanes, is not projected to result in a diversion of traffic to parallel routes.

Table 6.12-12 on page 6.12-77 is revised as follows:

TABLE 6.12-12

NUMBER OF THROUGH LANES REQUIRED TO MITIGATE SIGNIFICANT IMPACTS BASED ON CURRENT SIGNIFICANCE THRESHOLDS FOR ROADWAYS

Roadway	Impact Limits	Existing # of Lanes	2030 # of Lanes	# of Lanes for LOS C	# of Lanes for LOS D-E
12TH STREET	F to L Streets	3	3	5	4
15TH STREET	Broadway to J Street	3	3	4	4
16TH STREET	Broadway to G Street	3	3	5	5
29TH STREET	J to Q Streets	3	3	5	4
30TH STREET	J to Q Streets	3	3	4	-
ARDEN WAY	Del Paso to Royal Oaks	4	4	6	-
	Capital City Fwy to Ethan Way	8	8	10	10
BANNON ST	Bercut to 5th Street	2	4	5	-
BROADWAY	15th St to Franklin Blvd	4	4	6	6
BROADWAY	58th to 65th Streets	2	2	4	4
COLLEGE TOWN DRIVE	La Riviera to Hornet	4	4	6	-
COMMERCE PKWY	New Market to Del Paso	6	6	8	-
DEL PASO ROAD	I-5 to Truxel	4	6	8	-
ELKHORN BL	SR 99 to E. Commerce	2	6	8	8
EXPOSITION BL	SR 160 to Tribute	4	4	6	-
FLORIN ROAD	24th St to Franklin Blvd	4	4	8	6
FOLSOM BL	UPRR to Howe Ave	2	4	6	6
HORNET DRIVE	College Town to US 50	4	4	6	-
I STREET	3rd to 16th Streets	4	4	6	5
	16th to 30th Streets	2	2	4	3
I STREET BRIDGE	3rd to 3rd Streets	2	2	6	6
J STREET	3rd to 16th Streets	3	3	4	4
	16th to 30th Streets	3	3	4	4
L STREET	3rd to 16th Streets	3	3	4	4
NATOMAS BLVD	Del Paso Rd to N. Bend Dr	6	6	8	6
RICHARDS BL	Bercut to 5th Street	4	4	5	-
ROSEVILLE ROAD	Marconi Ave to I-80	2	4	6	6
ROYAL OAKS DRIVE	SR 160 to Arden Way	2	2	4	4
~~SAN JUAN ROAD~~	~~El Centro to Orchard~~	~~2~~	~~2~~	~~4~~	-
SILVER EAGLE ROAD	Northgate to Norwood	2	2	4	4
TOWER BRIDGE	3rd to 3rd Streets	4	4	8	6
TRUXEL ROAD	I-80 to Gateway Park	8	8	14	10

Notes:
"-" In "# of Lanes for LOS D-E" column indicates that no mitigations are required to provide LOS D-E conditions
Source: Fehr & Peers, 2007.

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Mitigation Measure 6.12-1 is revised to read as follows:

6.12-1 The City of Sacramento shall revise Policy M1.2.2 in the Mobility section to read as follows:

The City shall allow for flexible Level of Service (LOS) standards, which will permit increased densities and mix of uses to increase transit ridership, biking, and walking, which decreases auto travel, thereby reducing air pollution, energy consumption, and greenhouse gas emissions

a. *Core Area Level of Service Exemption—LOS F conditions are acceptable during peak hours in the Core Area bounded by C Street, the Sacramento River, 30th Street, and X Street. If a Traffic Study is prepared and identifies a LOS impact that would otherwise be considered significant to a roadway or intersection that is in the Core Area as described above, the project would not be required in that particular instance to widen roadways in order for the City to find project conformance with the General Plan. Instead, General Plan conformance could still be found if the project provides improvements to other parts of the citywide transportation system in order to improve transportation-system-wide roadway capacity, to make intersection improvements, or to enhance non-auto travel modes in furtherance of the General Plan goals. The improvements would be required within the project site vicinity or within the area affected by the project's vehicular traffic impacts. With the provision of such other transportation infrastructure improvements, the project would not be required to provide any mitigation for vehicular traffic impacts to road segments in order to conform to the General Plan. This exemption does not affect the implementation of previously approved roadway and intersection improvements identified for the Railyards or River District planning areas.*

b. *Level of Service Standard for Multi-Modal Districts—The City shall seek to maintain the following standards in the Central Business District, in areas within ½ mile walking distance of light rail stations, and in areas designated for urban scale development (Urban Centers, Urban Corridors, and Urban Neighborhoods as designated in the Land Use and Urban Form Diagram). These areas are characterized by frequent transit service, enhanced pedestrian and bicycle systems, a mix of uses, and higher-density development.*

   - *Maintain operations on all roadways and intersections at LOS A-E at all times, including peak travel times, unless maintaining this LOS would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. LOS F conditions may be acceptable, provided that provisions are made to improve the overall system and/or promote non-vehicular transportation and transit as part of a development project or a City-initiated project.*

c. *Base Level of Service Standard—the City shall seek to maintain the following standards for all areas outside of multi-modal districts.*

   - *Maintain operations on all roadways and intersections at LOS A-D at all times, including peak travel times, unless maintaining this LOS would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. LOS E or F conditions may be accepted, provided that provisions are made to improve the overall system and/or promote non-vehicular transportation as part of a development project or a City-initiated project.*

d. *Roadways Exempt from Level of Service Standard—The above LOS standards shall apply to all roads, intersections or interchanges within the City except as specified below. If a Traffic Study is prepared and identifies a significant LOS impact to a roadway or intersection that is located within one of the roadway corridors described below, the project would not be required in* 392

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that particular instance to widen roadways in order for the City to find project conformance with the General Plan. Instead, General Plan conformance could still be found if the project provides improvements to other parts of the city wide transportation system in order to improve transportation-system-wide roadway capacity, to make intersection improvements, or to enhance non-auto travel modes in furtherance of the General Plan goals. The improvements would be required within the project site vicinity or within the area affected by the project's vehicular traffic impacts. With the provision of such other transportation infrastructure improvements, the project would not be required to provide any mitigation for vehicular traffic impacts to the listed road segment in order to conform to the General Plan.

- *12th/14th Avenue: State Route 99 to 36th Street*
- *24th Street: Meadowview Road to Delta Shores Circle*
- *65th Street: Folsom Boulevard to 14th Avenue*
- *Alhambra Boulevard: Folsom Boulevard to P Street*
- *Arcade Boulevard: Marysville Boulevard to Del Paso Boulevard*
- *Arden Way: Capital City Freeway to Ethan Way*
- *Blair Avenue/47th Avenue: S. Land Park Drive to Freeport Boulevard*
- *Broadway: 15th Street to Franklin Boulevard*
- *Broadway: 58th to 65th Streets*
- *El Camino Avenue: Stonecreek Drive to Marysville Boulevard*
- *El Camino Avenue: Capitol City Freeway to Howe Avenue*
- *Elder Creek Road: 65th Street to Power Inn Road*
- *Florin Perkins Road: 14th Avenue to Elder Creek Road*
- *Florin Road: Greenhaven Drive to I-5; 24th Street to Franklin Boulevard*
- *Folsom Boulevard: 34th Street to Watt Avenue*
- *Freeport Boulevard: Broadway to Seamas Avenue*
- *Fruitridge Road: Franklin Boulevard to SR 99*
- *Garden Highway: Truxel Road to Northgate Boulevard*
- *Howe Avenue: American River Drive to Folsom Boulevard*
- *J Street: 43rd Street to 56th Street*
- *Mack Road: Meadowview Road to Stockton Boulevard*
- *Martin Luther King Boulevard: Broadway to 12th Avenue*
- *Marysville Boulevard: I-80 to Arcade Boulevard*
- *Northgate Boulevard: Del Paso Road to SR 160*
- *Raley Boulevard: Bell Avenue to I-80*
- *Roseville Road: Marconi Avenue to I-80*
- *Royal Oaks Drive: SR 160 to Arden Way*
- *Truxel Road: I-80 to Gateway Park*

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Mitigation Measure 6.12-3 on page 6.12-86 is revised to read as follows:

6.12-3 *The City of Sacramento shall include the following policy in the Mobility section of the 2030 General Plan:*

Provide Fair Share of ITS Improvements. The City of Sacramento shall coordinate with Caltrans and provide a fair share of funding to implement ITS improvements on ~~the above~~ the following freeway segments upon mutual agreement of terms between the City and Caltrans.

- *Interstate 5 – Arena Boulevard to I-80*
- *Interstate 5 – I-80 to West El Camino Avenue*
- *State Route 50 – Freeport Boulevard to State Route 99*
- *State Route 50 – 59th Street to 65th Street*
- *State Route 50 – Howe Avenue to Watt Avenue*
- *State Route 51 (Capital City Freeway) – Watt Avenue to I-80*
- *State Route 51 (Capital City Freeway) – Arden Way to El Camino Avenue*
- *State Route 99 – Broadway to 12th Avenue (FB/IGC)*

3. Climate Change

During the hearings on the 2030 General Plan and the Master EIR, the State Office of the Attorney General, the Sacramento Metropolitan Air Quality Management District (SMAQMD), and others urged the City to make a finding of significance on the cumulative impact of greenhouse gas emissions on global climate change, based on the information contained in the draft and final MEIR, and to strengthen certain 2030 General Plan policies and implementation programs related to reducing greenhouse gas emissions.

A determination of significance for greenhouse gas emissions and climate change would provide a base for enforceable mitigation under the California Environmental Quality Act (CEQA). Based on the views presented at the Planning Commission and City Council, the City has determined that greenhouse gas emissions that could be generated by development consistent with the 2030 General Plan would be a cumulatively considerable contribution to climate change, and the impact is, therefore, a **significant cumulative impact**.

In addition, the City has reviewed the various policies and implementation programs in the 2030 General Plan that could mitigate greenhouse gas emissions, and has determined that a number of these policies should be revised. A list of such policies, including the changes that have been made to respond to the continuing discussion of climate change, has been included as part of the Mitigation Monitoring Plan that implements mitigation identified in the Master EIR.

The 2030 General Plan calls for land use patterns that focus on infill and mixed use development that support public transit and increase opportunities for pedestrians and bicycle use; quality design guidelines and "complete" neighborhoods and streets to enhance neighborhood livability and the pedestrian experience; "green building" practices including the adoption of a green building rating program and ordinance and the use of recycled construction materials and alternative energy systems; and adaptation to climate change, such as reducing the impacts from the urban heat island effect, managing water use, and increasing flood protection. Specific goals, policies, and programs targeting greenhouse gas reductions commit the City to AB 32 394 reduction targets, preparation of a greenhouse gas emissions inventory for existing land uses

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and 2030 General Plan build-out, reductions in greenhouse gas emission from new development, and adoption of a climate action and adaptation plan by 2010 with on-going monitoring and reporting.

The effects of the 2030 General Plan promote denser urban development within the current City territorial limits to accommodate population growth, which will reduce growth pressures and sprawl in outlying areas. While total greenhouse gas emissions within the General Plan policy area may increase over time due to growth in population in the region, this increase is less than what would have occurred if the 2030 General Plan were not adopted and development of more land in outlying areas was permitted under the current 1988 General Plan. Adoption of the 2030 General Plan will put these key strategies in place immediately and begin to shape development as well as the activities of day-to-day living and move the City and the region toward a more sustainable future.

However, because the actual effectiveness of all the feasible policies and programs included in the 2030 General Plan that avoid, minimize, or reduce greenhouse gas emissions is unknown, the impact remains a **significant and unavoidable cumulative impact.**

4. Camino Norte

The Draft MEIR discusses the environmental review process for projects that are consistent with the 2030 General Plan (see page 3-29 et seq.). One of the projects referenced is the annexation and development of Camino Norte.

The Camino Norte site, in North Natomas, is designated as "Planned Development" in the 2030 General Plan (page 2-124). Camino Norte is located outside the City's sphere of influence, and would require approval of a sphere of influence amendment by the Sacramento Local Agency Formation Commission prior to annexation by the City and any subsequent entitlement approvals by the City. The population and employment estimates attributable to development in the Camino Norte area were included as part of the cumulative impact analysis in the Master EIR.

Because the references to the status of the Camino Norte project area could create confusion, the reference to Camino Norte in the Draft Master EIR is revised as follows:

Additions are underlined and deletions are struck out. On page 3-40 of the DMEIR, change the first paragraph to read:

> Future development along R Street in downtown, and <u>sphere of influence amendment, annexation</u> and development of Camino Norte located in North Natomas, are also ~~potentially~~ subsequent projects as well as future redevelopment activities anticipated within the six Focused Opportunity Areas discussed above.

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5. Figure 6.3-3: Natomas Basin HCP

Figure 6.3-3 in the Draft MEIR and the revision to the same figure in the Final MEIR identify the City's Permit Area under the Natomas Basin Habitat Conservation Plan. The revised figure in the Final MEIR is correct except that it includes the land area for the Greenbriar project in the City's Permit Area in error. The Greenbriar project is located at the northwest corner of the intersection of Interstate 5 and State Highway 99, and Figure 6.3-3 will be amended to exclude this land area from the Permit Area, and Figure 6.3-3 will be further revised to indicate that it depicts the City's Permit Area.

6. Recirculation

Errata No. 1, dated November 5, 2008, identified revisions to text in the Final EIR regarding General Plan changes. In some cases the revisions to the General Plan text reduced the significance conclusion of identified impacts to less than significant, and in other cases the impact remained significant and unavoidable. In this Errata No. 2, the policy regarding single noise events has been revised, technical changes are made in the Transportation and Circulation section, and minor changes in text regarding Camino Norte and the figure identifying the City's Permit Area in the Natomas Basin HCP have been set forth.

This Errata No. 2 also includes a discussion that confirms a significance conclusion regarding climate change. The climate change discussion and conclusion is based on the discussion of climate change and greenhouse gas emissions in the Draft MEIR and Final MEIR, and does not identify any new impact not fully discussed in the previous documents.

The changes identified in the two Errata do not identify any new impacts or identify any substantial increase in the severity of an environmental impact that would not be reduced to a less-than-significant level through mitigation, nor would the revised mitigation measures result in new significant environmental impacts. (CEQA Guidelines, Sections 15088.5(a)(1) and 15088.5(a)(2). Instead, the revised mitigation measures clarify and strengthen the effectiveness of the mitigation measures to help further reduce or avoid an impact. Because no new unmitigated impacts have been identified or created by the revised mitigation, the EIR is not changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the Project (CEQA Guidelines section 15088.5(a)(4)). The revisions to the EIR's mitigation measures represent improvements to the analysis and mitigation of impacts and do not require recirculation of the EIR.

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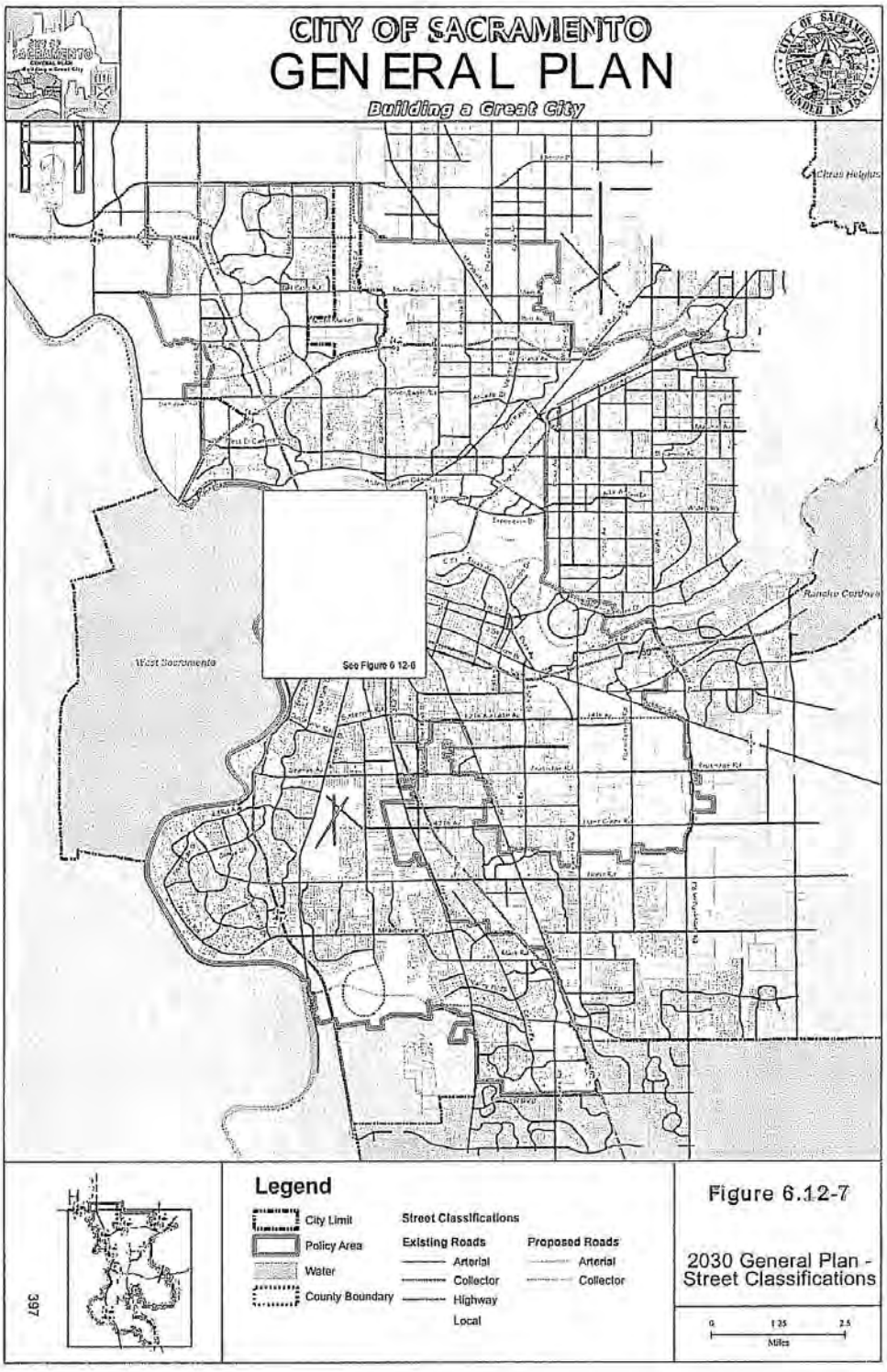

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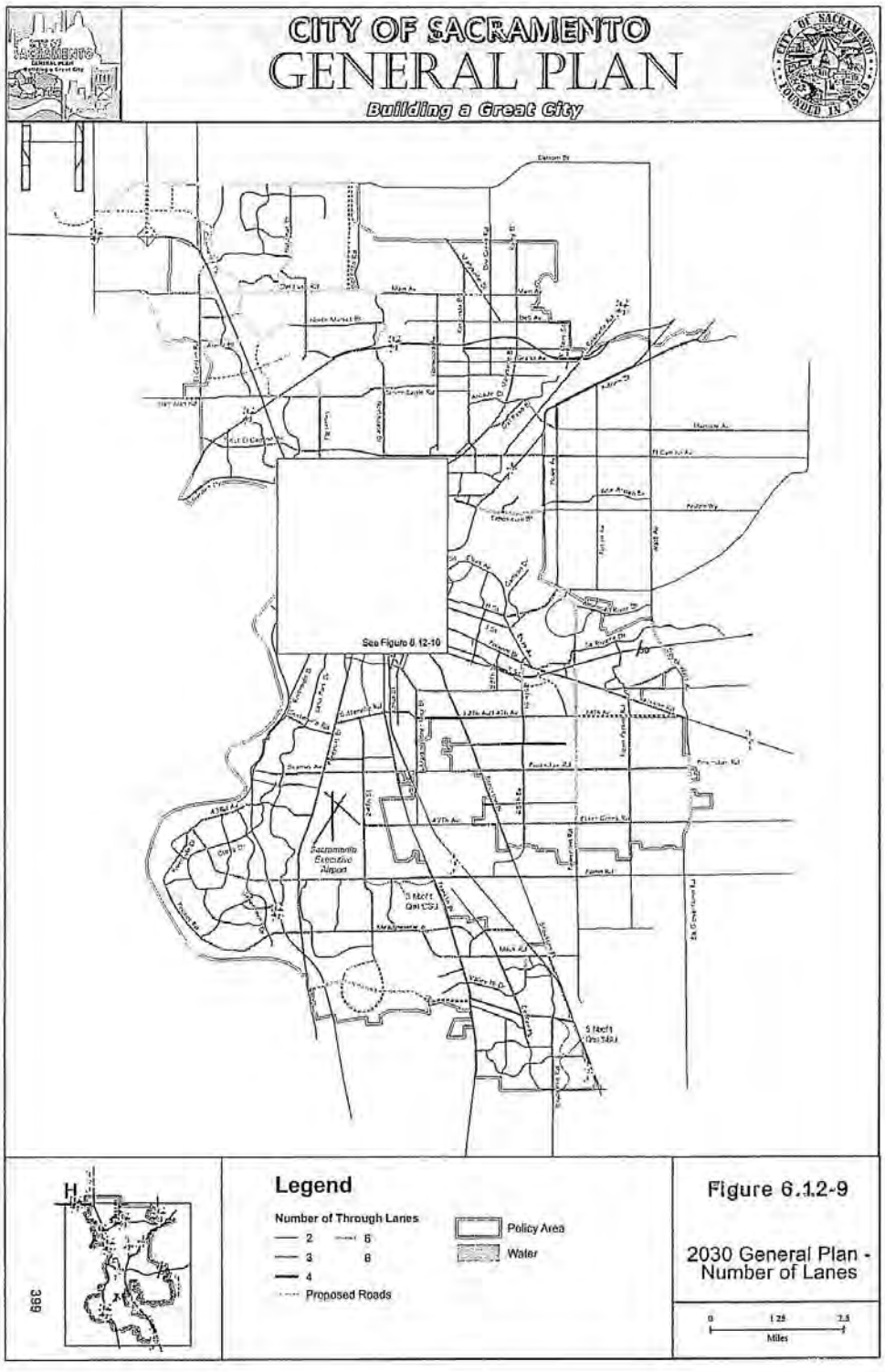

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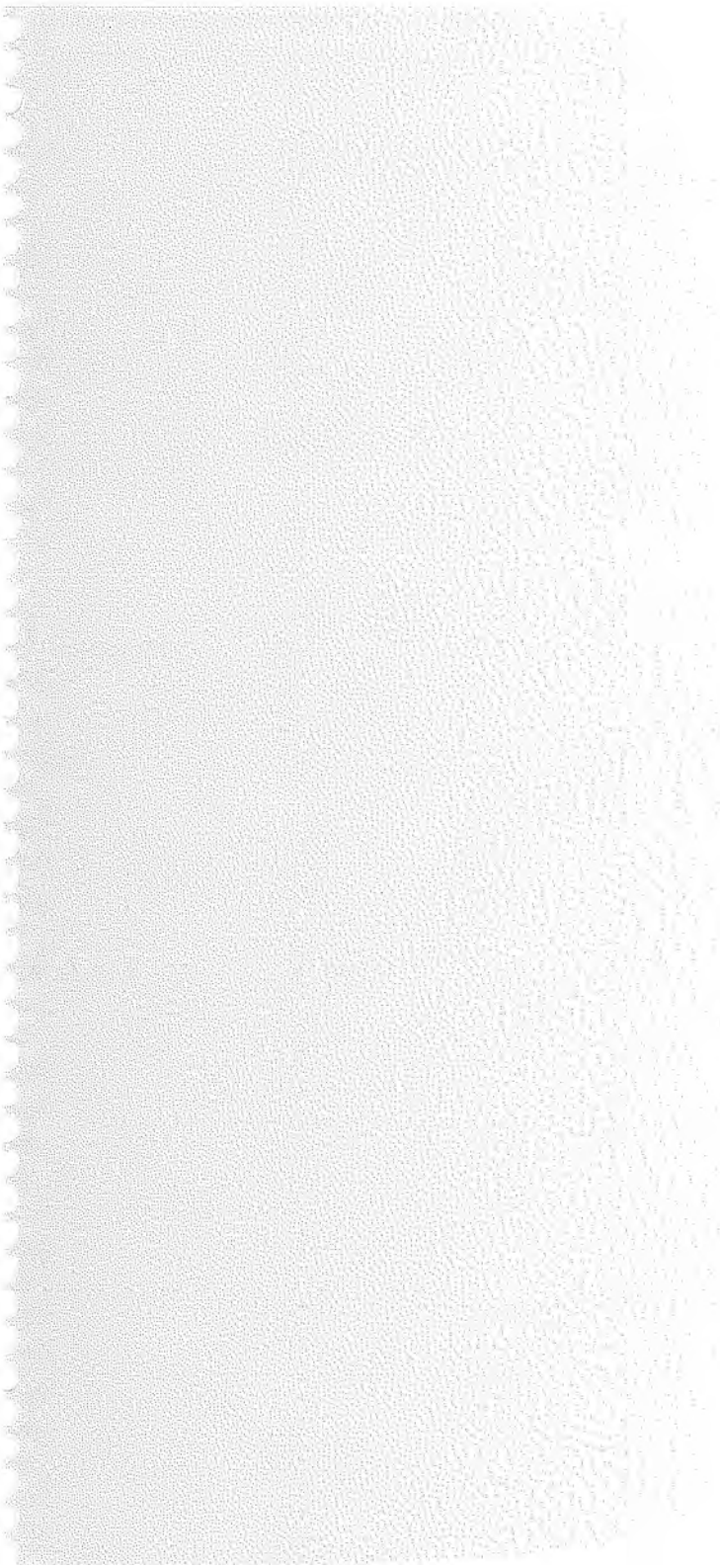

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Sacramento 2030 General Plan
Final Master Environmental Impact Report
City Project #M04-031

SCH No. 2007072024

Prepared for:

City of Sacramento

Prepared by:

PBS&J

November 2008

Letter 5 Cont'd.

technological solutions). To aid in the implementation of statewide targets, the city of Sacramento and neighboring jurisdictions are working to prepare a regional climate change inventory, as discussed in the revised final paragraph on page 8-31 of the Draft MEIR:

> The City of Sacramento is currently working with Sacramento County and the other cities within the county to develop a county-wide, 1990 inventory of GHG emissions, but that work is not yet completed.[5] Completion of the inventory is expected by December 2008. Therefore, it is difficult to determine at this time what the City of Sacramento's responsibility will be to aid in the reduction of statewide GHG emissions to meet the AB 32 reduction targets

Second, comparison of the net project emissions to the reduction targets would be inappropriate unless the project's emissions reduction policies were taken into account. Such policies would be expected to achieve substantial emissions reductions. However, there is not enough data available to quantify the emissions reductions that would be achieved through these policies. Therefore, the percent change in emissions, following incorporation of mitigating features, cannot be quantitatively estimated at this time.

The commentor also requests that the Draft MEIR discuss the project's contribution to 2050 reductions targets, a date beyond the lifetime of the 2030 General Plan. The City has designed the 2030 General Plan to avoid policies that would inhibit or impede the eventual realization of long-term greenhouse gas targets and has added a number of proactive policies that would be expected to reduce long-term GHG emissions. Unlike the existing 1988 General Plan, the proposed 2030 General Plan includes a number of policies specifically designed to reduce greenhouse gas emissions. The proposed 2030 General Plan also attempts to contain physical sprawl, encourage more compact development, and promote the development of alternative transportation. Emissions reductions policies are discussed in Tables 8-5 and 8-6 of the Draft MEIR.

Response to Comment 2-7

The comment recommends that the City improve its global warming mitigation measures to ensure they meet the goals set forth in the 2030 General Plan. Please see the City's Master Climate Change Response.

---

5 The City of Sacramento is currently working with Sacramento County and the other incorporated cities within the county to develop a countywide, 1990 inventory of GHG emissions. Because local GHG emission data for 1990 is not readily available, it is anticipated that 2005 data will be established as the baseline, and the City, the County, the other six incorporated cities in the county, and ICLEI, Local Governments for Sustainability, will collaborate to develop a formula for determining the 1990 levels from the 2005 data. ICLEI is an international association of local governments which provides technical consulting, training, and information services so jurisdictions can achieve their sustainability objectives, such as developing inventories of GHG emissions to reduce their impact on global climate change.

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General plans are policy documents that outline a local jurisdiction's community development goals. Excessive specificity in the general plan can make it difficult for a municipality to incorporate new technological advances, development standards, and other implementation strategies without amending the general plan. Given the speed at which new strategies are being developed to address climate change, the City of Sacramento recognizes that it must retain a certain amount of policy flexibility to account for new ideas and technology. In addition, Chapter 4, of the 2030 General Plan includes specific Implementation Programs which describe how the policies will be implemented. Also, please see Responses to Comments 2-8, 2-9, 2-10, 2-11, 2-12 and 2-13, below.

Response to Comment 2-8

The comment notes that the City's Climate Action Plan (CAP) needs to be included in the General Plan and establish specific parameters including target date for adoption, inventory of GHG emissions, reduction targets, etc. Please see the City's Master Climate Change Response.

Response to Comment 2-9

The commentor feels that the City's Climate Action Plan is not adequate mitigation and requests that specific information be contained in the plan in order to ensure it meets the mitigation requirement. Please see the City's Master Climate Change Response.

Response to Comment 2-10

The commentor suggests that the City should consider whether mandatory green building requirements for residential and non-residential buildings and energy efficiency upgrades for existing buildings would be feasible and assist in achieving its goal of decreasing dependence on nonrenewable energy sources.

The City acknowledges that building energy efficiency plays a major role in California's energy strategy for reducing GHG emissions and promoting sustainability. The City's commitment to ensuring that sustainable building practices are applied to both city buildings and the private sector, and for both new development and redevelopment/reuse, is reflected in both the city-wide policy statements contained in Section 2 of the 2030 General Plan and in the specific corresponding implementation programs to carry out those policies contained in Section 4 of the 2030 General Plan.

The City-wide goals and policies, which by their nature are directory rather than mandatory, call for the City to do the following: (1) to promote sustainable building practices that incorporate the "whole building" approach to building design and construction to conserve energy (Policy LU 2.6.3); (2) to encourage and promote retention, reuse, and retrofitting of existing structures

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CITY CLIMATE CHANGE MASTER RESPONSE

Comments regarding the discussion of climate change and greenhouse gas emissions (GHG) in the Draft Master EIR were submitted by the Attorney General for the State of California and the Sacramento Metropolitan Air Quality Management District (SMAQMD). This Master Response provides the City's general response to the comments; particular issues raised in the comments are addressed on an individual basis. (See Responses to Letters 2 and 6.)

As the SMAQMD comment notes, the City of Sacramento has taken a leadership role in the climate change discussion. The Draft MEIR identifies the various actions that the City has taken, and the City is clearly committed to additional meaningful action as knowledge of the issue, and the tools available for analysis, are further developed.

The Attorney General and SMAQMD have each identified several critical areas in which they have encouraged additional action and undertakings by the City in addition to those identified in the Draft MEIR. These areas are identified below followed by the City's response.

The City should provide a baseline greenhouse gas emission inventory

The City agrees that a clear and understandable inventory of greenhouse gas emissions (GHG) is an essential component of developing an effective GHG emission reduction strategy to meet the AB 32 targets and to provide the foundation for developing effective and measurable CEQA mitigation measures. As noted in the SMAQMD comment letter (see Comment Letter 2), the City is working with the Sacramento Area Green Partnership to develop a 2005 inventory of GHG emissions for Sacramento County. The next steps will include a projection of emissions to 2025/2030, as well as identification of the 1990 emission levels. This inventory would be comprehensive and include estimates of 1990 and 2005 emissions for all public and private sources. For purposes of this discussion, this detailed inventory is referred to as the "communitywide inventory." The 2005 communitywide baseline developed from this comprehensive inventory will be used to determine the City's Climate Action Plan (CAP) that is currently in the development stages.

At the time of publication of the Draft MEIR, the communitywide inventory was not available. Therefore, the analysis in the Draft MEIR evaluates potential GHG emissions from municipal sources, private and public vehicle trips, and statewide estimates of private and public electricity usage. The inventory shown in Table 8-3 is a conservative estimate and does not consider GHG emissions reductions that may occur after implementation of 2030 General Plan policies and programs. Detailed and accurate information regarding private and public emissions is still being compiled by the regional partners at this time.

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The "municipal inventory" identified in Table 8-3 only considers emissions generated by City entities and service providers and City-operated vehicles, facilities, and infrastructure (i.e., City operated-buildings, City-operated water supply pumps, City-operated sewage collection facilities). It is estimated that the City's municipal inventory emissions represent approximately 67,241 tons (approximately 184 tons/day).[2] For the purposes of this MEIR, the data included in Table 8-3 is the best available baseline estimate available at this time for an assessment of greenhouse gas emissions.

It is anticipated that the City's portion of the 1990 and 2005 communitywide inventories will take into consideration the data included in Table 8-3 of the Draft MEIR as well as more detailed emissions information that is currently not available. This citywide inventory, for example, could refine the generalized statewide electricity emissions factors used in the Draft MEIR to reflect local conditions and energy consumption patterns.

Footnotes

1 The URBEMIS model is based on the EMFAC model

2 Energy and Climate Working Group of the Sustainability Advisory Committee, City of Sacramento, Draft Climate Action Plan, June 29, 2007. Total emissions were converted from tons to metric tons using a factor of 1.102 tons/metric ton

The City is aware that some local agencies have identified emission levels for their communities in planning and environmental documents. There is, however, no definitive protocol for establishing such levels. Reaching agreement on a county-wide (and ultimately a regional) basis regarding the methodology is important, and while working with the City's regional partners has extended the process somewhat, the benefits eventually to be realized make such effort worthwhile. It should be noted also that the regional approach is consistent with the recommendations of the California Air Resources Board's (CARB) *Draft Scoping Plan* to identify regional reduction targets for the local government land use and transportation-related sector. In addition, the recently-enacted Senate Bill 375 requires CARB to develop regional GHG reduction targets by 2010.

Once a protocol and 2005 GHG levels have been established, the City, working in cooperation with its regional partners, will be in a position to complete the 2025/2030 projection and the 1990 estimate. With this information, the magnitude of the regional reductions required to meet the state goals as set forth in AB 32 can then be identified.

The City anticipates that information provided by the Office of Planning and Research (OPR) or other sources will result in a consensus regarding the methodology for estimating GHG emissions. In the meantime, adoption of the 2030 General Plan will put in place immediately goals and policies and implementation programs that will reduce GHG emissions through land use patterns that support public transit, pedestrian, and bicycle use; implementation of "green building" practices and alternative energy systems; design guidelines that reduce heat island

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effects; management of water use; and improved flood protection. The City will continue to work at the local and regional levels to provide reasonably accurate and meaningful information to the public, interested agencies and decision-makers regarding the issue.

The City should adopt a clearer and more aggressive climate action plan

The City has undertaken a clear commitment to establish and maintain a climate action plan as part of its Implementation Programs, which are contained in Part 4 of the General Plan (not a separate document, as the Attorney General comment letter (see Letter 2) suggested). As noted in Environmental Resources Implementation Program #11, the City is committed to developing a climate action plan in order to implement specific General Plan policies that call for reduction of GHG and consistency with the AB 32 (Global Warming Solutions Act of 2006) (see Policies ER 6.1.3, 6.1.4, and 6.1.5). The General Plan policies that address climate change also reinforce the goals and targets established in the City's Sustainability Plan, adopted by the City Council in December 2007, which are also consistent with AB 32.

To help clarify the City's General Plan policies and current efforts already being implemented through the Sustainability Master Plan, staff recommends that Implementation Program #11 be modified as follows:

> The City shall develop and adopt a climate action plan that monitors climate change impacts and outlines a strategy for reducing greenhouse gas emissions and adapting to climate change. The climate action plan will include the following:
>
> - a clear timeline for completion (2008-2010);
> - an inventory of emissions;
> - reduction targets consistent with AB 32 and the City's' Sustainability Master Plan;
> - specific reduction strategies that will help to achieve reduction targets;
> - monitoring and reporting requirements, to ensure that reduction targets are updated over time;
> - adaptive management strategies to ensure that reduction targets are updated over time.
>
> The City shall work with the Sacramento Metropolitan Air Quality Management District, the California Air Resources Board, and other appropriate agencies to ensure that the City's climate action plan is regionally consistent, and pursue state funding to implement the plan.

The City anticipates that statutory and regulatory guidance will be forthcoming in the next year, as well as completion of the County-wide inventory of greenhouse gases, which will help in continuing the climate action planning process once the General Plan is adopted.

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The City should adopt thresholds of significance and provide an impact analysis for greenhouse gas emissions

The City acknowledges the comments submitted by the Attorney General's office and SMAQMD that encourage the City to identify thresholds of significance for GHG, adopt an impact analysis with appropriate mitigation, and provide a clear conclusion regarding the significance of the City's contribution to climate change. However, the City determined that such an approach to addressing global climate change in the General Plan EIR at this time would be premature.

Ultimately, the criteria for determining the significance of the impact of the GHG emissions of land development and transportation at the regional level on climate change on the global level will likely utilize AB 32 target GHG reductions and/or a quantitative emission threshold over pre-project levels. However, to apply such criteria, at the very least, the regional emission inventory must be completed. Until this information is available, determination of impacts and undertaking measurement of the effectiveness of mitigation measures is premature.

As noted above, the City is continuing to work with its regional partners in identifying an inventory on a broader basis. With an agreed-upon inventory, and with the magnitude of needed changes then apparent, local agencies, including the City of Sacramento, can provide decision-makers, the public and affected industries with meaningful information about new rules, new programs and new initiatives that will produce the changes needed. In the meantime, adoption of the 2030 General Plan will put in place immediately goals and policies and implementation programs that will reduce GHG emissions through land use patterns that support public transit, pedestrian, and bicycle use; implement "green building" practices and alternative energy systems; reduce heat island effects; manage water use; and increase flood protection.

Furthermore, the importance of a regional approach needs to be reiterated. The City's cooperation with the Sacramento Area Green Partnership is consistent with the City's view that adoption of new strategies to respond to global warming should be done on a regional, statewide and national level. We cannot rely on the actions of individual agencies, using differing inventory and reduction methodologies, to achieve the reductions needed. Focus on regional, statewide and national approaches will ensure not only effectiveness, but fairness. This is consistent with the recommendation of the CARB's *Draft Scoping Plan* to identify regional reduction targets for the local government land use and transportation-related sector. The City is taking a leadership role, evidenced by a General Plan that is consistent with the SACOG Blueprint.

Letter 5 Cont'd.

Appendix L

Final Remedial Action Plan, Union Pacific Railroad Yard, June 1995

Letter 5
Cont'd.

FINAL REMEDIAL ACTION PLAN

Union Pacific Railroad Yard Sacramento, California

Submitted by

UNION PACIFIC RAILROAD COMPANY
1416 Dodge Street, Room 930
Omaha, Nebraska 68179

Prepared by

DAMES & MOORE

JUNE 1995

Letter 5
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UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA
FINAL REMEDIAL ACTION PLAN

JUNE 1995

SUBMITTED BY:

UNION PACIFIC RAILROAD COMPANY
1416 DODGE STREET, ROOM 930
OMAHA, NEBRASKA 68179

PREPARED BY:
DAMES & MOORE

PROJECT NO. 00173-080-044

DAMES & MOORE

Letter 5
Cont'd.

DAMES & MOORE
8801 FOLSOM BOULEVARD, SUITE 200, SACRAMENTO, CALIFORNIA 95826
(916) 387-8800 FAX: (916) 387-0802

June 30, 1995

Mr. James L. Tjosvold, P.E., Acting Branch Chief
Site Mitigation Branch
Region 1, Department of Toxic Substances Control
California Environmental Protection Agency
10151 Croyden Way, Suite 3
Sacramento, CA 95827

Attention: Mr. Jose Salcedo

Re: Transmittal of Final
Remedial Action Plan
Union Pacific Railroad Company
Sacramento, California
D&M Project No. 00173-080-044

Dear Mr. Salcedo:

Union Pacific Railroad Company (UPRR) has requested that Dames & Moore transmit the above-referenced document. This Final Remedial Action Plan (RAP) has been prepared pursuant to Enforceable Agreement No. HSA 86/87-015EA issued March 26, 1987 to UPRR by the California Environmental Protection Agency — Department of Toxic Substances Control (DTSC), as modified by DTSC correspondence. The organization and contents of the Final Remedial Action Plan conforms to DTSC guidance for Remedial Action Plans (DTSC Official Policy/Procedure No. 87-2).

This Final RAP incorporates City of Sacramento and Sierra Curtis Neighborhood Association comments on the Draft RAP dated April 15 and April 13, 1994, respectively. If you have any questions or require further clarification, please contact Jim Brake at (916) 387-7530.

Sincerely,
DAMES & MOORE

Jim Brake, R.G
Project Manager

Anne Olson

Anne L. Olson, P.E.
Project Engineer

Enclosure
cc: Distribution List

SAC155 14

**Letter 5
Cont'd.**

DISTRIBUTION LIST: **UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA
PROJECT NUMBER 00173-080-044**

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Regional Water Quality Control Board
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**Letter 5
Cont'd.**

DISTRIBUTION LIST: **UNION PACIFIC RAILROAD YARD
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PROJECT NUMBER 00173-080-044**

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UNION PACIFIC RAILROAD YARD
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FINAL
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1.0 INTRODUCTION

This Final **Remedial Action Plan**[1] for the Union Pacific Railroad Company's (UPRR) Railroad Yard site (the site) located in Sacramento, California was prepared by Dames & Moore on behalf of UPRR, as required by Enforceable Agreement No. HSA 86/87-015EA. The Enforceable Agreement was issued by the California Environmental Protection Agency -- Department of Toxic Substances Control (DTSC) on March 26, 1987. A Remedial Action Plan is required as a part of the **remediation** process for state-listed hazardous substance release sites.

1.1 PURPOSE OF THE REMEDIAL ACTION PLAN

The purpose of a Remedial Action Plan is to provide a conceptual **clean-up** plan for the site. A Remedial Action Plan includes a summary of the **remedial investigation** and **feasibility study** and describes the methods which have been and/or will be used to identify and subsequently design and implement a final remedial action for state-listed hazardous substance release sites. It also presents an assessment of environmental impacts potentially caused by the proposed clean-up. The Remedial Action Plan approval process is the means by which the public is provided an opportunity to be involved in the decision-making process for the selection of a remedy(s).

Remedial Action Plans are not intended to contain specific engineering design details of the proposed clean-up option; however, they must clearly and concisely describe the selected and rejected options, so that interested members of the public, government agencies, and **Potentially Responsible Parties** can provide the DTSC with meaningful opinions and comments. Remedial Action Plans must clearly set out specific **remedial action objectives** and time frames for completion of actions. Once the DTSC adopts a final Remedial Action Plan, a commitment is made that if the Remedial Action Plan is fully implemented, the site will be certified for removal from the state list of hazardous substance release sites which require remedial action or that it will be transferred to a list of sites which require long-term **operation and maintenance.**

The Remedial Action Plan is a specific requirement of California Health and Safety Code Section 25356.1. Other state and federal statutes, regulations, and guidance which may be applicable to Remedial Action Plans are presented below.

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[1] All terms shown in bold type are defined in the Glossary in Section 11.0.

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- **California Environmental Quality Act,** Public Resources Code, 21000 et seq. and Title 14, California Code of Regulations, Division 6, 1500 et seq.
- Title 8, 14, 22, 23, and 26 of California Code of Regulations
- California Site Mitigation Decision Tree Manual (Department of Health Services, 1986)
- **National Oil and Hazardous Substance Pollution Contingency Plan,** 40 CFR 300.61 et seq.
- Hazardous Substance Clean-up Bond Act of 1984
- Hazardous Substance Account Act (Division 20, Chapter 6 8, Sections 25356.1(c) - (h), 25356.3(a), 25358.7(a)-(d) and 25356.3(c) of the California Health and Safety Code)
- **Comprehensive Environmental Response, Compensation, and Liability Act** of 1980 (CERCLA), USC Sections 9601-9657 and 40 CFR 300
- CERCLA as amended, i.e., the Federal Superfund Amendments and Reauthorization Act (SARA) of 1986
- **Resource Conservation and Recovery Act,** Hazardous Waste Regulations, 40 CFR 260-270, as amended
- Clean Air Act, 42 USC 7401-7642
- Clean Water Act, 33 USC 1251 et seq. and 40 CFR 100-140, 400-470
- EPA Guidance for Preparation of Record of Decisions and Selection of Remedy for Superfund Sites
- Guidance for Conducting Remedial Investigations/Feasibility Studies under CERCLA (United States Environmental Protection Agency, 1988)
- Risk Assessment Guidance for Superfund (EPA, 1991).

1.2 SITE IDENTIFICATION

The site is located in the southern part of Sacramento, California and is shown on Figure 1. Residential neighborhoods border the site to the north and east; Western Pacific Avenue and Sutterville Road border the site to the south; and Sacramento City College, light industry and residential property border the site to the west. The site consists of an active railroad switching yard and an unused inactive portion, which are separated by a fence.

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1 3 BACKGROUND

Preparation of this Final Remedial Action Plan follows completion of a Remedial Investigation/ Feasibility Study Report for the site. The Remedial Investigation/Feasibility Study Report was accepted as final by the DTSC in May 1991. Subsequent site investigations resulted in preparation of an Addendum Remedial Investigation/Feasibility Study Report which was submitted to the DTSC in November 1991. A Draft Remedial Action Plan based on the analyses presented in the Addendum Remedial Investigation/Feasibility Study Report was also submitted to the DTSC in November 1991 (Dames & Moore, 1991e).

After the Draft Remedial Action Plan of 1991 was prepared, the City of Sacramento (City) provided comments on the Addendum Remedial Investigation/Feasibility Study Report, and the DTSC commented on the Draft Remedial Action Plan. The City and DTSC comments focused on two primary issues:

- The remedial alternatives for soil contamination proposed in the Addendum Remedial Investigation/Feasibility Study and the Draft Remedial Action Plan of 1991 would limit beneficial future land uses at the site; and
- The second, smaller groundwater contaminant plume should be extracted and treated instead of monitored as proposed in the Addendum Remedial Investigation/Feasibility Study and the Draft Remedial Action Plan of 1991.

The Union Pacific Land Use Committee, a group of community members who live near the site, was asked by the Sacramento City Council to conduct a series of community workshops and identify desired future land uses for the site. The results of the Union Pacific Land Use Committee's evaluation are contained in a report that lists potential land use types and general recommendations for redevelopment at the site. The final Union Pacific Land Use Committee report (presented in Appendix A) was endorsed by the City Council in April 1992 under Resolution Number 92-255. The DTSC reviewed the desired future land uses listed in the report and recommended that UPRR develop two sets of clean-up levels for soil contaminants which would be protective of human health and the environment for two general types of future land use:

- Unrestricted Future Land Use; and
- Restricted Future Land Use.

In order to address comments by the City and the DTSC, and to provide for the beneficial future land uses desired by the members of the community, UPRR asked Dames & Moore to prepare a Feasibility Study Supplement which was submitted to the DTSC in October 1992. The Feasibility Study Supplement presented general assumptions about future land use, soil clean-up levels for the two general land use types, and a re-evaluation of the remedial alternatives for soil and groundwater at the site.

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Remedial alternatives were then selected for the site which would allow for the beneficial future land uses identified by the City and members of the community (as contained in the final Union Pacific Land Use Committee report).

After reviewing the Feasibility Study Supplement, the DTSC recommended that some of the proposed clean-up levels for arsenic and lead in soil be reduced to more health-protective levels. Although UPRR's Risk Assessment (Dames & Moore, 1992b) showed that the proposed clean-up levels were adequate, UPRR agreed to use the stricter clean-up levels recommended by the DTSC. In February 1993 a report was submitted to the DTSC presenting limited revisions to the Feasibility Study Supplement. These revisions were a result of the stricter clean-up levels for lead and arsenic in the inactive portion of the site. The modifications included:

- Revised volume estimates for soil with contaminant concentrations above the clean-up levels.
- Revised figures depicting the areas on-site where soil is contaminated above the clean-up levels.
- Revised cost estimates for some of the final candidate remedial alternatives for soil.

The Revised Draft Remedial Action Plan (Dames & Moore, 1993b) incorporated the results of the Feasibility Study Supplement (Dames & Moore, 1992c), the Revised Soil Volumes and Remedial Alternative Detailed Cost Estimates (Dames & Moore, 1993a), and other work performed since the Draft Remedial Action Plan of 1991 was submitted.

Arsenic in slag has recently been demonstrated in an animal bioavailability study to have no bioavailability. Once the DTSC has concurred with the findings of the study, the cleanup levels for arsenic and lead may be increased or withdrawn. If a cleanup level is intended to be changed, a public notice will be issued and a public meeting will be held to present the study results and answer questions or discuss concerns regarding the proposed cleanup level changes.

Comments were provided by the Sierra Curtis Neighborhood Association (SCNA) and DTSC on the Revised Draft Remedial Action Plan in April and June 1993, respectively. The comments primarily focused on areas of the site (and off-site) that required additional characterization. Subsequently, several studies were performed and documents prepared in response to comments on the Revised Draft Remedial Action Plan. The studies included:

- Additional Characterization of the Downgradient Extent of VOC Impacts in Groundwater Operable Unit GW-1 (Dames & Moore, 1994a);
- Additional Subsurface Investigation, Operable Unit S-5 (Dames & Moore, 1993c);

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- Supplemental Groundwater Investigation, Operable Unit S-5 (Dames & Moore, 1994b);
- Development of Remedial Action Objectives for Volatile Organic Compounds in Soil in the Central Fill and Oil House Areas (Dames & Moore, 1994c); and
- Groundwater Pre-Design Activities (Dames & Moore, 1995d).

The Draft Remedial Action Plan (January 1994) was made available for a 45-day public review and comment period following its completion. During the second week of the review and comment period, a public meeting was held to present the current status of site investigation and **Interim Remedial Measures.** The purpose of the meeting was to provide a forum for the public to ask questions and make comments regarding the site and the Draft Remedial Action Plan. Written comments on the Draft Remedial Action Plan were provided by the City of Sacramento and the SCNA. The comments focused primarily on additional on- and off-site investigation that was needed to complete characterization of soil and groundwater impacts at the site. Additionally, the City of Sacramento commented on the level of technical data content in the Draft Remedial Action Plan of January 1994. This Final Remedial Action Plan was prepared in response to the comments received on the Draft Remedial Action Plan of 1994, and references the reports prepared for additional investigations and studies listed above.

1.4 INFORMATION PRESENTED IN THE FINAL REMEDIAL ACTION PLAN

The format and contents of this Final Remedial Action Plan are consistent with the DTSC guidance provided in Official Policy/Procedure No. 87-2 dated October 5, 1987 titled "Remedial Action Plan Development and Approval Process." A copy of Official Policy/Procedure No. 87-2 is provided in Appendix C. This Final Remedial Action Plan is organized as follows:

Section 1.0 discusses the purpose of the Final Remedial Action Plan and provides an introduction to the site.

Section 2.0 presents a history of site ownership and activities leading to current contaminated conditions. This section also provides a site physical description of the site and its environment and information on land use, **demography, biological receptors, climatology,** and **hydrogeology.** Portions of this section have been updated to include additional investigations and interim remedial measures undertaken since completion of the Draft Remedial Action Plan of January 1994.

Section 3.0 discusses the results of the Remedial Investigation and supplemental investigations, including an evaluation of soil conditions beneath the site, identification and evaluation of **hazardous substances** encountered, evaluation of hydrogeological conditions (surface water and groundwater), and an evaluation of **contaminant mobility.**

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Section 4.0 assesses current and potential risks posed by conditions at the site, including hazards to human health and the environment.

Section 5.0 discusses the effects of contamination upon present and probable future beneficial uses of land and water.

Section 6.0 summarizes the Feasibility Study and discusses future land use, remedial action objectives, and **final candidate alternatives.** This section also provides the rationale for the selection or rejection of each final candidate alternative considered. **Recommended remedial alternatives** are examined in terms of potential human health and environmental impacts and **compliance** with applicable regulations.

Section 7.0 discusses the proposed remedial action implementation schedule for the recommended remedial alternatives.

Section 8.0 contains a non-binding preliminary allocation of financial responsibility, describing who will pay for cleaning up the site.

Section 9.0 discusses requirements for operation and maintenance of the recommended remedial alternatives and performance assurance.

Section 10.0 is a list of reference documents which were used during preparation of this Final Remedial Action Plan.

Section 11.0 is a glossary defining technical terms used in this Plan. Section 11.0 has a tab to provide easy reference.

Tables are included within the text. Each table is found in the text near its first reference. Figures are included in a separate tabbed section at the end of the text.

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2.0 SITE DESCRIPTION

This section presents a history of site ownership and activities leading to current contaminated conditions, and provides a chronology of investigations and interim remedial measures conducted to date. This section also provides a physical description of the site and its environment with information on land use, demography, biological receptors, climatology, and hydrogeology.

2.1 SITE HISTORY

2.1.1 Site Location

The UPRR Yard is located in south Sacramento in Section 13 of Township 8 North, Range 4 East and in Section 18 of Township 8 North, Range 5 East, Mt. Diablo Base Meridian (see Figure 1). The site encompasses an area of approximately 94 acres, consisting of two portions: the active yard, which makes up the western part of the site; and the inactive portion, which makes up the eastern part of the site (see Figure 2). Residential property borders the site to the north and east; Western Pacific Avenue and Sutterville Road border the site to the south; and Sacramento City College, commercial, light industrial, and residential properties border the site to the west. The primary roads closest to the site include Freeport Boulevard about one-fourth mile west, 24th Street thirty yards east, Portola Way thirty yards north, and Sutterville Road.

2.1.2 Nature of Business and Length of Operation

The railroad maintenance yard was established by Western Pacific Railroad in the early 1900s to maintain and rebuild steam locomotives and boilers, refurbish rail cars, and assemble trains. Activities conducted at the facility included sand-blasting, painting, machining, welding, dismantling, reassembly of locomotives and rail cars, and switching operations. Diesel engine repair and maintenance began in the mid-1950s. There is no information regarding the transition period from maintenance of steam locomotives to maintenance of diesel locomotive engines. UPRR purchased the operations in 1982, but discontinued maintenance yard operations at the site in 1983. Remaining buildings and structures in the maintenance yard were demolished by UPRR in 1985 and 1986. UPRR still maintains a switching yard operation in the active yard (the western portion of the site).

2.1.3 Type of Hazardous Substances

During operation of the site, a principal activity was refurbishing railroad cars and locomotives. This likely involved the use of various solvents, cleansers, and degreasers to clean and strip the cars.

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Prior to 1951, maintenance activities also included removal of asbestos insulation from boilers and pipes of steam engines before stripping and cleaning.

Records regarding purchases of chemicals are unavailable. Based on current knowledge of the facilities that historically existed at the site and interviews with UPRR employees, past chemical use at the site is summarized below:

- A caustic solution, trisodium phosphate (TSP; Oakite), was used to prepare railcars for painting.
- Solvents and degreasers were used to clean and strip railcars and locomotive parts.
- Paints were used primarily in the Coach and Paint Shop. Paint pigments likely contained lead and other metals. Data regarding specific chemical constituents contained in the paints are not available. Solvents and mineral spirits were likely used in association with painting operations.
- Lye was used in a below-ground concrete vat south of the Main Shop.
- Two concrete lye pits existed in the area south of the Main Shop.
- Waste oil sumps were used for oil/water separation. These sumps were periodically cleaned out, and separated water was discharged to the combined sewer system.
- Fuels and oil were stored on-site in both above ground and below-ground tanks. Underground storage tanks included the subsurface gasoline and diesel tanks near the Oil House, a single 1,000-gallon tank north of the Main Shop building, and two concrete bunker fuel tanks.
- Oil was recycled at the Refined Oil Building.
- Asbestos was used for steam engine boiler insulation prior to 1951 and was stored in the Asbestos Storage Area.
- The rattler pit was located in the Main Shop Area and was used to shake mineral deposits out of the steam pipes removed from locomotives.
- If there was electroplating activity at the facility, as DTSC has suggested in correspondence, it was on a very small scale. Only the Coach and Paint Shop could have had electroplating facilities. No evidence of electroplating has been found.
- Copper ore smelting slag containing arsenic and lead was used as track ballast and yard cover material.
- Herbicides have been used to control weeds.

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2.1.4 Events Leading to Contaminant Release

Based on a review of historical records and information on past operating practices at the site, eight areas where **contaminant** releases may have occurred have been identified. The approximate locations of these eight areas are described below, and their former locations are shown on Figure 2.

- Maintenance Facilities - These included the Main Shop and Transfer Table Area, the Coach and Paint Shop, the Car Repair Shed, and the Refined Oil Building. The primary chemicals used in these areas included waste oil, degreasing solvents, paints, and metals.
- Fuel Oil Handling Facilities - Fuel oils were used at the Fueling Area and Boiler House, and were stored at the Oil House.
- Underground storage tanks - The following underground fuel tanks were identified:
  1) A 72,000-gallon concrete bunker fuel tank west of the Main Shop.
  2) A 18,000-gallon concrete bunker fuel tank northwest of the Main Shop.
  3) Five former underground storage tanks north of the Oil House (removed in 1986).
  4) A 1,000-gallon underground storage tank partially filled with a mixture of fuel oil and **Stoddard Solvent.** This tank was located on the north side of the former Main Shop building.
- Existing and Previous Track Locations - These are frequently the location of slag which contains arsenic, lead, and other metals. Some petroleum hydrocarbons were also apparently spilled.
- Railroad Tie and Power Pole Storage Areas - Creosote-treated wood stored in this area was a potential source of hydrocarbons and metals.
- Former Pond - A **surface impoundment** was located in the middle of the property, contents of which are unknown.
- Central Fill Area - An area of fill material located in the middle of the inactive portion of the site.
- Asbestos Storage Area - An asbestos storage area was located in the southwest corner of the site.

With the exception of the surface impoundment, Central Fill Area and slag areas noted above, most of these areas were in the southern part of the inactive portion of the site. A review of site history indicates activities involving chemicals were not conducted in the undeveloped northern area.

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2 1.5 Chronology of Historical Events

A chronology of key historical events at the site is summarized below:

- From the late 1800s to early 1900s, the area presently occupied by the site consisted of ranches, farms, and orchards.
- In the early 1900s, the rail yard was first established by Western Pacific Railroad for maintenance of steam locomotives and rail cars.
- Transition from repair and maintenance of steam locomotives to diesel engines began in the mid-1950s. No detailed information is available regarding the transition, but the change in operations may have resulted in a significant decrease in the use of asbestos, since most of its use was associated with steam engines. An increase in the use of degreasers and diesel fuel was probably also associated with the transition.
- In 1982, UPRR purchased the site from Western Pacific Railroad.
- In 1983, UPRR discontinued operations at the Sacramento yard.
- In 1985 and 1986, UPRR demolished buildings and structures on the site.

2 1.6 Previous Studies

Investigations of the nature and extent of contamination at the site were initiated in 1987. The final Remedial Investigation/Feasibility Study Report was completed in May 1991. Additional investigations were subsequently conducted to further assess impact to soils and groundwater, and were presented in an Addendum Remedial Investigation/Feasibility Study Report completed in November 1991. Major phases of the Remedial Investigation included:

- In 1987, remedial investigations were initiated in response to an Enforceable Agreement dated March 26, 1987, which was executed between UPRR and DTSC (then under the California Department of Health Services).
- In 1988, Phase I Remedial Investigation activities were conducted by Dames & Moore. Results were presented in a Draft Remedial Investigation Report submitted to the DTSC in 1988.
- In 1989, Phase II Remedial Investigations were conducted by Dames & Moore.
- In April 1990, Dames & Moore conducted additional groundwater investigations to evaluate potential off-site groundwater impacts.
- In August 1990, Dames and Moore conducted supplementary groundwater investigations to further evaluate the extent of off-site groundwater contamination.

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- On August 31, 1990 a draft Remedial Investigation/Feasibility Study Report was submitted to the DTSC.
- In May 1991, off-site monitoring well installations and additional on-site soil and groundwater investigations were initiated.
- In December 1991, a supplementary remedial investigation was conducted in the active yard.
- During July and August 1992, an ambient air monitoring study was conducted at the site.
- In October 1993, additional subsurface soil and groundwater investigation activities were undertaken in the active yard.
- In December 1993, remedial action objectives were developed for total petroleum hydrocarbons as gasoline and associated constituents in soil.
- Beginning in April 1994, Dames & Moore performed additional characterization of the downgradient extent of VOCs in off-site groundwater.
- In April and June 1994, a supplemental groundwater investigation was performed in the active railyard.
- In June 1994, additional characterization of VOCs in soil gas was performed in the Central Fill and Oil House areas.
- In August and October 1994, Dames & Moore performed aquifer pumping tests on-site and off-site, respectively.
- From August through November 1994, Dames & Moore performed an ambient air quality study in the active railyard.
- In December 1994, Dames & Moore performed a soil vapor extraction pilot test to assess the effectiveness of this remedial technology in removing volatile organic compounds from soil in the Central Fill and Oil House Areas of the sit.
- In March 1995, Dames & Moore performed computer modeling of on- and off-site groundwater flow to evaluate the effectiveness of extracting groundwater for treatment from additional on- and off-site wells.
- In May 1995, an animal study was performed to assess the bioavailability of arsenic in slag material.
- Groundwater monitoring continues on a quarterly basis.

The findings of completed investigations are documented in several reports prepared for UPRR and submitted to the DTSC. The reports listed below form the basis of this Final Remedial Action Plan

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1. Draft Remedial Investigation Report for Union Pacific Railroad Sacramento Shops Area, Sacramento, California, Dames & Moore, June 1988.

2. Draft Remedial Investigation Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, February 1990.

3. Draft Soils Feasibility Study, Union Pacific Railroad Sacramento, Sacramento, California, Dames & Moore, May 1990.

4. Hydropunch and Groundwater Investigation Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, July 1990.

5. Draft Remedial Investigation/Feasibility Study Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, August 1990.

6. Baseline Health Risk Assessment, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, August 1990.

7. Supplementary Groundwater Investigation Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, February 1991.

8. Final Remedial Investigation/Feasibility Study Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, May 1991.

9. Addendum Remedial Investigation/Feasibility Study Report (including Revised Baseline Health Risk Assessment), Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, November 1991.

10. Draft Remedial Action Plan, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, November 1991.

11. Aquifer Pumping Test Results, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, February 1992.

12. Additional Off-Site Groundwater Investigation, Second Hydrostratigraphic Zone, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, July 1992.

13. Supplement to the Revised Baseline Health Risk Assessment, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, September 1992.

14. Development of Remedial Action Levels for the Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, September 1992.

15. Remedial Investigation Supplement, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, September 1992.

16. Ambient Air Assessment at the Union Pacific Railroad Yard, Sacramento, California, AeroVironment, September 1992.

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17 Sources, Speciation, and Dissolution Kinetics of Arsenic and Lead, Union Pacific Railroad Yard, Sacramento, California, Walsh and Associates, September 1992.

18. Feasibility Study Supplement, Union Pacific Railroad, Sacramento, California, Dames & Moore, October 1992.

19. Revised Soil Volumes and Remedial Alternative Detailed Cost Estimates, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, February 1993.

20. Additional Subsurface Investigation, Operable Unit S-5, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, December 1993.

21. Proposed Remedial Action Objectives for TPH-Gasoline and Associated Constituents in Soil, Union Pacific Railroad Yard, Sacramento, California, December 1993.

22 Supplemental Groundwater Investigation Report, Operable Unit S-5, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, December 1994.

23 Additional Characterization of Off-Site Groundwater, Operable Unit GW-1, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, 1994.

24 Development of Remedial Action Objectives for Volatile Organic Compounds in Soil in the Central Fill and Oil House Areas, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, December 1994.

25. Air Monitoring Report, Soil Operable Unit S-5, Union Pacific Railroad Yard, Sacramento, California, March 1995.

26. Soil Vapor Extraction and In-Situ Bioremediation Pilot Test Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, May 1995.

27. Groundwater Pre-Design Activities Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, June 1995.

2.1.7 Interim Remedial Measures

Interim Remedial Measures are clean-up activities performed before the Remedial Action Plan has been approved. These activities are implemented with the approval of the DTSC. The purpose of an Interim Remedial Measure is to quickly reduce potential health and safety risks or to minimize adverse **environmental impacts.**

Several Interim Remedial Measures were carried out during the course of the contaminant investigation and characterization activities at the site. The locations of these activities are shown on Figure 3, and Interim Remedial Measures to date are summarized below.

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- A fence separating the active and inactive portions of the site was installed in March 1987.
- Approximately 1,600 cubic yards of wood debris and asbestos in soil was removed and disposed off-site during August and September 1987. An additional 50 cubic yards of soil was disposed in the same manner in April 1988.
- The fluid contents and **rinsate** from the 18,000-gallon concrete underground storage tank were removed and disposed off-site in December 1987. The 18,000-gallon underground storage tank was cleaned, demolished, and removed from the site in January 1988.
- Removal and off-site disposal of the fluid contents and rinsate from the 1,000-gallon steel underground storage tank occurred in August 1989. The tank was removed from the site in September 1989.
- Asbestos-impacted soils were excavated and disposed of, and a grass vegetative cover was applied in the southwest portion of the inactive yard in September 1990.
- Soil and **petroleum hydrocarbons** contained within a 72,000-gallon concrete underground storage tank were removed in March 1988. Additional materials were removed from the tank prior to cleaning in September 1989.
- Approximately 900 tons of slag and metals-contaminated soil was removed from two off-site lots (Lot 1 and 2206 Sixth Avenue) in December 1991. One other lot (Lot 3) was covered with gravel and a seal coat. The locations of these off-site lots are shown on Figure 4.
- An out-of-service water supply well located in the southern inactive portion of the site was **abandoned** in March 1992. The **well casing** was perforated and filled with cement grout.
- The 72,000-gallon tank and associated piping were removed during May and June 1992. Approximately 2,500 cubic yards of asphalt, concrete and other non-hazardous debris were also removed at that time.
- Operation of a groundwater treatment system was begun in April 1993. The purpose of this Interim Remedial Measure is to treat contaminated groundwater and prevent further off-site migration of groundwater contaminants.
- Slag and metals-impacted soil were removed from the inactive portion of the site and the southeastern part of the active yard in November and December 1993. Levels of metals in soil in the inactive portion of the site were reevaluated in early 1994 to assess the remaining distribution of arsenic and lead in soil in the inactive portion of the site.
- An additional groundwater extraction well (EW-1) was installed in June 1994 in the southeast corner of the inactive portion of the site and connected to the existing groundwater treatment system in October 1994. The purpose of this extraction well is to prevent further off-site migration of groundwater in Operable Unit GW-1.

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- A soil vapor extraction and in-situ bioremediation pilot test was performed in the Central Fill and Oil House Areas in November and December 1994. The purpose of the tests was to assess the feasibility of implementing these technologies on a larger scale to (1) reduce levels of volatile organic compounds in vadose zone soil, thereby reducing the amount of leaching of these contaminants from soil to groundwater in the source area, and (2) supplement groundwater treatment by enhancing natural biodegradation of volatile organic compounds in groundwater in the source area.

2.2 PHYSICAL DESCRIPTION

2.2.1 Topography

Elevation changes across the site are generally small, with the exception of a northwest-southeast trending berm that runs across the northern inactive portion of the site, and the north-south trending berm bordering the western site boundary (see Figure 3). Surface elevations range from approximately 12 feet above **mean sea level** (MSL) in the northern portion of the site, to 32 feet above MSL in the southern portion of the site. The surface of the site slopes generally to the north.

Past land uses have modified site topography over the span of railroad yard operations. Fill placement practices in the central inactive portion of the site are believed to have built this area up and made it higher in elevation than the surrounding area. The differences in elevation between the western site boundary and off-site areas is believed to have resulted from the addition of fill to the western active portion of the site to form the existing railroad track bed.

2.2.2 Areal Extent of Contamination

2.2.2.1 Soil Contamination

Soil investigations in the inactive portion of the site indicate that asbestos, arsenic, lead, petroleum hydrocarbon, and **polycyclic aromatic hydrocarbon** contamination exists in shallow soils distributed across the site.

Petroleum hydrocarbons and polycyclic aromatic hydrocarbons appear to be located in those areas where UPRR operations historically used, recycled and/or stored diesel fuel, motor oil, and other hydrocarbon products. Most of the petroleum hydrocarbon contamination is diesel fuel and is found in the upper five feet of soil in the southern inactive portion of the site. In the Central Fill Area of the inactive portion of the site, petroleum hydrocarbons occur primarily in the upper 15 feet of soil. Petroleum hydrocarbons as gasoline are also present in the southern inactive portion of the site, primarily in association with diesel-contaminated soil. Benzene, toluene, ethylbenzene, and xylene (commonly

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found in gasoline) were sporadically detected at low concentrations in some of these areas. There is also an area in the active yard where petroleum hydrocarbons (diesel fuel and oil) have been detected in soil. The approximate areal extent of petroleum hydrocarbon contamination is shown on Figure 5. Polycyclic aromatic hydrocarbons were not found in the active yard.

Track ballast is crushed rock or natural gravel used as a structural base for railroad tracks. Slag, a rock-like **by-product** of metallic ore refining industries was used as track ballast at the site. Slag track ballast is believed to be the primary source of arsenic and lead in soil. Prior to the slag removal Interim Remedial Measure in late 1993, slag was distributed along existing track in the active yard and areas of the inactive portion of the site where track was formerly located, as shown on Figure 6A. Most arsenic and lead contamination was found in the upper 1.5 feet of soil in both the active yard and inactive portion of the site. The areal extent of slag following slag removal activities is shown on Figure 6B. Figure 7 depicts the approximate areal distribution of arsenic and lead requiring remediation before slag removal activities were undertaken. Post-slag removal sampling analytical data were statistically evaluated in early 1994 to assess the remaining distribution of lead and arsenic in soil following the slag removal Interim Remedial Measure. Statistical analysis showed that remedial action objectives for arsenic and lead have been met in each operable unit, with the exception of some localized areas in operable unit S-2 and around the west and south edges of operable unit S-3.

Chlorinated volatile organic compounds are present in soil vapors in the Central Fill and former Oil House areas. Available data indicate these impacts extend to approximately 25 feet below ground surface.

Low levels of polychlorinated biphenyls are present in shallow soil near the former Transformer Vault area (see Figure 2). The areal extent of these impacts is limited.

2.2.2.2 Groundwater Contamination

Groundwater investigations have revealed the presence of two **plumes** of contaminated groundwater, shown on Figure 8. The largest plume (Plume A on Figure 8) contains **volatile organic compounds, volatile aromatic compounds** and nickel, and extends from the Central Fill Area approximately 5,200 feet southeast to 19th Avenue Dames & Moore, 1994a). The smaller plume (Plume B) extends from west of the former Main Shop approximately 1200 feet to the south, just past Sutterville Road. Plume B contains lower concentrations of volatile organic compounds and nickel than Plume A.

Additional subsurface investigation in October 1993 (Dames & Moore, 1993b) and April 1994 (Dames & Moore, 1994b) revealed the presence of minor groundwater impacts in the northeastern portion of the active yard. Low concentrations of diesel fuel and oil were detected in groundwater samples. The

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samples were not reported to contain detectable concentrations of toxic hydrocarbon constituents. As shown on Figure 8, the diesel fuel groundwater impacts are contained within the property boundary. Further groundwater monitoring will be done to verify that these impacts do not pose a threat to human health.

2.2.3 Description of Structures

2.2.3.1 Former Structures

As was discussed in Section 2.1.2, several structures were located in the inactive portion of the site prior to their demolition 1985. The locations of these former structures are shown on Figure 2. They include:

- Main Shop
- Transfer Table
- Lumber Shed
- Freight Car Repair Shed
- Store House
- Blacksmith Shop
- Coach and Paint Shop
- Oil House
- Brass House
- Fueling Station
- Asbestos Storage Building
- Office.

Some facilities were demolished when the maintenance yard was still active. All remaining maintenance facilities in what is now the inactive portion of the site were demolished in 1985 and 1986.

2.2.3.2 Present Structures

The only structure on-site today is in the active yard. This structure is the Yard Office, which is occupied by UPRR personnel responsible for switching yard operations.

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2.2.4 Current Land Uses

Current land use at the site is restricted to the active yard (see Figure 2). Activities in this portion of the site include assembling trains, off-loading rail cars, and train passage along the main line. The Yard Office described above is located in this area. The inactive eastern portion of the site is vacant.

Land uses adjacent to the site currently include single family homes, schools, and light industrial and commercial businesses. Current City of Sacramento Planning Division zoning designations for properties in the immediate vicinity of the site are shown on Figure 9. General land uses in the site vicinity are shown on Figure 10 and described below.

Directly adjacent to the north, northwest, and west sides of the site are residential neighborhoods. The Franklin Boulevard commercial district and State Highway 99 are located beyond these residences approximately one-half mile east of the site. The Interstate 80 Business Route freeway is approximately one mile north of the site. Adjacent to the northwest side of the site there is a mixture of single-family residences and commercial buildings, housing, fast-food restaurants, dry cleaners, an appliance store, and a natural food store. Slightly further northwest, approximately 1/8 mile from the site, is McClatchy High School. U.S. Cold Storage Co. maintains a large cold storage warehouse facility adjacent to the west side of the site. Located beyond U.S. Cold Storage are single-family residences. Hughes Stadium and the campus of Sacramento City College are adjacent to the southwest side of the site. William Land Park lies beyond Sacramento City College approximately 1/3 mile west of the site. There is a complex of light industrial buildings on the south side of Sutterville Road, across the southern site boundary. Approximately 1/8 mile south of the site there are more residential neighborhoods. The Sacramento Children's Home is approximately 1/8 mile southeast of the site. Beyond the Children's Home, approximately 1/4 mile from the site, are additional residential neighborhoods.

2.2.5 Demography

The site is located in the southern part of the City of Sacramento, California. According to the United States Department of Commerce Bureau of Census 1990 Census of Population and Housing, approximately 370,000 people reside within the City limits (Department of Commerce, 1991). The median family income for Sacramento at the time of the census was about $33,000, and over 86 percent of families residing in Sacramento had incomes above the poverty level in 1989. Approximately 76% of Sacramento residents 25 years and older are high school graduates, and about 23% percent possess a bachelor's degree or higher (Department of Commerce, 1992). Racial characteristics measured by the 1990 Census indicate that approximately 60% of City residents are Caucasian, 15% are African-American, 15% are Asian or Pacific Islander, and 10% are American Indian or other. Approximately

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sixteen percent of the City's population is of Hispanic origin, regardless of race (Department of Commerce, 1991).

The Department of Commerce has defined ten census tracts in the area within approximately one mile of the site (Department of Commerce, 1990). For these ten tracts, 1990 census figures identify 32,100 people living in 14,335 households. Ethnic background of people living within one mile of the site is mixed, with 51 percent Caucasian, 21 percent Hispanic, 16 percent Asian, 11 percent African-American, and 1 percent American Indian or Eskimo. The 1990 Census socio-economic information for individual census tracts has not yet been published.

2.2.6 Non-Human Biological Receptors

The site is located in a highly urbanized area. Opportunities for animals to forage or inhabit the site are limited, since it is only sparsely vegetated. Some grasses occupying a strip along the eastern and northern edges of the property may provide habitat for rodents, transient raccoons, opossums, skunks, or foraging raptors, but this area is relatively limited in its ability to support a diverse wildlife community. According to the California Department of Fish and Game's **California Natural Diversity Data Base** (CNDDB) for the Sacramento East and Sacramento West Quadrangles, no sensitive species have been noted in the immediate vicinity of the site (California Department of Fish and Game, 1991). Most of the species listed in the CNDDB were sighted along the **riparian** corridors of the American or Sacramento Rivers, which are at least 1 mile away. A more detailed discussion of wildlife and plant habitats is presented in Section 3.4 of this Final Remedial Action Plan.

2.2.7 Climatology

The Sacramento climate is characterized by warm summers and mild winters. The mean annual precipitation for Sacramento is 16.9 inches with nearly 90 percent of the precipitation occurring between November and April. The mean annual temperature is 60°F with a mean range of 45°F in January to 75°F in July (National Oceanic Atmospheric Administration (NOAA), 1986). The annual average wind speed is 8 mph with the prevailing wind direction from the southwest. Climatology data has been obtained from several downtown Sacramento weather recording stations and Sacramento Executive Airport weather station approximately two miles south of the site.

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2.2.8 Hydrogeology, Groundwater Occurrence and Water Wells

2.2.8.1 Hydrogeologic Setting

The site is located in the southern portion of the Sacramento Valley groundwater basin, approximately one mile to the east of the Sacramento River. The site geology consists of sediments characteristic of flood plain deposits laid down by continually shifting streams. The subsurface sediments consist of a mixture of clays, silts, and sands, although the upper two to fourteen feet of the site contains native and non-native fill, including man-made debris. A 10- to 40- foot thick layer of clay and silty clay first encountered at a depth of approximately 50 to 60 feet below ground surface at the site forms the bottom of the first water-bearing zone. Groundwater in this zone extends upward through sands, silts and clays to a depth of 25 to 35 feet below the surface of the site.

2.2.8.2 Groundwater Occurrence

Groundwater beneath the site is first encountered at a depth of approximately 25 to 35 feet below the surface of the site (Dames & Moore, 1995a). The variation in depth to groundwater is due in part to site topography, but is also due to the slope of the water table and seasonal fluctuation. In general, groundwater beneath the site ranges from 2 feet below mean sea level at the northeast corner of the site to 8 feet below mean sea level at the southeast corner of the site. Groundwater flows to the southeast. The depth to groundwater measured at the site dropped approximately 2.5 feet from 1988 until 1992, due to prolonged drought conditions. However, groundwater elevations increased in 1993 and again in 1995 due to above-average precipitation.

2.2.8.3 Water Supply Wells

Based on a review of records at the California Department of Water Resources, a total of seven off-site water wells are present within one mile of the contaminant plumes, excluding wells used to monitor groundwater quality at and near the site. Water supply wells are shown on Figure 11 and listed in Table 1. These wells are currently used for irrigation purposes only. Based on available well logs, the total depth of these wells ranges from about 200 to 300 feet (Malmy, 1989). They typically pump water from approximately 100 to 300 feet below ground surface. It appears unlikely that these wells could be impacted by groundwater contamination from the site because of their depth and location (all are either cross-gradient or upgradient of the contaminant plumes).

The Fruitridge Vista Water Company operates several drinking water wells approximately one and one-half to two miles downgradient of the site, south of Fruitridge Road and east of Highway 99. The closest of these wells is approximately 7,000 feet from the downgradient plume boundary. The

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nearest City of Sacramento public drinking water supply well **downgradient** of the site is located on Mace Road, approximately five miles south of the site (Malmy, 1990).

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TABLE 1
NEARBY OFF-SITE GROUNDWATER SUPPLY WELLS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

DWR Well No.	Depth of Completion (ft.)	Distance from Site (ft.)	Distance from Nearest Plume Boundary (ft.)	Direction from Site	Current Owner	Current Use
24A1	95	2,400	3,200	Northeast	—	Unknown
18K1	213	2,800	2,400	East	CalTrans	Irrigation and Dewatering
WLP4	300	2,300	2,800	Southwest	City of Sacramento	Irrigation
18Q1	240	3,000	1,100	Southeast	CalTrans	Irrigation and Dewatering
24C1	210	3,800	4,500	Southwest	City of Sacramento	Irrigation
13M	307	4,300	4,700	West	City of Sacramento	Irrigation
14H1	330	4,700	4,600	Southwest	City of Sacramento	Irrigation
24M1	—	5,700	5,400	Southwest	—	None
FV5	320	9,200	7,000	Southeast	Fruitridge Vista Water Company	Public Water Supply
FV6	—	9,300	7,300	Southeast	Fruitridge Vista Water Company	Public Water Supply
FV4	—	9,900	7,700	Southeast	Fruitridge Vista Water Company	Public Water Supply
FV1	321	10,900	8,900	Southeast	Fruitridge Vista Water Company	Public Water Supply
FV3	315	11,100	8,900	Southeast	Fruitridge Vista Water Company	Public Water Supply
FV2	224	11,600	9,500	Southeast	Fruitridge Vista Water Company	Public Water Supply
FV12	292	12,200	10,100	Southeast	Fruitridge Vista Water Company	Public Water Supply

Wells located over one mile from the nearest plume boundary.

NOTES:

— Not available.
Source: Meyer, 1990; Stockton, 1990
Figure 11 shows the locations of wells listed here.

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3 0 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

This section summarizes site-specific data obtained during the Remedial Investigation, including:

- Evaluation of soil conditions at the site
- Identification and evaluation of hazardous substances encountered
- Evaluation of hydrogeological conditions and groundwater contamination
- Evaluation of contaminant mobility and fate in the environment

3.1 GEOLOGICAL INVESTIGATIONS

Geological conditions at the site have been investigated by excavating pits with a backhoe and drilling into the subsurface with a drilling rig. Soil samples were collected from over 500 locations across the site and evaluated for physical and chemical properties. Soil samples were collected at one or more depth intervals at each location. Over 800 soil samples were analyzed for metals, more than 400 soil samples were analyzed for organic compounds (petroleum hydrocarbons and solvents), 187 soil samples were analyzed for asbestos, and approximately 70 soil samples were analyzed for physical characteristics.

3.1.1 Surface Soil Conditions

The Soil Survey of Sacramento County, California (United States Department of Agriculture Soil Conservation Service (SCS), 1991) has mapped three different soil units underlying the site. All three soils were developed from sediments deposited by rivers. The following descriptions of SCS-mapped soil units is included to describe the native soils which are still intact under most areas of the site.

The surface soil in the southern half and northwestern part of the inactive portion of the site is a strong brown silt loam (clayey silt). The subsoil is a **claypan** composed of yellowish red clay loam (silty clay). Underlying this is a **hardpan**, a soil horizon cemented naturally during soil development. Beneath the hardpan is a light yellowish brown loam (silty clay or clayey silt). Water may become trapped above the claypan subsoil following heavy rains in winter and early spring, forming temporary **perched groundwater tables**.

The surface soil in the north central part of the inactive portion of the site is a brown and light brown silt loam (clayey silt). The subsoil is a claypan composed of brown and strong brown clay (clay). Underlying the claypan is brown sandy clay loam (sandy clay) and sandy loam (sandy silt). Water may remain perched above the claypan of this soil for short periods after heavy rains.

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The surface soil in the northeastern part of the inactive portion of the site is a pale brown silt loam (clayey silt). This is underlain by a pale brown silty clay loam (silty clay). Beneath this is a buried surface soil of gray clay (clay). The next layer is gray and pale brown clay loam. Seasonally high water tables may occur in this soil where not artificially drained.

Surface soil investigations and interpretation of historical aerial photos and maps reveal that extensive soil cutting and filling operations have occurred in the inactive portion of the site. These operations have resulted in the deposition of fill containing natural and man-made materials. Fill occurs from ground surface to an average depth of 1.5 to 2.0 feet over most of the southern half of the inactive portion of the site. In the northern half of the site, fill occurs from ground surface to a depth of 8 to 12 feet below ground surface. The deepest zones of fill appear to be in the mid-northern and northwestern part of the inactive portion of the site.

Fill material present at the site consists of soil, wood, concrete, rubble, drywall fragments, coal and cinders, iron and iron slag, and other metal debris. Fill soils are generally well compacted, except for the northwestern portion of the site where loose gravels and railroad track ballast are the predominant fill material.

3.1.2 Subsurface Soil Conditions

Subsurface soils at the site consist of an approximately 150-foot thick assemblage of clays, silts, and sands characteristic of flood-plain deposits laid down by continually shifting streams. The typical subsurface soil profile beneath the site can be summarized as:

Typical Depth (ft)	Material
0-2	Fill; mainly derived from native soils at the site (see Section 3.1.1). Also contains man-made materials. In the active yard, fill materials contain slag track ballast and a heterogeneous mixture of sands, gravel, and disturbed native soils.
2-25	Silty clay and clayey silt; contains a hardpan layer near the surface over much of the site.
25-35	Sands, silts and clays; interbedded fine-grained materials, becoming less fine-grained with increasing depth. The water table can extend into this material.
35-50	Sand; fine- to medium-grained, maximum thickness 25 feet, thinning to 4 feet in the southwestern corner of the site. The base of the sand is the base of the shallow water-bearing zone.

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50-60 Clay and silty clay which form the bottom of the water-bearing zone. This layer varies in thickness from 10 feet to 40 feet and becomes siltier with depth.

60-150 Interbedded sands, silts and clays including lower water-bearing zone.

3.1.3 Off-Site Soil Sampling

Off-site soil sampling was conducted in the vicinity of the site. The purpose of the sampling was to evaluate normal **background concentrations** of metals in soils, and to evaluate the impact which metals from the site may have had on adjacent properties not owned by UPRR.

Nine soil samples were collected from Curtis Park and William Land Park with the purpose of evaluating natural background levels of arsenic, copper and lead occurring in soils near (but not impacted by) the site. Average background soil concentrations of arsenic and lead near the site are higher than the average reported background concentration in the United States. Average background soil concentrations of copper near the site are lower than the average reported background concentration in the United States (Shacklette, 1984). The results of background soil chemical analyses are summarized in Table 2.

TABLE 2
BACKGROUND LEVELS OF SELECTED METALS IN SOIL
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

	Measured Soil Concentration (mg/Kg)			
	Site-Specific Background Samples[1]		U.S. Background Concentrations[2]	
Constituent	Range	Average	Range	Average
Arsenic	6.36-8.36	7.75	0.1-97.0	7.2
Lead	7.80-30.0	22.0	10-300	15.0
Copper	16.4-26.2	22.9	<1.0-700	25.0

NOTES:
1 A total of 9 samples were collected in Curtis Park and William Land Park. (Dames & Moore, 1990d)

2 Shacklette, 1984

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An additional 94 samples were collected from three residential lots and four vacant lots adjacent to the west side of the site, and from three residential lots adjacent to the east side of the site, as shown on Figure 4. These samples were collected and analyzed for the purpose of evaluating the potential impact which arsenic, lead, and copper from the site may have had on adjacent residential lots.

3.2 SOIL CONTAMINATION ASSESSMENT

3.2.1 Nature and Extent

Results from extensive soil sampling conducted during the Remedial Investigation and subsequent studies (Dames & Moore, 1991b, 1991d, 1992a, and 1992e) indicate that soils at the site contain metals (primarily arsenic and lead), organic compounds (petroleum hydrocarbons, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and solvents), and asbestos. The distribution of each type of soil contaminant present in site soils is discussed below.

Metals

Based on the **chemical analysis** of soil samples collected during Phase 1 and Phase 2 of the Remedial Investigation, and additional soil investigations in both the inactive portion of the site and the active yard, several areas were found to contain concentrations of arsenic and lead elevated with respect to background values (Dames & Moore, 1991b, 1991d, 1992a, and 1992e). These areas are shown on Figure 7. Elevated levels of arsenic and lead occur primarily in the upper 1.5 feet of soil and in some of the railroad track ballast containing slag. The distribution of slag at the site prior to slag removal activities in late 1993 is shown on Figure 6A.

Based on the analysis of soil samples collected from the adjacent residential and vacant lots, two areas adjacent to the west side of the site were found to contain elevated levels of arsenic and lead. These areas (Lot 1 and 2206 Sixth Avenue) are shown on Figure 4. Elevated levels of arsenic and lead were found primarily in the upper 1/2 foot of soil throughout Lot 1 and part of 2206 Sixth Avenue (Dames & Moore, 1991d). Slag used as gravel cover is believed to have been the source of the arsenic and lead.

Organic Contaminants

Organic contaminants were detected in soils in both the inactive portion of the site and the active yard. These contaminants consist of petroleum hydrocarbons (diesel fuel, gasoline, benzene, toluene, ethylbenzene, and xylenes), volatile organic compounds (solvents), and polycyclic aromatic hydrocarbons. Volatile organic compounds were not detected in soil samples collected at the site; however, low levels

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of volatile organic compounds were detected in soil vapor samples collected in the Central Fill and former Oil House areas (Dames & Moore, 1991d and 1994c). Polycyclic aromatic hydrocarbons were generally found in the same areas as petroleum hydrocarbons, but were not detected in the active yard. Figure 5 is a map depicting the approximate area of soil impacted by petroleum hydrocarbons.

Soil samples collected near the former transformer vault area contained low levels of polychlorinated biphenyls (PCBs). Concentrations of PCBs detected in soil samples collected during the remedial investigation ranged from 0.0542 to 7.84 mg/Kg (Dames & Moore, 1991b and 1991d).

Asbestos

Asbestos-impacted soils have been found in the vicinity of the former Asbestos Storage Building in the southern corner of the inactive portion of the site (see Figure 12). The results of investigations conducted in this area indicate that asbestos is present in soil at concentrations between one and five percent by volume (Dames & Moore, 1991b, 1991d, and 1992d). Asbestos appears to be distributed unevenly in shallow soils and extends from ground surface to a depth of approximately 2 feet. Asbestos-containing building materials, pipe insulation, and lagging material have also been found in this area. The area has been planted with grass to prevent wind-blown asbestos until implementation of site-wide remediation.

3.2.2 Soil Contaminant Mobility

Mobility refers to the ways contaminants can move from the area where they were originally released. In general, soil contaminants could be transported by the following mechanisms:

- Small (dust- or sand-size) particles of contaminated soil or solid contaminants could be carried by wind;
- Contaminants that are soluble in water can dissolve in rain water (or irrigation water, if used) and travel downward through soil as water infiltrates, or travel on the surface in the form of contaminated run-off (contaminated particles, such as asbestos, or sparingly soluble liquids, such as petroleum hydrocarbons, can also travel on the surface via run-off);
- Liquid contaminants can infiltrate through soil with or without the addition of water; and
- Solid and liquid contaminants in soil can be transported by the activities of man, such as tilling, earthmoving, or fill practices.

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There are also several natural processes which can slow or stop contaminants from moving These processes include:

- Some contaminants that are soluble in water (especially metals) can adsorb, or stick, to certain types of soil (usually clay);
- Some liquid contaminants such as solvents may volatilize (turn into vapor form);
- Organic contaminants (solid or liquid) can be broken down into other compounds, such as water or carbon dioxide, by bacteria that occur naturally in soil. Often, these daughter compounds are harmless sometimes they are more toxic than the parent compound (for example, vinyl chloride);
- Thick (viscous) liquids tend to move more slowly through soil than thin liquids; and
- Natural clay layers may slow the downward movement of liquids because of low **permeability**.

Both organic and inorganic contaminants of concern have been found in soils at the site. Organic contaminants of concern include petroleum hydrocarbons (primarily diesel fuel), volatile organic compounds, and polycyclic aromatic hydrocarbons associated with diesel fuel. Inorganic contaminants of concern include lead, arsenic, and asbestos.

The potential for petroleum hydrocarbons to move through soil to groundwater was addressed through a **leachability** study (Dames & Moore, 1991d). This study used a series of mathematical equations to calculate the rate at which a selected petroleum hydrocarbon constituent (naphthalene) could migrate to the groundwater. Naphthalene was chosen because it is the most mobile of the **Priority Pollutant** compounds generally found in diesel fuel and detected at the site. The study was performed using site-specific data, as well as several **conservative assumptions** where site-specific data were not available.

The results of the leachability study showed that, depending on depth and concentration, petroleum hydrocarbons may constitute a threat to groundwater. Petroleum hydrocarbons at soil depths close to the **water table** represent a greater threat to groundwater than petroleum hydrocarbons closer to the ground surface. This is due to the fact that petroleum hydrocarbons are known to break down through bacterial activity into non-harmful carbon dioxide and water in soils when given enough time. The farther the contamination is from the groundwater table, the longer it will take for the contamination to reach groundwater, increasing the time during which natural break-down may occur. The purpose of the leachability study was to provide a basis for selecting clean-up levels for petroleum hydrocarbons in soil. The DTSC subsequently directed a more protective clean-up level for petroleum hydrocarbons.

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Volatile organic compounds such as the chlorinated solvents found in soil vapor in the Central Fill Area generally move by infiltration through soils. The rate of movement can be affected by **dilution, dispersion, volatilization, and adsorption** to soil particles and organic carbon. The low organic carbon content of soils at the site suggests that chlorinated solvents should be relatively mobile in site soils. However, soils contaminated with petroleum hydrocarbons may adsorb and retain appreciable amounts of solvents. Groundwater monitoring and soil gas study results suggest that chlorinated solvents found in the Central Fill Area have infiltrated and are the source of the larger groundwater plume at the site.

In order to learn more about the potential for the inorganic contaminants arsenic and lead to migrate through the soil to groundwater, the **dissolution kinetics** of slag found at the site was assessed (Walsh & Associates, 1992). Samples of slag from the site were subjected to a variety of acidic water solutions. The resulting **leachate** was then tested to assess dissolved metal concentrations. The study results indicate that the chemical forms of arsenic and lead present in the slag are relatively **insoluble** over a wide range of pH. Based on this study, it is believed that lead and arsenic from slag at the site are not highly mobile in soils and therefore do not appear to present a threat to groundwater quality. Although nickel was generally not found in soil at concentrations exceeding the local background level, it has been found in groundwater below the site. There is no obvious explanation for the presence of nickel in groundwater.

3.3 HYDROGEOLOGICAL INVESTIGATIONS

Hydrogeological conditions have been investigated by the installation of 42 on-site and 15 off-site groundwater monitoring wells and piezometers, as well as **in-situ groundwater sampling**. To evaluate groundwater flow direction, depth to the water table has been measured in groundwater monitoring wells every three months since 1988. Groundwater samples have been collected from both permanent groundwater monitoring wells, and temporary groundwater monitoring points. These groundwater samples were collected at about 60 on-site and 70 off-site locations. Since 1988, over 700 groundwater samples have been analyzed for volatile organic compounds, and over 500 groundwater samples have been analyzed for metals.

3.3.1 Groundwater Conditions

3.3.1.1 Physical Characteristics

Groundwater beneath the site occurs at a depth of 25 to 35 feet below ground surface, which corresponds to an elevation of 2 to 8 feet below mean sea level. The **groundwater gradient** in the shallow water-bearing zone is approximately 0.002 to 0.003 linear feet per vertical foot, and groundwater

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flow velocity is approximately 300 to 900 feet per year to the southeast. The groundwater gradient and flow direction in the next deeper water-bearing zone is the same as that of the shallowest zone, but the flow velocity is approximately 200 to 600 feet per year

3.3.1.2 Local Groundwater Quality

In the site vicinity, groundwater is reported to be greater than 250 **parts per million** in **total dissolved solids,** which is a moderate level (United States Geological Survey, 1985). Local groundwater is reportedly moderately hard, low in chloride, sodium, manganese, and sulfate, as summarized in Table 3. Nearby wells located in William Land Park were originally used for public water supply until iron and **coliform bacteria** were detected at concentrations above drinking water standards. At this time, use of water from these wells is limited to irrigation.

3.3.1.3 Beneficial Uses

Groundwater in the Sacramento Valley groundwater basin is used for municipal and domestic supply, agricultural supply, and industrial process and service supply (California Regional Water Quality Control Board, 1991). Recent estimates indicate that nearly one-half of the total water supply for Sacramento County comes from groundwater (USGS, 1985). Groundwater accounts for 15 percent of the public drinking water supply in the City of Sacramento (Malmy, 1989).

3.3.2 Surface Water Conditions

3.3.2.1 Physical Characteristics

There are no bodies of surface water on the site. The only surface water bodies present in the vicinity of the site are the Sacramento River approximately 1 mile to the west and the American River approximately 3 miles to the north.

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TABLE 3
QUALITY AND BENEFICIAL USES OF LOCAL WATER RESOURCES
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Name of Surface (S) or Groundwater (GW) Resource	Distance From or Depth Below Site	Quality of Resource in the Sacramento Area	Present Beneficial Use	Future Beneficial Use
Sacramento River (S)	1 mile to the west	Not applicable; no surface water resources located at site.	Municipal and domestic supply, irrigation, contact and non-contact recreation, freshwater habitat and navigation.	Municipal and domestic supply, irrigation, contact and non-contact recreation, freshwater habitat and navigation.
American River (S)	3 miles to the north	Not applicable; no surface water resources located at site.	Municipal and domestic supply, irrigation, industrial service supply, industrial power supply, contact and non-contact recreation, freshwater habitat/spawning/migration for warm and cold-water fish and wildlife habitat.	Municipal and domestic supply, irrigation, industrial service supply, industrial power supply, contact and non-contact recreation, freshwater habitat/spawning/ migration for warm and cold-water fish and wildlife habitat.
Sacramento River Basin (GW)	21 to 35 feet below surface of site	Moderate total dissolved solids; moderately hard	Irrigation within a one-mile radius. Public water supply approximately 2 miles to the southeast.	Community and military water systems, domestic use.

Source: RWQCB, 1991; USGS, 1985.

3.3.2.2 Surface Water Quality

Water quality in the American and Sacramento River is tested by the City of Sacramento periodically prior to treatment and distribution to local water users. The quality of surface water from the Sacramento River is considered good 11 months out of the year (Meyer, 1991). Copper and iron levels are sometimes slightly elevated, but not above levels of concern. In the spring for one month water quality is typically impacted by low levels of herbicides from farms upstream of Sacramento. American River water quality is also said to be of better quality than Sacramento River water (Meyer, 1991).

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3.3.2.3 Beneficial Uses

Beneficial uses listed for the segment of the American River in the vicinity of the site include municipal and domestic supply, irrigation, industrial service supply, industrial power, contact and non-contact recreation, freshwater habitat/migration/spawning for warm- and cold-water fish and wildlife habitat (RWQCB, 1991). Beneficial uses listed for the segment of the Sacramento River in the vicinity of the site include municipal and domestic supply, irrigation, contact and non-contact recreation, freshwater habitat/migration/spawning for warm- and cold-water fish, wildlife habitat and navigation (RWQCB, 1991). Beneficial uses of surface water are listed in Table 3. Treated surface water from both the American River and the Sacramento River accounts for 85 percent of the public drinking water supply in the City of Sacramento (Malmy, 1989).

3.4 GROUNDWATER CONTAMINATION ASSESSMENT

This section discusses how Remedial Investigation information concerning groundwater was interpreted.

3.4.1 Nature and Extent

Analytical results from extensive sampling conducted during the Remedial Investigation and subsequent investigations indicate that groundwater beneath the southern two-thirds of the site and areas southeast of the site has been impacted by volatile organic compounds and nickel (Dames & Moore, 1988, 1990a, 1990c, 1990d, 1991a, 1991b, 1991d, 1992d, 1993c, 1994a, 1994b, 1995a, and 1995d). There are no known surface water quality impacts due to activities at the site.

Groundwater investigations have evaluated the apparent lateral extent of contaminants in the first two water-bearing zones beneath the site. These investigations have found two plumes of impacted groundwater in the shallow water-bearing zone:

- Plume A (shown on Figure 8) extends from the Central Fill Area approximately 5,200 feet to the southeast and ranges in width from approximately 250 to 500 feet. Plume A contains volatile organic compounds and nickel, and extends into the second shallow water-bearing zone. Additional groundwater investigation work is planned to demonstrate whether this plume also extends into the third water-bearing zone.

- Plume B (also shown on Figure 8) extends from west of the former Main Shop area approximately 1,200 feet to the southeast across Sutterville Avenue. This groundwater plume contains volatile organic compounds and nickel and is believed to be contained within the first shallow water-bearing zone.

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Volatile organic compounds impacting groundwater in Plume A appear to have originated in the Central Fill Area. Two potential sources have been identified. An aerial photograph taken in 1953 indicates a surface impoundment was present near the northern part of the Central Fill Area. The contents of the former impoundment are not known. Additionally, exploratory excavations conducted in the Central Fill Area revealed the presence of buried debris, including drums.

Additional subsurface investigation in October 1993 revealed the presence of minor groundwater impacts in the northeastern portion of the active yard (see Figure 8, Plume C). Low concentrations of diesel fuel were detected in groundwater samples from three of six samples. The samples were not reported to contain detectable concentrations of toxic hydrocarbon constituents. As shown on Figure 8, the diesel fuel groundwater impacts are contained within the property boundary. Further investigation work and groundwater monitoring will be done.

3.4.2 Groundwater Contaminant Mobility

Mobility refers to the ways contaminants can move from the area where they were originally released. In general, groundwater contaminant transport is controlled by **advection** and dispersion. Advection is the process of movement of the contaminant due to the movement of groundwater. Dispersion is the tendency of the contaminant to spread away from the point of origin. Dispersion causes the contaminant to be diluted due to mixing with non-contaminated groundwater and, to a lesser degree, diffusion of the contaminant.

Volatile organic compounds degrade naturally in groundwater over time. Additionally, they become diluted in groundwater as the plume spreads. However, some of the daughter compounds resulting from degradation (for example, vinyl chloride) may be more toxic than the parent compound. The overall effect of degradation and dilution of volatile organic compounds in groundwater will be to lower concentrations over time. Dissolved metals in groundwater often become adsorbed to soil particles, thereby reducing their concentrations in groundwater.

Volatile organic compounds in Plume A have moved approximately 5,200 feet to the southeast of the suspected on-site source. Preliminary **groundwater modeling** was completed early in the groundwater investigation. The model was used to simulate the transport of groundwater contaminants for two scenarios: 10 years after release and 30 years after release. Information from subsequent groundwater investigations indicates that the current extent of Plume A is approximately the same as was predicted during modeling using a 30-year release scenario. These preliminary results suggest that volatile organic compounds present in Plume A were released to groundwater approximately 30 years ago.

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3.5 AIR INVESTIGATION

Air quality impacts that might be caused by contaminants present in soil at the site were also investigated. There are two potential sources of air contamination for this site: dust contaminated with metals or asbestos, and vapors from volatile organic soil contaminants. Each potential source is discussed separately below.

3.5.1 Investigation of Air Quality

Three separate **ambient** air quality studies have been conducted at the site. The first study was conducted in 1988 as part of the original Remedial Investigation. Air samples collected over an eleven-day period were analyzed for arsenic, copper, lead, and dust. Also, air samples collected for 12 hours per day over a five-day period were analyzed for asbestos. Wind speed and direction were monitored during the study.

During the first study, no detectable levels of arsenic, copper or lead were found (Dames & Moore, 1988). Of thirty samples analyzed for asbestos, one sample was found to contain asbestos at a concentration of 0.0016 fibers per cubic centimeter of air (approximately 2 fibers per quart of air). This asbestos concentration is considered normal for urban areas (California Air Resources Board, 1990). The DTSC considers the first air quality study invalid.

A second air quality study was conducted at the site in July and August 1992. For this study, 24-hour air samples were collected each day at six stations over a 14-day study period. Three sampling stations were located **upwind** of the site to measure background air contaminant concentrations, and three were positioned **downwind** to provide an indication of how soil contaminants affect air quality near the site. Wind speed and direction were monitored at an on-site **meteorological station**. Air samples were tested for arsenic, lead, asbestos, and dust. A total of 79 air samples were tested for arsenic and lead. Forty-two samples came from the upwind stations, and 37 were collected at the downwind stations. Eighty air samples were tested for asbestos. For lead and arsenic, the average concentrations were slightly higher at the upwind sampling stations. The average of the asbestos test results was slightly higher for the downwind stations. Based on the results of the second sampling and analysis study, air quality in the site vicinity does not appear to be impacted by dust, asbestos, arsenic, copper, or lead present in soil at the site (Dames & Moore, 1992d).

A third air quality study was performed in the active railyard in 1994 (Dames & Moore, 1995b) to evaluate the levels of arsenic and lead present in dust generated primarily by vehicular traffic and work activities in the active railyard. This study consisted of three separate rounds of air monitoring (August,

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October, and November), in which samples were collected from four locations surrounding the active railyard and one background station located on top of Hughes Stadium at Sacramento City College. Each monitoring round lasted for five days with air samples collected over an eight-hour period corresponding to the working day. A total of 19 samples were tested for metals concentrations. Arsenic was only detected in one background sample and one on-site sample at concentrations that were within the range of analytical detection limits for arsenic. Lead was detected in every sample analyzed including all background samples, but concentrations were much less than the ambient air quality standard for lead of 1 microgram per cubic meter.

3.5.2 Investigation of Soil Vapors

Two soil vapor studies have been conducted in the former Oil House Area and Central Fill Area of the inactive portion of the site. The first study was performed in 1991 and the second in 1994. The purpose of the 1991 study was to assess potential health risks due to vapors released from the soil to the air. During the 1991 study, soil vapors were extracted from between three and 10 feet below ground surface. Vapor samples were analyzed for selected volatile organic compounds.

In the former Oil House Area, eight vapor samples were collected from six locations in the 1991 study. At two of the sampling locations, samples were collected at two different depths. Low levels of volatile organic compounds were detected in four of eight samples (Dames & Moore, 1991d).

In the Central Fill Area 26 samples were collected from 19 locations in the 1991 study. Samples were collected at two depths from seven of the locations. Low levels of volatile organic compounds were detected in 19 of 26 samples collected (Dames & Moore, 1991d).

The results of the 1991 study showed that the low levels of volatile organic compounds detected in soil vapors do not pose a risk to human health or air quality.

In 1994, an additional soil vapor investigation was performed to gather soil vapor data as part of an assessment of the potential for volatile organic compounds in soil to impact groundwater quality. Data from the investigation was used to develop cleanup levels for chlorinated volatile organic compounds in soil that are protective of human health and groundwater quality for future beneficial uses.

The results of the 1994 soil vapor study were presented in the report, Development of Remedial Action Objectives for Volatile Organic Compounds in Soil in the Central Fill and Oil House Areas (Dames & Moore, 1994c).

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During the 1994 study, soil vapor samples were collected from 25 locations in the Central Fill Area at 3 depths. In the Oil House Area, soil vapor samples were collected from 15 locations at 3 depths.

The 1994 study found that volatile organic compounds were primarily concentrated in two areas within the Central Fill Area — the northwestern portion of the Central Fill Area where the highest concentrations were found in the 1991 study, and the southeastern portion of the Central Fill Area (reference).

The results of the 1994 soil vapor survey showed that in both the Central Fill and Oil House areas, the highest concentrations of volatile organic compounds were found in samples collected from the middle depth interval (approximately 12 to 15 feet below ground surface), or deepest interval (approximately 19 to 26 feet below ground surface). Concentrations of volatile organic compounds in samples collected during the 1994 study were similar to those found during the 1991 study.

In the Oil House Area, concentrations of volatile organic compounds were much lower than in the Central Fill Area. One deep-interval sample found elevated concentrations of the volatile petroleum hydrocarbon compounds benzene, toluene, ethylbenzene, and xylenes. However, this sample was collected very close to the water table in an area where the constituents are known to be elevated in groundwater. The elevated soil vapor detections of the compounds are believed to be due to the close proximity of the sample to the water table.

3.6 AIR CONTAMINATION ASSESSMENT

The 1991 soil vapor study described above suggests that emissions of volatile organic compound vapors into air would be minimal, and they are therefore not considered significant.

It is also possible that contaminated dust from the site could become suspended in air. The potential for dust to become suspended depends upon particle size, the extent of crust or aggregate formation in surface soils, and the extent of vegetation or non-erodible elements (such as rocks or concrete foundations) in the soil. Vegetation on the site is sparse, although the ground surface contains numerous non-erodible elements, including paving, debris and track ballast. Arsenic and lead occur in mining slag that was used as railroad track ballast at the site. Arsenic and lead have the greatest potential for emissions to the air in the form of resuspended dust. However, slag was removed from the inactive portion of the site and part of the active railyard in late 1993. Asbestos contamination is limited to a much smaller area, which has been revegetated to reduce potential air transport. The results of two

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ambient air quality studies performed for the entire site and the active railyard suggest that arsenic, lead, and asbestos present in site soils are not currently causing air quality impacts.

3.7 BIOLOGICAL INVESTIGATION

An investigation of potential biological receptors at and in the vicinity of the site was conducted using information gathered from the California Natural Diversity Database (CNDDB) (California Department of Fish and Game, 1991) and the California Wildlife Habitat Relationships (WHR) Database (California Department of Fish and Game, 1989).

The CNDDB is a computerized inventory of species of special concern that contains information on more than 1,200 species in over 18,000 locations throughout the state. The CNDDB is maintained by the California Department of Fish and Game and The Nature Conservancy. The WHR Database contains information on 644 species of terrestrial vertebrates and where these species have been found in the State.

General observations of the site were made during a site visit, but no detailed field studies were undertaken.

3.7.1 Description of Habitats

The site is located in an urban residential area where potential wildlife habitats are limited. Most of the site is devoid of vegetation due to paving, railroad track ballast, gravel, debris, and land disturbances such as extensive grading. **Flora** (plant life) is limited to grasses along the eastern and northern boundaries and in the northeast quarter of the site. There are also some exotic **forbes** (herbs other than grasses). Vegetation includes mixed grasses, upland sedge, and a variety of **weedy species**, such as wild oat, rye-grass, bermuda grass, dock, Russian thistle, and dandelion. A few scattered shrubs are present, as well as one large Valley Oak, and a cottonwood located near the northern boundary of the site. No rare or endangered plant species were observed (Dames & Moore, 1991b), although the Valley Oak is on the California Native Plant Society Watch List and is protected under California Senate Concurrent Resolution #17 (1989) and the Sacramento County Tree Preservation Ordinance (Resolution #31-1007, 1981).

No mammals or reptiles were observed on the site, although the site could potentially support rodents or other small mammals along the eastern boundary (the location of the above-described vegetation). Bird species observed included a variety of common songbirds: sparrows, blackbirds, and starlings. Crows and an American kestrel were observed during later phases of the Remedial

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Investigation (Dames & Moore, 1991b). A burrowing owl was observed on-site in late 1993. Due to site disturbance, sparse cover, and limited varieties of plant species, the site constitutes poor quality animal habitat.

The results of the CNDDB survey (extending in a 5-mile radius in all directions from the site) indicate that several species of particular concern have been sighted in the general vicinity of the site. These species and the location(s) of sightings are as follows:

Great Valley Cottonwood Riparian Forest

- Yolo County side of Sacramento River at Broderick from river mile 59.8 to river mile 62.

Elderberry Savanna

- California State Exposition (Cal Expo) on American River Floodplain from the Southern Pacific Railroad tracks east to just beyond Highway 80.

Swainsons Hawk (Buteo Swainsoni)

- Sacramento River at Chickory Bend (east side of river);
- Natomas Drainage Canal 0.5 mile north of Discovery Park, south side of the Sacramento River;
- Sacramento River, 1 mile northwest of I-80; and
- Discovery Park.

Western Yellow Billed Cuckoo (Coccyzus Americanus Occidentalis)

- Sacramento Bypass (none observed since 1965).

Burrowing Owl (Athene Cunicularia)

- Vicinity of McKinley Park, southwest of Cal Expo;
- Southwest of junction of Howe Avenue and Fair Oaks Boulevard; and
- Sacramento State College and adjacent levee areas along the American River.

Bank Swallow (Riparia Riparia)

- South side of the American River, upstream of Cal Expo, near Business 80 bridge.

Tricolored Blackbird (Agelaius Tricolar)

- Near Port of Sacramento, just south of Highway 80, Interstate 80 junction.

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Valley Elderberry Longhorn Beetle (Desmocerus Californicus Dimorphus)

- Just south of Highway 160 at Del Paso Boulevard;
- South bank of the American River, west of Hall Park (across from Cal Expo) river mile 5;
- Bushy Lake, Cal Expo;
- American River floodplain parcel between railroad track overpasses (between I-80 and Highway 160);
- Between mileage markers 6 and 7 on American River Parkway bike trail;
- Sacramento River mile 62.5 west at I-80;
- Sacramento River opposite mouth of American River, at river mile 60.3 and 59.8, west bank; and
- Sacramento River, opposite junction with Natomas, main drainage canal, river mile 61

Dwarf Downingia (Downingia Humilis)

- Keithly Ranch, Rio Linda, north of Sacramento

Most of these species were sighted along the riparian corridors of the American or Sacramento Rivers. Table 4 provides a summary of the distance between the site and the nearest observation of each species and the type of cover, food, and foraging opportunities that these species require. The site itself does not provide an adequate habitat for these identified species of concern.

3.7.2 Food Chain Analysis

A **food chain** analysis was conducted because of the potential for transfer of contaminants from organisms which are lower on the food chain (such as insects), to those higher on the food chain (such as birds of prey, mammalian predators, and man). In order for this transfer to be significant, accumulation of contaminants would have to occur in organisms living at a site with contaminants present. However, because of the limited quantity and poor quality of vegetation and habitat, contaminants found at the site are not likely to impact land-based animals. Exposure to contaminants is likely to be restricted to invertebrates, earthworms, insects, and the plants on the site. Animals who forage on these substances may be exposed. However, their exposures are likely to be transitory because the site apparently provides little food and cover. This diminishes the ability of the site to attract species of concern.

3.7.3 Contamination Assessment

Because of the absence of suitable habitat at and in the vicinity of the site, it is not likely that plants or animals will be significantly impacted by contaminants found on the site.

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TABLE 4
NON-HUMAN BIOLOGICAL RECEPTORS:
SUMMARY OF CALIFORNIA NATURAL DIVERSITY DATABASE
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Species	Approximate Distance to Nearest Sighting (miles)	Cover	Food/Foraging Habits
Swainson's Hawk	3.5	Oak savannah, roosts in large trees, but will roost on ground if none available.	Forages in grasslands or adjacent grain or alfalfa fields. Eats mice, gophers, ground squirrels, rabbits, large arthropods, amphibians, reptiles, birds, and rarely fish.
Yellow-billed Cuckoo	5.9	Densely foliaged, deciduous trees and shrubs, especially willows, required for roosting.	Gleans large insects from foliage.
Burrowing Owl	2.0*	Rodent or other burrows for roosting and nesting cover.	Mostly insects, also small mammals, reptiles, birds, and carrion.
Bank Swallow	3.2	Holes in cliffs in river banks for cover. Frequents near bodies of water.	Forages by hawking insects during long gliding flights. Feeds predominantly over open riparian areas, but also over brushland, grasslands, and cropland.
Tricolored Blackbird	4.3	Breeds near emergent wetlands, especially areas with cattails, and tules, also in trees and shrubs.	Feeds on insects, seeds, and cultivated grains. Forages on ground in croplands, grassy fields, flooded land, and along edges of ponds.
Valley Elderberry Longhorn Beetle	3.2	Found only in Elderberry Savannah.	Larvae are borers, adults feed on foliage.
Dwarf Downinga	8.5	Flowering plant species associated with vernal pools.	Needs conditions required for vernal pools.

Source: Zeiner *et al.*, 1990.

* A burrowing owl was observed on-site in late 1993; however, no burrow was found.

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4.0 HEALTH AND SAFETY RISKS

A **Health Risk Assessment** was performed to evaluate the potential for adverse human health and environmental effects at the site under current conditions using the results and information presented in the Remedial Investigation. The Remedial Investigation concluded that the most common contaminants at the site were:

- Metals in soil (arsenic and lead)
- Petroleum hydrocarbons and polycyclic aromatic hydrocarbons in soil
- Volatile organic compounds and nickel in groundwater.

This section presents a summary of the Health Risk Assessment conducted at the UPRR Sacramento yard site.

The purpose of a Health Risk Assessment is to:

- Evaluate potential means of exposure to site contaminants under current site conditions and in the future (assuming the site is not cleaned up).
- Estimate potential health risks associated with exposure to contaminants detected in soil, air, and groundwater for current and future site occupants.
- Identify contaminants of potential human health and environmental concern which will need to be addressed in the site remedial action.

A Health Risk Assessment, conservative by design in order protect human health and the environment, tends to overstate the potential for human contact with chemicals detected in site soil and groundwater, and may overestimate the risk of adverse health effects associated with chemical contact.

The Health Risk Assessment for the site was prepared according to guidelines provided by the U.S. Environmental Protection Agency (EPA) and the DTSC, and is contained in several reports The Supplement to the Revised Baseline Health Risk Assessment (Dames & Moore, 1992a) was used as the basis for this discussion of risks posed by the site in its present condition. A chronologic list of Health Risk Assessment reports and related DTSC correspondence follows:

- The Health Risk Assessment was submitted to DTSC in August 1990.
- Comments on the Health Risk Assessment were received from DTSC in March 1991.
- Comments were addressed in the Revised Baseline Health Risk Assessment (see Appendix J of the Addendum Remedial Investigation/Feasibility Study Report).

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- Comments by the DTSC on the Revised Baseline Health Risk Assessment were received in March 1992.
- Comments were addressed and presented to the DTSC in the Supplement to the Revised Baseline Health Risk Assessment and Development of Remedial Action Objectives for the Union Pacific Railroad Yard in September 1992.
- Comments of the DTSC on the Supplement to the Revised Health Risk Assessment and the Development of Remedial Action for the Union Pacific Railroad Yard, and DTSC-acceptable cleanup levels were received from the DTSC in January 1993.

4.1 EXPOSURE SCENARIOS AND PATHWAYS

To evaluate exposure, the physical characteristics and current and future land use at and near the site were evaluated. This information helps identify potential points of contact between humans and chemicals associated with the site. Individuals that could become exposed to contaminants detected at the site (receptors) and possible means of exposure (pathways) associated with the site are summarized in Table 5.

The **exposure scenarios** describe the activities and site conditions through which receptors could become exposed to contaminants at the site. An **exposure pathway** is the means by which individuals could become exposed to contaminants detected at the site. An exposure pathway links the source of environmental release with population locations and activity patterns to assess the significant pathways of human exposure. Potential pathways other than those described above were also examined, but judged not likely to exist for this site.

Trespassers are individuals who could gain access to the site and have contact with contaminants in the soil. For the purposes of the Health Risk Assessment, it was assumed that off-site residents live directly adjacent to the site at the location where the highest levels of contaminants in air (from wind-blown dust) are expected to be found. Future development of the site will probably prevent wind-blown dust by covering much of the site with buildings, landscaping, and roads. However, the exposure scenarios associated with future land use in the Health Risk Assessment assumed the presence of hypothetical on-site residents on the unremediated site. This is the most health-protective approach and would tend to provide the highest risk estimates.

Considering the exposure pathways and scenarios listed in Table 5, conservative assumptions regarding exposure duration and contaminant intake were used to calculate numerical estimates of health risks based on site-specific information and regulatory guidance. These assumptions provide a conservative estimate of risks associated with exposure to site contaminants. A summary of selected assumptions used in the Health Risk Assessment is provided in Table 6.

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4.2 RISK CHARACTERIZATION

Risk characterization provides numerical estimates of the existence and magnitude of potential human health risk concerns related to contamination at the site. Carcinogenic (cancer-causing) and non-carcinogenic health effects due to chemical exposure are characterized in two different ways:

- Calculation of a **Hazard Quotient** (for non-carcinogenic chemicals); and
- Calculation of the **estimated lifetime cancer risk** (for carcinogenic chemicals).

The cancer risks and hazard quotients for each particular chemical were summed to provide an estimate of total risks. Health risks associated with the site are discussed in the following sections. A summary of the risk characterization is provided in Table 7.

4.2.1 Non-carcinogenic Effects

Non-carcinogenic health effects were estimated by calculating a hazard quotient for each non-carcinogenic contaminant. A hazard quotient is the ratio of the predicted intake of a particular chemical and the intake limit established by either the DTSC or the U.S. EPA. Hazard quotients are grouped by similar effects (such as liver disease or kidney disease) and the sum of these quotients is referred to as the Hazard Index. A Hazard Index less than one indicates there is very little chance of adverse health effects. It should be noted that a Hazard Index is not utilized to calculate health effects from exposure to lead. Instead, mathematical models are used to predict blood lead levels based on exposure to **upper bound concentrations** of contaminants at the site. The following summarizes the major non-carcinogenic risks:

- The hazard quotient for 1,1-dichloroethene (in groundwater) exceeded one in all future scenarios, indicating that the estimated intake would exceed regulatory criteria. In addition, arsenic and thallium exceeded one in the future on-site resident scenario.
- When hazard quotients were summed by critical effect to calculate the hazard index, only the hazard index for liver damage exceeded one.

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TABLE 5
BASELINE HEALTH RISK ASSESSMENT
EXPOSURE SCENARIOS AND PATHWAYS
UNION PACIFIC RAILROAD
SACRAMENTO, CALIFORNIA

EXPOSURE SCENARIO	POSSIBLE EXPOSURE PATHWAYS
Current Land Use	
Trespassers (on the site)	Dermal (skin) contact with contaminated soil Ingestion of contaminated soil Inhalation of contaminated dust (from wind-blown soil)
Off-site residents	Inhalation of contaminated dust
Future Land Use (assuming site is not cleaned up)	
Off-site residents	Inhalation of contaminated dust Dermal contact (showering/bathing) with contaminated groundwater from off-site wells Vapor inhalation (showering) with contaminated groundwater from off-site wells Ingestion of contaminated groundwater from off-site wells
Hypothetical on-site residents	Dermal contact with contaminated soil Ingestion of contaminated soil Dermal contact (showering/bathing) with contaminated groundwater from on-site wells Vapor inhalation (showering) with contaminated groundwater from on-site wells Ingestion of contaminated groundwater from on-site wells

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TABLE 6
SELECTED ASSUMPTIONS USED IN THE HEALTH RISK ASSESSMENT
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Variable	Assumed Value	Applicable Exposure Pathways
Exposure Frequency		
Adult Resident	350 days per year	All
Child Resident	350 days per year	
Trespasser	104 days per year	
Exposure Duration		
Adult Resident	24 years	All
Child Resident	6 years	
Trespasser	8 years	
Body Weight		
Adult	154 pounds	All
Child	33 pounds	
Trespasser	111 pounds	
Soil Ingestion Rate		
Adult	1/300 ounce per day (1/8 teaspoon)	Soil Ingestion Only
Child	1/150 ounce per day (1/4 teaspoon)	
Exposure Time		
Adult Resident	24 hours per day	Particulate (Soil) Inhalation Only
Child Resident	24 hours per day	
Trespasser	8 hours per day	
Groundwater Ingestion Rate		
Adult	1 3/4 quarts per day	Groundwater Ingestion Only
Child	1 1/4 quarts per day	
Exposure Time		**During bathing only:**
Adult	15 minutes per day	Groundwater Skin Contact/Vapor Inhalation Only
Child	15 minutes per day	Groundwater Skin Contact Only

Notes: Other assumptions used in the Health Risk Assessment include skin surface area, inhalation volumes, and other more technical assumptions.

For each exposure scenario and pathway examined in the Health Risk Assessment, the assumptions are combined when calculating estimates of health risks.

Example 1: When estimating risks associated with childhood ingestion of soil, it was assumed that a child weighing 33 pounds swallows 1/150 ounce (1/4 teaspoon) of contaminated soil per day (350 days per year) for six years. This is equivalent to swallowing 2 1/4 ounces per year for six years.

Example 2: Risk estimates for adverse health effects on adults drinking contaminated groundwater were calculated assuming an adult weighing 154 pounds drinks 1 3/4 quarts of contaminated groundwater per day (350 days per year) for 24 years.

Example 3: Risk estimates for trespassers assume the trespasser is a child weighing 111 pounds who spends 8 hours per day at the unremediated site 104 days per year for 8 years. The trespasser's exposure is assumed to begin when he is 9 years old, and continues until he is 17.

Example 4: Life-time cancer risk estimates for children were calculated assuming that the childhood exposure lasts for 6 years and that the individual continues to be exposed for an additional 24 years as an adult

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- The primary concern for lead exposure is the potential for learning deficits in children under five years old. A direct indication of intake can be obtained from the level of lead in blood. The U.S. EPA and the DTSC consider blood lead levels exceeding 10 **micrograms per deciliter** (μg/dL) to be a level of concern. This blood lead level is associated with ingesting soil with a concentration of 300 parts per million or more (Dames & Moore, 1991d). Although the average lead concentration in soil at the UPRR site is 477 parts per million (ppm), the distribution of lead contamination at the site is uneven (*i.e.*, **"hot spots"** exist). This suggests that blood lead levels may be lower than predicted in the Health Risk Assessment. At the concentration examined, blood lead levels should not exceed 10 micrograms per deciliter in more than five percent of exposed children. It should be noted that in urbanized areas, blood lead levels above 10 micrograms per deciliter are not uncommon and may be attributable to a number of potential lead sources (including house paint, glazed ceramic dishes, and lead solder used in household plumbing).

4.2.2 Carcinogenic Effects

As a means of predicting possible carcinogenic effects, the Health Risk Assessment included estimating the lifetime cancer risk for each receptor. For carcinogenic effects, the U.S. EPA requires remedial action when conditions at a site cause a calculated cancer risk of 1×10^{-6} (one in one million) or greater, although action may depend on site-specific conditions.

- Estimated lifetime cancer risks potentially associated with trespassers or off-site residents (current land use) range from nine-in-one million (9×10^{-6}) to nine-in-one hundred thousand (9×10^{-5}).
- Estimated lifetime cancer risks potentially associated with future on- or off-site residents range from six-in-one hundred thousand (6×10^{-5}) to two-in-one thousand (2×10^{-3}).
- The chemicals providing the greatest contribution to the estimated cancer risks are arsenic in soil, and benzene, 1,2-dichloroethane, and carbon tetrachloride in groundwater.
- Most of the cancer risk associated with contact with soil can be attributed to the presence of arsenic. It should be noted that site activities are not believed to be the only source of arsenic in soil at the site. Average background concentrations of arsenic in natural soil in the area of the site (approximately 8 mg/kg) represent a lifetime cancer risk of two in ten thousand (2×10^{-4}). The primary source of arsenic due to site activities is slag. The metals in the slag are bound tightly to the slag matrix and are therefore not very **bioavailable.** The low bioavailability was not accounted for in the risk analysis, and the potential health risk from exposure to arsenic in slag may therefore have been overestimated by a factor of four. In order to determine the actual bioavailability of arsenic in slag, an animal study was recently performed (report pending). The study demonstrated that arsenic in the slag material has no bioavailability.

4.2.3 Effects on Non-Human Receptors

No significant effects on plants and animals from chemicals found on the site were anticipated due to the lack of substantial wildlife habitat in the site vicinity.

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TABLE 7
SUMMARY OF HUMAN HEALTH RISKS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Carcinogenic Effects			Exposure Scenario (Receptor and Activity)	Non-Carcinogenic Effects	
Estimated Lifetime Cancer Risk	Chemicals with Highest Contribution to Cumulative Cancer Risks	Exposure Pathways with Cancer Risks Exceeding 1×10^{-4}		Non-Carcinogenic Hazard Index	Chemicals Whose Hazard Index Exceeds 1
9×10^{-4}	Arsenic, carcinogenic PAHs	Soil ingestion; none	Current On-Site Trespasser	<1	None
4×10^{-5}	Arsenic	Inhalation of Outdoor Air	Current Off-Site Residents		
5×10^{-5}	Arsenic	Inhalation of Outdoor Air	Adult	<1	
9×10^{-5}	Arsenic	Inhalation of Outdoor Air	Child	<1	None
			Adult and Child (total)	<1	
4×10^{-3}	Arsenic; 1,2-dichloroethane; carbon tetrachloride	Inhalation of Outdoor Air; dermal contact (showering); dermal contact (showering)	Future Off-site Residents		
5×10^{-3}	Arsenic; 1,2-dichloroethane; carbon tetrachloride	Inhalation of Outdoor Air; dermal contact (showering); dermal contact (showering)	Adult	>1	1,1-dichloroethene
1×10^{-4}	Arsenic; 1,2-dichloroethane; carbon tetrachloride	Inhalation of Outdoor Air; dermal contact (showering); dermal contact (showering)	Child	>1	1,1-dichloroethene
			Adult and Child (total)	>1	1,1-dichloroethene
1×10^{-3}	Benzene, arsenic	Vapor inhalation (showering); groundwater ingestion; groundwater ingestion	Future On-Site Residents		
			Adult	>1	1,1-dichloroethene
7×10^{-4}	Benzene, arsenic	Dermal contact (bathing); groundwater ingestion; ground water ingestion	Child	>1	Thallium; 1,1-dichloroethene
2×10^{-3}	Benzene, arsenic	Dermal contact (bathing); groundwater ingestion; groundwater ingestion	Adult and Child (total)	>1	Arsenic; thallium; 1,1-dichloroethene

NOTES: Estimated Lifetime Cancer Risk is the sum of all cancer risks associated with contaminants at the site.

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5.0 EFFECTS OF CONTAMINATION

This section presents a discussion of the potential effects of soil and groundwater contamination upon uses of land and water at the site. It is organized to discuss land and groundwater separately in terms of present uses and potential beneficial future uses.

5.1 PRESENT AND FUTURE USES OF LAND

5.1.1 Present Uses

The site is divided into an inactive portion and the active yard, as described in Section 2.1.1. The inactive portion covers approximately 63 acres, is fenced and unoccupied. The active yard covers approximately 31 acres, and is currently in use as a railroad switching yard. The General Plan of the City of Sacramento (City of Sacramento, 1988) designates the site for transportation/utilities use. The entire site is currently zoned for heavy industrial use (M-2) under the City Zoning Ordinance, which is consistent with the use of the site as a railroad switching yard. Current zoning and land uses at and near the site are shown on Figures 9 and 10.

The majority of land uses surrounding the site are low-density residential (single family dwellings). A cold storage facility borders the site to the southwest, and one major educational institution (Sacramento City College) is adjacent to the southwest corner of the site. Additionally, some commercial and manufacturing facilities are present to the south along Sutterville Road, and to the west along Freeport Boulevard.

5.1.2 Future Uses

5.1.2.1 Active Yard

There are no plans to change land use in the 31-acre active yard portion of the site, which is operated as a railroad switching yard by UPRR.

5.1.2.2 Inactive Portion of the Site

A potential health risk is posed by the inactive portion of the site in its present state. Future land uses at the site will depend partly on the degree of risk reduction achieved through remediation of soil and groundwater contamination.

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No formalized land use designations or redevelopment strategies have been approved for the inactive portion of the site. Approval of a finalized land use plan will require the same procedures typically required of other land use applications within the City of Sacramento. Typical land use planning procedures are summarized below.

- Initial reviews with the Planning and Development Department (including Policy Committee review and requests for plan/project re-design, if warranted).
- Preparation of an environmental document to assess potential impacts and mitigation associated with or required by the proposed development project.
- Review and decision by the City Planning Commission (with assistance from planning staff in the form of a staff report).
- Review and decision by the City Council, if warranted.
- Opportunities for public involvement in the process, including written comments on the project plans solicited from community organizations, combined meetings with planning staff, community organizations and the applicant (if necessary), public notice of hearings and the determination of environmental impacts, defined public review periods during preparation of the environmental document, and attendance at public hearings.

The Sacramento City Council appointed the Union Pacific Land Use Committee (UPLUC) to prepare land-use recommendations for the inactive portion of the site. Members of the UPLUC include twelve residents of neighborhoods near the site. Based on information gathered from public meetings and land use planners, the UPLUC prepared recommendations on future land use in February 1992. A series of community workshops were held in March 1992 to give members of the public an opportunity to comment on the recommendations. The UPLUC recommendations were then finalized and presented in a report to the Sacramento City Council in April 1992. The City Council adopted Resolution Number 92-255 endorsing the report and directed the City Planning Division to incorporate the UPLUC recommendations into future land-use planning activities. Appendix A contains a copy of the resolution and the UPLUC report.

Potential future land uses identified by UPLUC for the inactive portion of the site include:

- Residential Use - single family homes, higher density housing (for seniors, families, or students), mixed use (combined residential and light commercial), and low/moderate income housing.
- Open Space and Recreational Use - parks, open space, town square, bike paths, pedestrian walkways, and community recreational facilities.

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- Commercial Use - community- and neighborhood-serving business, office spaces, and mixed commercial/residential development with emphasis on pedestrian patronage rather than automobiles.

- Schools - additional schools may be needed because of residential growth in the area. Also, the expansion needs of Sacramento City College will be considered.

- Light Rail - The UPLUC supports extension of the City's light rail service to the southern part of the city along the UPRR route and the establishment of one or more light rail stations on the site. Pedestrian-oriented stations with limited parking areas are preferred.

The report emphasized the desire to plan redevelopment of the site to be compatible with existing residential, educational, and commercial land uses in the vicinity. The UPLUC also recommended that clean-up levels for the site be developed based on these future land uses. In general, the UPLUC identified preferred future land uses for the northern area as being residential, open space/town square, and neighborhood commercial. For the southern portion of the site, it prefers mixed commercial/residential, commercial, urban open space, and other special uses (such as City College expansion).

The DTSC met with the Sacramento Planning Department and UPRR in March 1992 to discuss future land use. Following the meeting, the DTSC sent a letter to the Planning Department which discussed how clean-up levels for the site would relate to future land uses (see Appendix B). The DTSC recommended that future land uses be broken down into two general categories:

- Restricted Land Use - mixed use (with non-residential on the ground floor), other non-residential use, recreational facilities, community center, town square, and infrastructure (such as underground sewer storage). Areas designated for restricted land use would have a permanent deed restriction to prevent future land uses other than those specified and improper future excavation and disposal of contaminated materials. Clean-up levels would be developed based on conservative exposure scenarios and the land would be developed to prevent exposure to residual contaminated materials. This would be achieved through a combination of buildings, pavement, and controlled landscaping to cover the impacted soil.

- Unrestricted Land Use - any type of land use including those listed under restricted land use, as well as residential, schools, open space, and bike/pedestrian pathways. The DTSC recommended that areas planned for unrestricted future land use should be those portions of the site least impacted by past industrial activities (i.e., the northeastern portion of the site) or areas where the soil is cleaned up to an acceptable level. The clean-up levels for the unrestricted land use would be developed to be protective of human health for the land uses specified.

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Based on the past industrial uses and the distribution of contaminants in soil at the site, the DTSC prepared a general map showing potential future land uses (restricted and unrestricted). A copy of the letter and map are presented in Appendix B. Future land-use recommendations of the UPLUC and the DTSC were used to develop generalized assumptions about future land use at the site and soil clean-up levels applicable for each type of land use. The land-use assumptions and clean-up levels used in the feasibility study are discussed in Section 6.1.

It is expected that the site will be developed for residential mixed use. The City has initiated the rezoning of the site for residential/mixed use. UPRR will prepare a land use plan for the site which will accommodate the objectives of UPRR, the City, and the community concerns. The plan will be submitted to the City for the necessary governmental approvals. However, at this time, it is not known where specific land uses will occur. The Union Pacific Land Use Committee Report, adopted by the City Council on April 14, 1992, strongly recommended the development of housing and mixed use/housing on the site. The cleanup levels proposed in the RAP provide for unrestricted land use on approximately one-third of the site, with the remainder of the site providing for a restricted land use that will allow mixed use. The final land use plan may require additional portions of the site to be remediated to unrestricted use levels beyond the area indicated in the RAP. Soil remediation to accomplish the objectives proposed in the RAP will proceed at this time. The Department, UPRR, and the City have agreed that it is not cost-effective to remediate the entire site at this time to the unrestricted land use level that would allow single-family residential land use.

After finalization of a land use plan by the City and prior to development construction, UPRR will perform, at its cost, a second phase of remediation in a manner consistent with the RAP to allow the specific land uses defined and scheduled in the land use plan. The Department will maintain enforceable oversight for the site until remedial actions are completed which allow for implementation of the City-approved land use plan.

5.1.3 Potential Effects

Existing soil contamination adversely affects potential land uses of the site. If the site were left unremediated, portions of the site would not be suitable for most beneficial land uses. Because the current industrial use of the active yard is not expected to change, the effects on future land use would be most pronounced in the eastern inactive portion, which is currently vacant.

Remediation of soil contamination would have a beneficial effect on future land use. Depending on clean-up levels, many types of future development could be allowed.

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5.2 PRESENT AND FUTURE USES OF WATER

5.2.1 Surface Water

5.2.1.1 Present Uses

There are no surface water resources at the site. The closest surface water resources in the area are the Sacramento River approximately one mile to the west, and the American River almost three miles to the north. Beneficial uses and water quality for the Sacramento and American Rivers were discussed in Section 3.2.2.

Surface flow at the site is limited to storm water. Storm water at the site generally drains to the east along the middle part of the inactive portion of the site next to residences along 24th Street, and to the southwest towards the tracks in the active yard. Drainage along the western boundary of the site is directed to street culverts. The flow from both portions of the site is directed into combined sewer/storm drains which carry the storm water to the Sacramento Regional Wastewater Treatment Plant. The storm water is treated at the plant before being discharged into the Sacramento River.

5.2.1.2 Future Uses

Present beneficial uses for the Sacramento and American Rivers are expected to continue indefinitely. No future uses other than those described in Section 3.2.2.3 have been identified by the Regional Water Quality Control Board at this time (RWQCB, 1991).

5.2.1.3 Potential Effects

Under current conditions, storm water run-off from the site may potentially come in contact with soil contaminants, and contaminated run-off and sediments may be transported off-site to City storm drains. The proposed remediation for site soils includes removing or covering sources of contamination, thus preventing run-off on the site from coming into contact with contaminants after site remediation.

Because there are no surface water resources at the site and potentially contaminated storm water would be collected by a wastewater treatment plant permitted to release to surface waters, conditions at the site do not currently impact surface water quality. Because the proposed site remediation will minimize surface water run-off from coming into contact with contaminants, future uses of surface water in the vicinity of the site will not be significantly impacted.

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5.2.2 Groundwater

5.2.2.1 Present Uses

In general, groundwater in the Sacramento River Basin is used for municipal, domestic, and industrial purposes (RWQCB, 1991). There are seven off-site water wells present within one mile of the contaminant plumes (see Figure 11). These wells are reportedly used for irrigation only. The nearest drinking water wells in the site area are approximately two miles to the southeast, and belong to the Fruitridge Vista Water Company (Stockton, 1990).

5.2.2.2 Future Uses

The groundwater in the vicinity of the site is not specifically listed as a groundwater resource in the Sacramento River Basin Plan (RWQCB, 1991). According to the Basin Plan, the potential beneficial uses for groundwater in this area include community and military water systems and domestic uses associated with individual water supply systems.

5.2.2.3 Potential Effects

Contamination has been detected in groundwater beneath the site, and presently groundwater contamination extends to the southeast approximately 5,200 feet from its on-site source area. The results of the Health Risk Assessment (Section 4.0) indicate that contaminated groundwater poses a potential health risk if ingested. However, there are no drinking water supply wells or water supply wells of any other type located within the contaminant plumes. Therefore, the groundwater contamination does not impact existing beneficial uses of groundwater.

Groundwater contamination from the site, if not controlled or cleaned up, could potentially impact existing downgradient groundwater users. Groundwater contamination could also prevent future development of the potential beneficial uses listed above. Future industrial or military uses might be an exception because these uses typically have lower water quality standards (that is, can tolerate higher contaminant concentrations).

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6.0 FEASIBILITY STUDY SUMMARY

This section summarizes the Feasibility Study and discusses final candidate remedial alternatives. The purpose of a feasibility study is to identify applicable remedial technologies and select recommended remedial alternatives which will provide adequate protection of public health and the environment, comply with applicable laws and regulations, and be cost-effective.

In general, after a remedial investigation is completed, potential remedial technologies are identified and screened for applicability to contaminants and contaminated **media** (such as soil and groundwater) at the site. Applicable technologies are combined as necessary to form alternatives. Each alternative should address all contaminants of concern. The alternatives are then screened on the basis of their ability to reduce contaminant concentrations to acceptable levels, ability to obtain agency approval, and cost-effectiveness. The most promising alternatives survive the screening and are selected as final candidate alternatives. The final candidate alternatives then undergo a detailed analysis where their ability to satisfy the following nine **criteria** are evaluated:

- short-term effectiveness;
- long-term effectiveness;
- implementability;
- compliance with laws and regulations;
- reduction of **toxicity**, mobility, and volume;
- cost;
- overall protection of human health and the environment;
- state acceptance; and
- community acceptance

The detailed analysis is used to compare the relative advantages and disadvantages of the final candidate alternatives and to select a recommended remedial alternative for each **operable unit**.

As discussed in Section 3.0, several phases of remedial investigation work were conducted at the site to assess the nature and extent of contamination in soil and groundwater. The Feasibility Study for the site was initially conducted after completion of the Phase II Remedial Investigation. The Feasibility Study has been modified as new information about the nature and extent of contamination, contaminant mobility, and state and community acceptance of the selected remedial alternatives became available.

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The Feasibility Study is presented in the following documents:

- Remedial Investigation/Feasibility Study Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, May 1991.
- Addendum Remedial Investigation/Feasibility Study Report, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, November 1992.
- Feasibility Study Supplement, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, September 1992.
- Revised Soil Volumes and Remedial Alternative Detailed Cost Estimates — Feasibility Study Supplement, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, February 1993.
- Draft Letter Report — Supplemental Remedial Action Cost Estimates, Operable Units S-1, S-2, and S-3, Union Pacific Railroad Yard, Sacramento, California, Dames & Moore, December 1994 (Dames & Moore, 1994d). This report was prepared to address public comments on the Draft RAP of January 1994.

The following sections describe the remedial action objectives, operable units, and final candidate alternatives for contaminated soil and groundwater at the site. Each final candidate alternative is described and discussed in terms of cost-effectiveness, implementation time (the length of time required to put the alternative into effect), effect on future land and groundwater use, the potential environmental impacts that may result from remedial action, and reason for selection or rejection as the recommended remedial alternative. One recommended remedial alternative is selected for each operable unit and its selection is justified. The design and construction activities required for the recommended remedial alternatives, as well as **applicable or relevant and appropriate requirements** with which these alternatives must comply are then discussed for each medium of concern (soil and groundwater).

A feasibility study analysis was not performed for Soil Operable Unit S-5; however, a separate plan for further investigation of groundwater impacts and remedial action to address soil impacts in this operable unit is presented separately in Section 6.4.

6.1 REMEDIAL ACTION OBJECTIVES

Remedial action objectives are goals for protecting human health and the environment from potential risks caused by the presence of chemicals at the site. Remedial action objectives are developed through health risk assessment analyses, consideration of applicable or relevant and appropriate requirements, and consideration of other non-technical factors.

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The Remedial Action Objectives developed for the site would limit exposure to soil and groundwater contaminants through removal, destruction, and/or containment of contaminants. If the Remedial Action Objectives are achieved during site clean-up and a new Health Risk Assessment was performed after site clean-up, it would show that estimated human health risks have been reduced to levels acceptable to the DTSC. Based on these objectives, specific cleanup levels have been established for each contaminant of concern in soil and groundwater at the site.

6.1.1 Future Land Use Assumptions

In order to develop clean-up levels which could be applied to specific areas according to planned future land use in those areas, it was necessary to make assumptions about future land use at the site. In the Feasibility Study, the assumptions about general land use types used were based on the recommendations of the DTSC and the Union Pacific Land Use Committee, as discussed in Section 5.1.2.2. Assumed future land use types associated with particular areas of the site are shown on Figure 13 and summarized below:

- Future land use in the northeastern part of the inactive portion of the site is assumed to be unrestricted;
- Future land use in the southern and central parts of the inactive portion of the site is assumed to be restricted to commercial and mixed land uses, as described in Section 5.1.2.2; and
- The active switching yard (the western portion of the site) will be restricted to heavy industrial land uses. UPRR plans to maintain the current switching yard operation indefinitely.

It is expected that the site will be developed for residential mixed use. The City has initiated the rezoning of the site for residential/mixed use. UPRR will prepare a land use plan for the site, which will accommodate the objectives of UPRR, the City, and the community concerns. However, at this time, it is not known where specific land uses will occur. The Union Pacific Land Use Committee Report, adopted by the City Council on April 14, 1992, strongly recommended the development of housing and mixed use/housing on the site. The cleanup levels proposed in the RAP provide for unrestricted land use on approximately one-third of the site, with the remainder of the site providing for a restricted land use that will allow mixed use. The final land use plan may require additional portions of the site to be remediated to unrestricted use levels beyond the area indicated in the RAP. Soil remediation to accomplish the objectives proposed in the RAP will proceed at this time. The Department, UPRR, and the City have agreed that it is not cost-effective to remediate the entire site at this time to the unrestricted land use level that would allow single-family residential land use.

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After finalization of a land use plan by the City and prior to development construction, UPRR will perform, at its cost, a second phase of remediation in a manner consistent with the RAP (see Table 8) to allow the specific land uses defined and scheduled in the land use plan. The Department will maintain enforceable oversight for the site until remedial actions are completed which allow for implementation of the City-approved land use plan.

6.1.2 Soil Clean-Up Levels

The remedial action objectives for soil contaminants at the site are expressed in terms of clean-up levels for soil. The clean-up levels are target chemical concentrations which may be left in place on-site without treatment to reduce toxicity, mobility, or volume. Soils containing concentrations of contaminants higher than the clean-up levels (based on statistical analysis of test results) must be either removed from the site or treated. The clean-up levels for soil contaminants at the site are summarized in Table 8 and discussed below.

In order to select soil clean-up levels that are protective of human health, future land use (and therefore, future exposure scenarios) must be known. The future land use assumptions described in the previous section were used to develop risk-based clean-up levels for arsenic and lead at the site. Separate clean-up levels were selected for the two land use types: unrestricted land use levels and restricted land use levels. In areas where future land use will be restricted, the clean-up levels for arsenic and lead are higher (i.e., require less remedial action) than in areas where future land use will be unrestricted. Concentrations of arsenic and lead in the active yard were generally below the allowable exposure concentrations calculated for heavy industrial land use, so arsenic and lead clean-up levels were not selected for the active yard (Dames & Moore, 1992b)

Arsenic in slag has recently been demonstrated in an animal bioavailability study to have no bioavailability. Once the DTSC has concurred with the findings of the study, the cleanup levels for arsenic and lead may be increased or withdrawn. If a cleanup level is intended to be changed, a public notice will be issued and a public meeting will be held to present the study results and answer questions or discuss concerns regarding the proposed cleanup level changes.

Separate health-risk-based clean-up levels were also developed for carcinogenic and non-carcinogenic polycyclic aromatic hydrocarbons. The clean-up levels for polycyclic aromatic hydrocarbons in soil are conservative enough to allow unrestricted future land use, and will be applied to all areas of the inactive portion of the site regardless of planned future land use.

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TABLE 8
REMEDIAL ACTION CLEAN-UP LEVELS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Constituent	Remedial Action Objective		Basis for Selection
	Restricted Future Land Use[1]	Unrestricted Future Land Use[2]	
SOIL CONTAMINANTS (mg/Kg unless otherwise noted)			
Arsenic	55	8	DTSC/HR
Lead	950	220	HR/DTSC
Petroleum Hydrocarbons			
Diesel	1,000		LUFT
Gasoline (Former Oil House Area)	100		LUFT
Gasoline (Other Areas)	1,000		LUFT
Benzene	0.3		LUFT
Toluene	0.3		LUFT
Ethylbenzene	1.0		LUFT
Xylenes	1.0		LUFT
Chlorinated Volatile Organic Compounds	0.5[3]		Leachability
Polycyclic Aromatic Hydrocarbons			
Carcinogenic (sum of)	0.042		HR
Non-carcinogenic (sum of)	100		HR
Polychlorinated Biphenyls (PCBs)	0.1		U.S. EPA[4]
Asbestos	1% by weight		ARAR (TTLC)
GROUNDWATER CONTAMINANTS (µg/L)			
Arsenic	50		ARAR (MCL)
Chromium	50		ARAR (MCL)
Lead	15		ARAR (MCL)
Nickel	100		ARAR (MCL)
Chlorinated Volatile Organic Compounds			
Carbon tetrachloride	0.5		ARAR (MCL)
1,1-Dichloroethane	5		ARAR (MCL)
1,1-Dichloroethene	6		ARAR (MCL)
1,2-Dichloroethane	0.5		ARAR (MCL)
1,1,1-Trichloroethane	200		ARAR (MCL)
1,1,2-Trichloroethane	32		ARAR (MCL)
Tetrachloroethylene	5		ARAR (MCL)
Trichloroethylene	5		ARAR (MCL)
Vinyl Chloride	0.5		ARAR (MCL)
Aromatic Compounds			
Benzene	1		ARAR (MCL)
Toluene	1,000		ARAR (MCL)
Ethylbenzene	680		ARAR (MCL)
Xylenes	1,750		ARAR (MCL)
Petroleum Hydrocarbons			
Diesel	100		ARAR (SNARL)

NOTES:
- mg/kg Milligrams of chemical per kilogram of soil - parts per million
- µg/L Micrograms of chemical per liter of groundwater - parts per billion
- [1] Restricted Future Land Use applies to Soil Operable Units S-1 and S-2
- [2] Unrestricted Future Land Use applies to Soil Operable Unit S-3
- [3] Measured in soil gas as µg/L.
- [4] Recommended Soil Action Levels (U.S. EPA, 1990)

KEY TO BASIS FOR CLEAN-UP LEVELS:
- HR Health-risk-based
- ARAR Based on applicable or relevant and appropriate requirements
- DTSC Selected at the direction of the DTSC based on DTSC's risk assessment
- MCL Primary Maximum Contaminant Level (Cal-EPA or U.S. EPA, whichever is lower)
- LUFT Leaking Underground Fuel Tank Assessment
- SNARL Suggested No-Adverse-Response Level

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The cleanup level for diesel was selected at the direction of the DTSC. Cleanup levels for gasoline, benzene, toluene, ethylbenzene, and xylenes were developed using the State Water Resources Control Board's Leaking Underground Fuel Tank Field Manual (SWRCB, 1989), as directed by the DTSC. Cleanup levels for petroleum hydrocarbons using the manual are intended to be protective of groundwater quality

Cleanup levels for polychlorinated biphenyls were selected from risk-based concentrations developed by the United States Environmental Protection Agency (US EPA, 1990), and the asbestos cleanup level is based on applicable or relevant and appropriate regulatory requirements.

Additional soil vapor investigation was performed in the deeper portions of the Central Fill and former Oil House areas in June 1994, site-specific soil vapor concentrations and soil physical parameters were used to model transport of volatile organic compounds to groundwater. Information supplied by the model was then used to calculate cleanup levels which are protective of groundwater quality.

No toxic or carcinogenic chemicals were detected in Operable Unit S-5 at levels that would pose a health risk. Furthermore, no complete direct exposure pathways exist because impacted soils are not exposed at the ground surface. However, at the direction of the DTSC, the cleanup level for diesel in soil will be the same as in other operable units (1,000 mg/Kg).

6.1.3 Groundwater Clean-Up Levels

Clean-up levels for contaminants of concern found in groundwater on- and off-site were selected to coincide with Maximum Contaminant Levels (MCLs). MCLs are regulatory requirements established by the either the California Environmental Protection Agency (Cal-EPA) or the U.S. EPA. Primary MCLs are protective of human health. For a chemical whose human health risks are unknown or insignificant, a secondary MCL based on taste and odor criteria is the applicable requirement. Groundwater clean-up levels for the site are all based on primary MCLs (except petroleum hydrocarbons as diesel), and are summarized in Table 8. The clean-up level for diesel in groundwater of 100 μg/L (see Table 8) is based on a U.S. EPA Suggested No-Adverse-Response Level (SNARL).

6.2 DEFINITION OF OPERABLE UNITS

This section describes contamination at the site in terms of operable units which were defined in the feasibility study. An operable unit is any contaminated area or medium (such as soil or groundwater) which requires special remediation techniques. A separate operable unit may also be defined in order to provide an opportunity for simpler or more cost-effective remedial action. The feasibility study established five operable units for soil and two operable units for groundwater. The locations of these

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operable units are shown on Figures 8 and 14. The following sections describe each operable unit in terms of:

- defining characteristics
- contaminants present
- applicable clean-up levels
- area and volume of material contaminated above the clean-up levels

6.2.1 Soil Operable Units

The site has been divided into five separate soil operable units (S-1 through S-5). The geographic boundaries of the soil operable units are shown on Figure 14, and the volume of soil contaminated above clean-up levels is summarized for each soil operable unit in Table 9. Volume estimates of arsenic- and lead-impacted soil were revised following slag removal activities in late 1993 (Dames & Moore, 1994d).

6.2.1.1 Soil Operable Unit S-1

Operable Unit S-1 covers a 36-acre area in the southern part of the inactive portion of the site. As described in Section 5.1.2.2, future land use in soil Operable Unit S-1 is assumed to be restricted. The contaminants of concern for this operable unit are arsenic, lead, petroleum hydrocarbons as diesel and gasoline), polycyclic aromatic hydrocarbons, and asbestos. They are locally present in soils above the restricted future land use clean-up levels, and extend to depths of five to ten feet below ground surface. Figures 5, 7, and 12 show areas totalling approximately 6.7 acres within operable unit S-1 where soil contaminant concentrations exceed the clean-up levels. The total volume of soil in Operable Unit S-1 which exceeds the restricted future land use clean-up levels is estimated to be 15,000 cubic yards.

6.2.1.2 Soil Operable Unit S-2

Soil Operable Unit S-2 covers approximately 7 acres in the central inactive portion of the site (see Figure 14). The contaminants of concern for this operable unit are arsenic, lead, petroleum hydrocarbons (as diesel and gasoline), polycyclic aromatic hydrocarbons and chlorinated volatile organic compounds. This operable unit includes the former Central Fill Area where miscellaneous debris and drums were found during Remedial Investigation activities. Future land use in this operable unit is assumed to be restricted as described in Section 5.1.2.2; therefore, the restricted future land use clean-up levels apply. Operable Unit S-2 contains approximately 19,500 cubic yards of soil with contaminant concentrations greater than the restricted future land use clean-up levels. Soil contaminated above the clean-up levels is distributed over an area totalling approximately 2.7 acres, and extends to a maximum depth of approximately 15 feet below ground surface. These contaminated areas are shown on Figures 5 and 7.

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TABLE 9
SOIL OPERABLE UNIT VOLUMES
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Depth Interval (feet bgs)	0-0.5	>0.5-1.5	>1.5-5	>5-10	>10-15	Total
Soil Operable Unit S-1						
Volume Above RAOs (cubic yards)						
Unrestricted: As ≥ 8 mg/kg and/or Pb ≥ 220 mg/kg			20,600	4,400	500	25,500
Restricted: As ≥ 55 mg/kg and/or Pb ≥ 950 mg/kg					—	8,500
			9,000	500		9,500
Asbestos > 1%		1,500	—	—	—	1,500
TPH - Diesel and/or Gasoline **		1,500	2,000	500	—	4,000
S-1 Subtotal (Unrestricted Future Land Use)						31,000
S-1 Subtotal (Restricted Future Land Use)						15,000
Soil Operable Unit S-2						
Volume Above RAOs (cubic yards)						
Unrestricted: As ≥ 8 mg/kg and/or Pb ≥ 220 mg/kg			6,600	4,300	1,400	12,300
Restricted: As ≥ 55 mg/kg and/or Pb ≥ 950 mg/kg					—	
			3,500			3,500
TPH - Diesel and/or Gasoline **		500	8,000	6,500	1,000	16,000
S-2 Subtotal (Unrestricted Future Land Use)						28,300
S-2 Subtotal (Restricted Future Land Use)						19,500
Soil Operable Unit S-3						
Volume Above RAOs (cubic yards)						
Unrestricted: As ≥ 8 mg/kg and/or Pb ≥ 220 mg/kg	4,000	500	13,500	1,000	—	19,000
TPH - Diesel only **		< 500	< 500	—	—	500
S-3 Subtotal						19,500
Depth Interval (feet bgs)		**0-4**	**>4-9**	**>9-15**	**>15-20**	**Total**
Soil Operable Unit S-5						
Volume Above RAOs (cubic yards)						
TPH - Diesel Only ***	0	0	20	640	840	1,500
S-5 Subtotal						1,500
TOTAL ALL SOIL OPERABLE UNITS (S-1 and S-2 UNRESTRICTED FUTURE LAND USE):						80,300
TOTAL ALL SOIL OPERABLE UNITS (S-1 and S-2 RESTRICTED FUTURE LAND USE):						55,500

KEY
bgs — below ground surface
As — Arsenic
Pb — Lead
TPH — Total Petroleum Hydrocarbons (as diesel and/or gasoline)
PAH — Polycyclic Aromatic Hydrocarbons
ND — None detected

** PAH contamination is associated with areas where TPH Diesel contamination is also present. Separate volumes for PAHs above the RAOs were therefore not estimated

*** No PAH contamination is associated with TPH in this operable unit

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6.2.1.3 Soil Operable Unit S-3

Soil Operable Unit S-3 is a 17-acre area in the northern part of the inactive portion of the site. Arsenic, lead, petroleum hydrocarbons (as diesel), and polycyclic aromatic hydrocarbons are present in soil at concentrations lower than the other soil operable units. The clean-up levels for this operable unit were developed to allow for unrestricted future land uses. This operable unit contains approximately 19,500 cubic yards of soil contaminated above the unrestricted future land use clean-up levels. Soil contamination above the clean-up levels is distributed over areas totalling approximately 5.5 acres, and is found primarily in the upper five feet of soil. Figures 5 and 7 depict areas within S-3 where soil contamination levels exceed the unrestricted future land use clean-up levels.

6.2.1.4 Soil Operable Unit S-4

Two off-site lots adjacent to the west side of the active yard were defined as Operable Unit S-4 (see Figure 14). Soils in S-4 contained levels of arsenic and lead that exceed local background levels. These off-site areas were remediated in 1991 under an Interim Remedial Measure which was approved by the DTSC. The affected soils were excavated and disposed of off-site. Based on testing completed after the remedial activities, residual concentrations of arsenic and lead are now at or below local background levels. A fence was constructed to separate the active yard from adjacent residential lots, and gravel was placed to reduce the potential for wind-blown dust. No additional remedial action is proposed for Operable Unit S-4, and it is therefore not discussed further in this Draft Remedial Action Plan

6.2.1.5 Soil Operable Unit S-5

Soil Operable Unit S-5 is defined as contaminated soil in the active switching yard (see Figure 14). This operable unit contains arsenic and lead associated with slag track ballast and diesel and oil in the northeastern portion of the railyard. The results of the contaminant exposure calculations performed during development of clean-up levels indicate that remedial action to remove or treat arsenic and lead in this area is not needed to protect human health, given current land use conditions. Also, the dissolution kinetics study (Walsh & Associates, 1992) described in Section 3.1.4.2 suggests that these metals do not pose a threat to groundwater.

Operable Unit S-5 also contains diesel impacts in soil and shallow groundwater. Soil hydrocarbon impacts comprise an area of approximately 10,000 square feet, and the total impacted volume is approximately 1,500 cubic yards. The associated shallow groundwater impacts currently appear to cover less than 7,000 square feet (Plume C on Figure 8). No polycyclic aromatic hydrocarbons were found in soil or groundwater.

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6.2.2 Groundwater Operable Units

Two groundwater operable units were defined for the feasibility study. The locations of these operable units are shown on Figure 8 and each is discussed separately below. Groundwater operable unit areas and volumes of contaminated groundwater are summarized in Table 10.

6.2.2.1 Groundwater Operable Unit GW-1

The Operable Unit GW-1 plume (Plume A on Figure 8) extends from the first water-bearing zone into the second water-bearing zone under the southeastern part of the site. The plume extends from the Central Fill Area of the site southeast approximately 5,200 feet to 19th Avenue. Groundwater in Operable Unit GW-1 contains nickel, chlorinated volatile organic compounds and volatile aromatic compounds. The aromatic compounds are restricted to the on-site portion of the plume under the Former Oil House area. The plume has a surface area of approximately 35 acres and contains approximately 150 million gallons of contaminated groundwater.

6.2.2.2 Groundwater Operable Unit GW-2

Groundwater Operable Unit GW-2 is defined as a smaller plume (Plume B on Figure 8) limited to the first water-bearing zone beneath the southern inactive portion of the site. Operable Unit GW-2 groundwater contains chlorinated volatile organic compounds and nickel. The plume has a surface area of approximately 5 acres and contains approximately 7 million gallons of contaminated groundwater

TABLE 10
GROUNDWATER OPERABLE UNIT AREAS AND VOLUMES
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Groundwater Operable Unit	Plume Area Above Remedial Action Objectives (acres)	Plume Thickness (feet)	Plume Aquifer Porosity (%)	Volume Above Remedial Action Objectives (gallons)
GW-1	35	20-35	25-30	150 million
GW-2	5	15	30	7 million

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6 3 FINAL CANDIDATE REMEDIAL ALTERNATIVES

The Addendum Remedial Investigation/Feasibility Study report (Dames & Moore, 1991d) presented a total of ten remedial alternatives for soil and six for groundwater. Following the preliminary screening, there remained five final candidate alternatives to address soil contamination and three final candidate alternatives for groundwater. Those final candidate alternatives were discussed in the Draft Remedial Action Plan.

Based on the analyses conducted for the Feasibility Study Supplement in 1992, this section of the Final Remedial Action Plan reflects new information about the effectiveness of two soil remedial alternatives. It also reflects new recommended remedial alternatives for three soil operable units and one of the groundwater operable units. Specific revisions are discussed below.

Two final candidate remedial alternatives developed to address soil contamination at the site were eliminated from consideration in the Feasibility Study Supplement. Soil Alternative 5 included excavation and on-site treatment using soil washing to remove metals. This alternative was eliminated because the results of the recently completed dissolution kinetics study (Walsh & Associates, 1992) suggests that soil washing technology would not be effective in achieving the remedial action objectives for the chemical forms of arsenic and lead which are found at the site.

Soil Alternative 6 included excavation and off-site disposal of soils with contaminant concentrations exceeding the hot spot concentrations. The hot spot concentrations were defined in the Addendum Remedial Investigation/Feasibility Study Report (Dames & Moore, 1991d) to provide an intermediate clean-up level between "No Action" and full remediation. The hot spot clean-up levels for arsenic and lead were higher (less strict) than the new unrestricted future land use clean-up levels recommended by the DTSC, meaning less contaminated soil would be addressed during site remediation. Under Alternative 6, following disposal of the hot spot soils, other areas where residual contaminants might pose a threat to human health or the environment would be covered with an engineered asphalt cap. Alternative 6 also included deed restrictions which would have strictly limited future land uses. Alternative 6 was eliminated from consideration in the Feasibility Study Supplement because the new clean-up levels were developed so that clean-up levels are tied to specific land use types. The new clean-up levels include provisions for restrictions on future land use in areas where residual metals are left in place. With the new land use specific remedial action objectives, the concept of Alternative 6 is contained within another of the final candidate alternatives. Alternative 6 was therefore redundant and was eliminated.

The Feasibility Study Supplement presented a re-evaluation of the remaining final candidate remedial alternatives for soils and groundwater. The re-evaluation focused on the state and community

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acceptance criteria and whether the alternatives were compatible with desired future land uses identified by the Union Pacific Land Use Committee and the DTSC. The re-evaluation resulted in the selection of new remedial alternatives for soil Operable Units S-1, S-2 and S-3, and groundwater Operable Unit GW-2. The following sections discuss the final candidate alternatives for each operable unit, and the reasons for selection (or rejection) as the recommended remedial alternative.

6.3.1 Soil Operable Unit S-1

Soil Operable Unit S-1 is in the southern part of the inactive portion of the site (see Figure 14). This operable unit contains arsenic, lead, petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and asbestos at concentrations above the clean-up levels. Future land use in operable unit S-1 is assumed to be restricted as described in Section 6.1.1; therefore, the restricted future land use clean-up levels are applicable for this area (see Table 8).

There are three final candidate alternatives for Operable Unit S-1:

- Alternative 1 - No Action
- Alternative 4 - Containment with Institutional Controls
- Alternative 10 - Excavation and Off-site Disposal of Soils Above Clean-Up Levels.

A summary of the analysis of these alternatives from the Feasibility Study Supplement is presented in the following sections. Table 11 contains a summary comparison of the final candidate alternatives for Soil Operable Unit S-1, and Table 12 summarizes the costs.

6.3.1.1 Alternative 1: No Action

Objectives and Scope

The National Oil and Hazardous Substances Pollution Contingency Plan requires that the No Action Alternative be considered. The amount of risk reduction provided by each of the other final candidate alternatives is compared to the No Action Alternative to assess how effective they are. This alternative involves no remediation (clean-up) of contaminated soil; it consists primarily of constructing and maintaining a fence around the entire site to prevent unauthorized access. A land use covenant would be entered into by UPRR and DTSC. The land use covenant would be recorded on the deed to provide notice of prohibited land uses and activities on the property which might disturb soil contaminants and cause human health risks and/or adverse environmental impacts. In addition, groundwater beneath the site would be monitored for a period of thirty years to check for changes in groundwater quality

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which might be caused by the migration of contaminants in soil. A report which discusses groundwater monitoring results would be submitted to the DTSC on a yearly basis.

Cost Effectiveness

This alternative has the lowest **total present worth cost** of all the alternatives being considered for Operable Unit S-1, but it provides the least protection of human health and the environment. The total present worth cost of this alternative is about $800,000. This total includes both **capital** costs and Operation and Maintenance (O&M) costs. Capital costs (for equipment, labor, and materials) are approximately $100,000. This includes the cost of repairing and/or replacing the existing fence which surrounds the site, if necessary. Operation and maintenance costs would total about $1.2 million over thirty years. This includes the costs for groundwater monitoring and preparation of an annual monitoring and maintenance report.

Implementation Time

Since this alternative does not include any remediation of contaminated soil, the time needed to put this alternative into effect (implementation time) is expected to be approximately four months. This includes time needed to prepare (and obtain DTSC approval for) a groundwater monitoring work plan, repair the existing fence as needed, develop the land use covenant, and record the requirements on the property deed.

Groundwater Use

Of all the final candidate alternatives which were considered, this alternative presents the greatest risk to present and future groundwater use because none of the contaminated soil in S-1 would be removed or treated to reduce the level of contamination in this area. As a result, some contaminants (primarily petroleum hydrocarbons) could migrate to groundwater and adversely impact future beneficial uses of this resource. If uncontrolled over a long period, groundwater contamination could migrate to an area where groundwater is used as a public water supply and thus pose a threat to human health and the environment. The thirty-year groundwater monitoring program included in Alternative 1 would be designed to provide an early warning of any additional groundwater contamination which might occur.

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TABLE 11
COMPARISON OF SOIL FINAL CANDIDATE ALTERNATIVES
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Operable Unit	Alternative	Short-term Effectiveness	Long-term Effectiveness	Reduction of Toxicity, Mobility, and Volume	Implement-ability	Cost*	Compliance with ARARs	Overall Protection of Public Health and Environment	State Acceptance	Community Acceptance
S-1	1	Fair	Poor	Poor	Fair	$800,000	Poor	Poor	Poor	Poor
	4	Fair	Good	Fair	Fair	$4.5 million	Good	Good	Poor	Poor
	10 (Unrestricted Future Land Use)	Poor	Good	Good	Fair	$5.6 million	Good	Good	Good	Excellent
	10 (Restricted Future Land Use)	Poor	Good	Fair	Fair	$2.9 million	Good	Good	Good	Good
S-2	1	Fair	Poor	Poor	Fair	$730,000	Poor	Poor	Poor	Poor
	10 (Unrestricted Future Land Use)	Poor	Good	Good	Fair	$4.6 million	Good	Good	Good	Excellent
	10 (Restricted Future Land Use)	Poor	Good	Fair	Good	$3.1 million	Good	Good	Good	Good
S-3	1	Fair	Poor	Poor	Fair	$750,000	Poor	Poor	Poor	Poor
	4	Fair	Good	Fair	Fair	$1.5 million	Good	Good	Poor	Poor
	10 (Unrestricted Future Land Use)	Fair	Good	Fair	Good	$3.0 million	Good	Good	Good	Good

* Net present worth cost of the alternative as calculated over a 30-year span using a 5% interest rate.

Alternative 1 — No Action
Alternative 4 — Containment with Institutional Controls
Alternative 10 — Excavation/Off-Site Disposal of Soil Above Clean-up Levels

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TABLE 12
SUMMARY OF ESTIMATED COSTS
SOIL ALTERNATIVES
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Operable Unit	Alternative	Capital Costs*	Operation and Maintenance Costs**	Total Costs	Total Present Worth Cost ***
S-1	1	$105,000	$1,170,000	$1,275,000	$803,000
	4	$3,317,000	$2,483,000	$5,800,000	$4,514,000
	10 (Unrestricted Future Land Use)	$5,909,000	$0	$5,909,000	$5,628,000
	10 (Restricted Future Land Use)	$3,011,000	$0	$3,011,000	$2,868,000
S-2	1	$30,000	$1,170,000	$1,200,000	$731,000
	10 (Unrestricted Future Land Use)	$4,804,000	$0	$4,804,000	$4,575,000
	10 (Restricted Future Land Use)	$3,206,000	$0	$3,206,000	$3,053,000
S-3	1	$53,000	$1,170,000	$1,223,000	$753,000
	4	$659,000	$1,469,000	$2,128,000	$1,480,000
	10 (Unrestricted Future Land Use)	$3,180,000	$0	$3,180,000	$3,029,000

* All capital costs are expended in the first year of the project life.
** O&M costs are not constant over the project life.
*** Net present worth cost at 5% annual interest rate.

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Environmental Impact

Because this alternative does not include any remediation of contaminated soil, implementation would not cause significant environmental impact. However, environmental impacts which have already occurred or might occur as the result of contaminant migration either to groundwater or off-site in the form of airborne dust would not be addressed. Of all the final candidate alternatives, this alternative provides the least long-term protection of the environment.

Justification for Rejection or Selection

This alternative was rejected from consideration as the recommended remedial alternative because it would not meet remedial action objectives and would not provide adequate protection of human health and the environment. It would not reduce the toxicity, mobility, or volume of the contaminants at the site, nor would it eliminate the need for long-term access restrictions, strict land use restrictions, or long-term operation and maintenance.

6.3.1.2 Alternative 4: Containment with Institutional Controls

Objectives and Scope

This alternative would include leaving waste and contaminated soil in place, clearing away remaining debris, grading surface soil, and constructing an asphalt cap over soil contaminated above the clean-up levels. In order to protect human health, the cap would be designed to cover all soils contaminated at levels exceeding the unrestricted land use clean-up levels. The purpose of the cap would be to reduce movement of rainwater downward through the contaminated soil and prevent contaminated soil from being blown off-site by wind. The cap would be sloped to direct water away from the capped areas into a collection system. A conceptual plan for Alternative 4 is shown on Figure 15.

During construction (especially at those times when contaminated soil is being moved or otherwise disturbed), soil would be wetted to minimize the amount of dust raised by these activities. Air monitoring would be conducted during construction activities to assess the effectiveness of dust minimization measures. If results of air monitoring indicate dust emissions are unacceptable, corrective action would be taken to reduce dust emissions. An air monitoring report would be prepared at the conclusion of the remedial action activities.

The completed asphalt cap would be inspected yearly to identify any necessary repairs. Regular maintenance of the asphalt surface would include re-sealing one-fourth of the cap every year in rotation

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so that the entire cap is resealed every four years. Additionally, the cap surface would be replaced with fresh asphalt every ten years. This maintenance program is designed to keep the cap in good condition.

In addition to construction of the cap over areas where soil is contaminated above clean-up levels, a land use covenant would be entered into by DTSC and UPRR. The land use covenant would be recorded on the deed to prohibit land uses and activities on the property which might disturb soil contaminants and cause human health risks or adverse environmental impacts. The site would be fenced to restrict unauthorized access. Groundwater quality would be monitored for a period of thirty years after the cap is finished. A report which discusses the results of groundwater monitoring would be submitted to DTSC on a yearly basis.

Cost Effectiveness

This alternative has the highest total present worth cost of all the alternatives being considered for Operable Unit S-1. The total present worth cost of this alternative is approximately $4.5 million. This total includes both capital costs and Operation and Maintenance costs. Capital costs (for equipment, labor, and materials) are approximately $3.3 million and include the cost of all construction activities and repairing and/or replacing the existing fence which surrounds the site. Operation and maintenance costs would be approximately $2.5 million over a thirty-year period. This includes the cost for cap maintenance and replacement, the groundwater monitoring program and yearly monitoring reports.

Implementation Time

The time needed to implement this alternative is expected to be ten months, provided no difficulties are encountered. This includes three months for engineering design of the cap, three months to obtain the necessary permits, and seven months to clear and grade the site and construct the asphalt cap and fence. It is expected that design of the cap would be performed during the permitting period.

Groundwater Use

Future groundwater use will not be significantly affected by this alternative. One purpose of the cap is to reduce the amount of water moving downward through contaminated soil and into groundwater. This alternative is therefore more likely to protect groundwater than Alternative 1, but less likely to do so than Alternative 10. The thirty-year groundwater monitoring program would be designed to provide an early warning of any additional groundwater contamination which might occur because of the downward movement of soil contaminants.

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Environmental Impact

Dust control measures would be used during site clearing, grading, and construction activities to minimize problems caused by contaminated airborne dust Due to the nature of asphaltic material, there would likely be some air emissions and associated odor during paving of the asphalt cap. The expected levels of emission would not exceed normal urban activity or result in significant environmental impacts. There would also be increases in noise and vehicular traffic at and near the site during the hours when site work is underway However, the noise and traffic impacts will be temporary and will be limited to daylight hours during the week. Following remediation, contaminants available to environmental receptors would be limited. This is a result of reduced potential contaminant migration, as well as isolation of the contaminated material from sensitive environmental receptors.

Justification for Rejection or Selection

This alternative would reduce the mobility of the soil contaminants. Although it would not reduce the toxicity of the contaminants or the volume of contaminated soil through treatment, it would effectively eliminate the most significant means of human exposure to the soil contaminants. Thus, it would provide adequate protection of human health and the environment. However, Alternative 4 would require strict limitations on future land use in Operable Unit S-1 and would require long-term maintenance and monitoring. The short-term environmental impacts associated with this alternative are expected to be about the same as the short-term impacts caused by Alternative 10. This alternative is more expensive than Alternative 10, and would not allow for most of the beneficial future land uses identified by the Union Pacific Land Use Committee and the DTSC. Therefore, this alternative was rejected as the recommended remedial alternative for Operable Unit S-1.

6.3.1.3 Alternative 10: Excavation/Off-Site Disposal of Soil Above Clean-Up Levels

Objectives and Scope

This alternative consists of excavation and off-site disposal of soil contaminated with arsenic, lead, petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and asbestos at or above clean-up levels established for restricted future land use. After the site is cleared and construction debris is disposed off-site, excavated soil would be loaded onto rail cars and/or trucks and taken off-site and disposed of in an appropriately licensed and permitted landfill. Clean soil brought from off-site would be placed as fill to restore grade in excavated areas, if needed. Figure 16 is a conceptual plan for Alternative 10.

Significant concentrations of volatile organic compounds exist in the deeper portion of the Oil House Area. It may be more health-protective and cost-effective to combine in-situ treatment (such as

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vapor extraction) with excavation and off-site disposal. A soil vapor extraction interim remedial measure is planned for Oil House Area to reduce the concentrations of volatile organic compounds prior to excavation and off-site disposal.

Air monitoring would be conducted during all construction activities to assess the effectiveness of dust minimization measures. If results of air monitoring indicate that dust emissions are unacceptable, corrective action would be taken to reduce dust emissions. An air monitoring report would be prepared at the conclusion of the remedial action activities.

To verify that the remedial action objectives have been achieved, confirmatory soil samples would be taken from the bottom and sides of excavated areas. The remedial action objectives are applicable to the entire soil column accessible for excavation above the water table. The samples would be sent to a laboratory and tested for the appropriate contaminants. If statistical analysis of the test results shows that the remedial action objectives have not been achieved, excavation would continue until test results indicate that affected soils have been cleaned up to the appropriate levels.

Because this alternative provides for the removal of soil contaminated above clean-up levels, a fence and groundwater monitoring are not included as part of this alternative. After completion of final remedial action, future land use in the area of Operable Unit S-1 would be restricted to commercial and/or mixed use development as described in Section 6.1.1. A land use covenant would be entered into by the DTSC and UPRR. The land-use covenant would be recorded on the deed to the property. Following remedial action, the existing fence will be maintained until site redevelopment is complete.

Cost Effectiveness

This is the second most expensive alternative being considered for Operable Unit S-1. The total present worth cost of this alternative is approximately $2.9 million. This includes capital costs for equipment, materials, labor, and related construction activities to excavate and dispose of soil contaminated above clean-up levels. There would be no operation and maintenance costs associated with this alternative.

Implementation Time

The time needed to implement this alternative is expected to be 7 months, provided no unplanned delays occur and no difficulties are encountered. This includes two months for engineering design, three months to obtain the necessary permits, and four months to clear and grade the site, excavate and dispose of the soil, and backfill the pits. It is expected that design and permitting activities would begin at the same time.

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Groundwater Use

Groundwater use would not be affected by this alternative. Disposing of the soil contaminated above the restricted future land use remedial action objectives would effectively reduce contaminants that could move downward into groundwater. Furthermore, based on a laboratory study completed in 1992, the forms of arsenic and lead present in soils at the site are not leachable under natural conditions and therefore are not considered to be a potential threat to groundwater quality (Walsh & Associates, 1992). This alternative is therefore likely to protect the groundwater more than the other final candidate alternatives.

Environmental Impact

Dust generation is expected to be higher for this alternative than for the other alternatives because of the large volume of soil that would need to be excavated and disposed of. Dust control measures would be used during site clearing, grading, excavation, and construction activities to reduce the generation of airborne dust. There would also be some increased noise and traffic at and near the site during the hours when site work is underway. However, the impact of noise and traffic is expected to be low because site work is planned for daylight hours during the week when most people are away from their homes. Following remediation, soil contaminants available to environmental receptors at and near the site would be limited. Soil contaminated above the restricted future land-use clean-up levels and waste would be disposed in a facility specifically designed for the long-term management of such wastes. Exposure to remaining soil contaminants (above unrestricted future land-use clean-up levels) would be limited by covering those areas with paving and buildings.

Justification for Rejection or Selection

This alternative would reduce both the volume and mobility of soil contaminants present at the site. This alternative would effectively eliminate the most significant pathway for human exposure to soil contaminants and environmental exposure, and would thus provide adequate protection of human health and the environment.

The implementation time for this alternative is longer than Alternative 1, but less than Alternative 4 for this operable unit. This is the second most expensive of the alternatives for this operable unit. The potential benefits of removing the soil contaminated above clean-up levels include many beneficial future land uses, as well as protection of human health and the environment. The greater short-term environmental impacts and implementation time are justified. This alternative was therefore selected as the recommended remedial alternative for Operable Unit S-1.

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6.3.1.4 Recommended Remedial Alternative

The recommended remedial alternative for Operable Unit S-1 is Alternative 10, excavation and off-site disposal of soils contaminated above the restricted future land use clean-up levels.

Justification for Selection

Alternative 10 was selected as the recommended remedial alternative for Operable Unit S-1 for the following reasons:

- It would effectively eliminate the primary exposure pathways (inhalation of contaminated dust and ingestion of contaminated soil).
- It provides adequate overall long-term protection of human health and the environment by reducing the volume and mobility of contaminants at the site.
- It is reasonably cost-effective.
- It provides for many beneficial future land uses.

Following approval of this Final Remedial Action Plan, a **Remedial Action Design Work Plan** will be prepared. It will provide detailed design specifications for the recommended remedial alternative for this Operable Unit. After the Remedial Action Design Work Plan is prepared, it will be submitted to the DTSC for review and approval. Design and construction activities associated with the recommended remedial alternative are discussed in Section 6.5.1.

6.3.2 Soil Operable Unit S-2

Soil Operable Unit S-2 includes approximately seven acres in the central part of the inactive portion of the site (see Figure 14). Soils in this operable unit contain arsenic, lead, petroleum hydrocarbons, chlorinated volatile organic compounds (in soil gas), and polycyclic aromatic hydrocarbons at concentrations above clean-up levels. Operable Unit S-2 also includes the former Central Fill Area, the geographic source of the groundwater contamination in groundwater Operable Unit GW-1. Miscellaneous debris and buried drums were found in the Central Fill Area during the remedial investigation. Future land use in Operable Unit S-2 is assumed to be restricted to commercial or mixed use development as described in Section 6.1.1; therefore, the restricted future land use remedial action objectives are applicable for this area.

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There are two final candidate remedial alternatives for Operable Unit S-2:

- Alternative 1 - No Action; and
- Alternative 10 - Excavation and Off-site Disposal of Soils Above the Remedial Action Objectives.

This section is a summary of the feasibility study detailed analysis performed for these alternatives during preparation of the Feasibility Study Supplement. The final candidate alternatives for Soil Operable Unit S-2 are also compared in Tables 11 and 12.

6.3.2.1 Alternative 1: No Action

Objectives and Scope

The National Oil and Hazardous Substances Pollution Contingency Plan requires that the No Action Alternative be considered. The amount of risk reduction provided by each of the other final candidate alternatives is compared to the No Action Alternative to assess how effective they are. This alternative involves no clean-up of contaminated soil; it consists primarily of maintaining the existing fence around the entire site to prevent unauthorized access. A land use covenant would be entered into by DTSC and UPRR. The land use covenant would be recorded on the deed to the property to prohibit future land uses and activities which might disturb soil contaminants and potentially cause human health risks and/or adverse environmental impacts. In addition, groundwater beneath the site would be monitored for a period of thirty years to check for changes in groundwater quality caused by potential migration of contaminants from soil. Groundwater monitoring for this soil operable unit would be integrated with other soil and groundwater operable unit groundwater monitoring programs. A report which discusses groundwater monitoring results would be submitted to the DTSC on a yearly basis.

Cost Effectiveness

This alternative has the lowest total present worth cost of the alternatives being considered for Operable Unit S-2, but it provides the least protection of human health and the environment. The total present worth cost of this alternative is approximately $730,000. This total includes both capital costs and Operation and Maintenance costs. Capital costs (for equipment, labor, and materials) are approximately $30,000. This includes the cost of repairing the existing fence which surrounds the site, if necessary. Operation and maintenance costs total approximately $1.2 million over a thirty-year period. This includes the costs for groundwater monitoring and preparation of an annual groundwater monitoring report.

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Implementation Time

Since this alternative does not include any remediation of contaminated soil, the time needed to put this alternative into effect (implementation time) is expected to be approximately three months. This includes time needed to prepare (and obtain DTSC approval for) a groundwater monitoring work plan, repair the existing fence, develop the land use covenant, and record the requirements on the property deed.

Groundwater Use

Of the final candidate alternatives which were considered, this alternative presents the greatest risk to present and future groundwater use because none of the contaminated soil or buried debris in S-2 would be removed or treated to reduce the level of contamination in this area. As a result, contaminants (primarily petroleum hydrocarbons) could migrate to groundwater and thus prevent future use of groundwater in the area. The soil contaminants and/or buried wastes in this Operable Unit are believed to be the primary source of existing groundwater contamination beneath the site. The thirty-year groundwater monitoring program would be designed to monitor the spread of additional groundwater contamination which might occur with this alternative.

Environmental Impact

Because this alternative does not include any remediation of contaminated soil or buried drums, implementing it would not cause significant environmental impact. However, it could result in potentially adverse long-term environmental impacts including contaminant migration either to groundwater or off-site in the form of airborne dust and does not represent a remedy for impacts which have already occurred. Of the final candidate alternatives, this alternative provides the least long-term protection of the environment.

Justification for Rejection or Selection

This alternative was rejected from consideration as the recommended remedial alternative because it would not meet remedial action objectives and would not provide adequate protection of human health and the environment. It would not reduce the toxicity, mobility, or volume of the contaminants at the site, nor would it eliminate the need for long-term access restrictions, strict land use restrictions, groundwater monitoring, or long-term operation and maintenance.

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6.3.2.2 Alternative 10: Excavation/Off-Site Disposal of Soil Above Clean-Up Levels

Objectives and Scope

This alternative consists of excavation and off-site disposal of the soil contaminated with arsenic, lead, petroleum hydrocarbons, and polycyclic aromatic hydrocarbons above the restricted future land use clean-up levels. After the site is cleared and construction debris disposed off-site, excavated soil would be loaded onto rail cars and/or trucks and taken off-site and disposed in an appropriately licensed and permitted landfill. Any drums excavated during remedial activities in this operable unit would be located, brought to the surface, and placed in protective overpack containers unless empty and dry. The drum contents, if any, would be catalogued and tested as necessary to characterize the drummed material. Following characterization of the drum contents, the drums would be transported to an appropriate waste disposal facility. Depending on the drum contents, disposal may consist of off-site incineration, recycling, and/or disposal in an appropriately licensed and permitted landfill. Clean soil brought from off-site would be placed as fill to restore grade in excavated areas, if needed. Figure 16 shows a conceptual plan for Alternative 10.

Significant concentrations of chlorinated volatile organic compounds have been found in the deeper portion of the Central Fill Area. Therefore, it will be more health-protective and cost-effective to combine in-situ treatment (such as vapor extraction) with excavation and off-site disposal. A soil vapor extraction interim remedial measure is planned to be implemented in the Central Fill Area in late 1995. Cleanup levels for chlorinated volatile organic compounds as measured in soil gas have been established to be protective of groundwater quality.

Air monitoring would be conducted during all construction activities to assess the effectiveness of dust control measures. If results of air monitoring indicate that dust emissions are unacceptable, corrective action would be taken to reduce dust emissions. An air monitoring report would be prepared at the conclusion of the remedial action activities.

To verify that the soil contaminated above the remedial action objectives has been removed, confirmatory soil samples would be taken from the bottom and sides of the excavations. The samples would be sent to a laboratory and tested for arsenic, lead, and/or petroleum hydrocarbons, as appropriate. If statistical analysis of the test results shows that the remedial action objectives have not been achieved, excavation would continue until test results indicate that the affected soils have been cleaned up to the appropriate levels. Remedial action objectives for chlorinated volatile organic compounds will be verified by soil gas probe sampling and analysis.

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Because this alternative provides for the removal of the buried wastes and soil contaminated above the remedial action objectives, a fence and groundwater monitoring are not included as part of this alternative. However, because of the less strict clean-up levels selected for Operable Unit S-2, future land uses would be restricted as described in Section 6.1.1 in order to protect human health. A land-use covenant would be entered into by the DTSC and UPRR. The land-use covenant would be recorded on the deed to the property to provide notice of restrictions on land use. Following remedial action, the existing fence will be maintained until site redevelopment is complete.

Cost Effectiveness

This is the most expensive alternative being considered for Operable Unit S-2; however, it also provides the greatest protection of human health and the environment. The total present worth cost of this alternative is approximately $3.1 million. This includes capital costs for equipment, labor, and materials to excavate and dispose of soil contaminated above the clean-up levels, as well as related construction activities. There would be no operation and maintenance costs associated with this alternative.

Implementation Time

The time needed to implement this alternative is expected to be nine months, provided no difficulties or unforeseen delays are encountered. This includes two months for engineering design, three months to obtain the necessary permits, and six months to clear the site, excavate and dispose of the soil and wastes, and backfill the pits. It is expected that design and permitting would begin at the same time.

Groundwater Use

Potential future groundwater use would be beneficially affected by this alternative. By excavating soil contaminated above the clean-up levels and removing other buried wastes which may be providing a continuing source of groundwater contamination, the mass of contaminants that could move downward into groundwater would be reduced. This alternative is therefore more likely to protect the groundwater than the other final candidate alternative.

Environmental Impact

Dust generation is expected to be higher for this alternative than for the No Action Alternative because of the large volume of soil that would need to be excavated and transported off site. Standard construction industry dust control measures would be used during site clearing, grading, excavation, and construction activities to reduce the generation of contaminated airborne dust. There would also be a

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temporary increase in noise and traffic at and near the site during the hours when site work is underway Site work is planned for daylight hours during the week when most people are away from their homes. Following remediation, soil contaminants available to environmental receptors at and near the site would be limited. Soil contaminated above the restricted future land-use clean-up levels and waste would be disposed in a facility specifically designed for the long-term management of such wastes. Exposure to remaining soil contaminants (above unrestricted future land-use clean-up levels, but below the restricted future land use clean-up levels) would be limited by covering those areas with paving and buildings.

Justification for Rejection or Selection

This alternative would reduce both the volume and mobility of soil contaminants in Operable Unit S-2. Combined with controlled future development, this alternative would effectively eliminate most of the potential for human exposure to soil contaminants and environmental impacts, and would thus provide adequate protection of human health and the environment.

The implementation time for Alternative 10 is higher than Alternative 1, and it is the most expensive of the alternatives for this operable unit. The potential benefits obtained by removing waste materials and soil contaminated above the clean-up levels include preventing further groundwater contamination, protecting human health, and allowing a variety of beneficial future land uses. These benefits are believed to justify the cost, short-term environmental impacts and short-term human health risk. Alternative 10 was therefore selected as the recommended remedial alternative for Operable Unit S-2.

6.3.2.3 Recommended Remedial Alternative

Justification for Selection

Alternative 10 was selected as the recommended remedial alternative for Operable Unit S-2 for the following reasons:

- It would eliminate the primary source of present and potential future groundwater contamination.
- It would effectively eliminate the primary exposure pathways (inhalation of contaminated dust and ingestion of contaminated soil) for people and other biological receptors.
- It provides adequate overall long-term protection of human health and the environment.
- It will allow for many of the beneficial future land uses identified by the Union Pacific Land Use Committee and the DTSC.

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Following approval of this Final Remedial Action Plan, a Remedial Action Design Work Plan will be prepared. It will provide detailed design specifications for the recommended remedial alternative for this Operable Unit. After the Remedial Action Design Work Plan is prepared, it will be submitted to the DTSC for review and approval. Design and construction activities associated with the recommended remedial alternative are discussed in Section 6.5.1.

6.3.3 Soil Operable Unit S-3

Soil Operable Unit S-3 is in the northeastern part of the inactive portion of the site (see Figure 14). This operable unit includes approximately 17 acres and contains soils contaminated with arsenic, lead, petroleum hydrocarbons, and polycyclic aromatic hydrocarbons above the remedial action objectives identified for this area. Future land use in Operable Unit S-3 is assumed to be unrestricted; therefore, the unrestricted future land use remedial action objectives are applicable for this area.

There are three final candidate remedial alternatives for Operable Unit S-3:

- Alternative 1 - No Action
- Alternative 4 - Containment with Institutional Controls
- Alternative 10 - Excavation and Off-site Disposal of Soils Above Clean-Up Levels

Table 11 contains a summary comparison of the final candidate alternatives for Soil Operable Unit S-3, and Table 12 summarizes costs. This section discusses detailed analysis of these alternatives which was performed during preparation of the Feasibility Study Supplement.

6.3.3.1 Alternative 1: No Action

Objectives and Scope

The National Oil and Hazardous Substances Pollution Contingency Plan requires that the No Action Alternative be considered. The amount of risk reduction provided by each of the other final candidate alternatives is compared to the No Action Alternative to assess how effective they are. This alternative involves no clean-up of contaminated soil. It consists primarily of maintaining the existing fence around the entire site to prevent unauthorized access. A land use covenant would be entered into by DTSC and UPRR. The land use covenant would be recorded on the deed to the property to prohibit future land uses and activities which might disturb soil contaminants and cause human health risks and/or adverse environmental impacts. In addition, groundwater beneath the site would be monitored for a period of thirty years to check for changes in groundwater quality caused by the migration of contaminants in soil. Groundwater monitoring for this soil operable unit would be integrated with other

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soil and groundwater operable unit groundwater monitoring programs. A report which discusses groundwater monitoring results would be submitted to the DTSC on a yearly basis.

Cost Effectiveness

This alternative has the lowest total present worth cost of the alternatives being considered for Operable Unit S-3, but provides the least protection of human health and the environment. The total present worth cost of this alternative is approximately $750,000. This total includes both capital costs and Operation and Maintenance costs. Capital costs (for equipment, labor, and materials) are approximately $53,000. This includes the cost of repairing and/or replacing the existing fence which surrounds the site. Operation and maintenance costs are approximately $1.2 million over a thirty-year period. This includes the costs for groundwater monitoring and preparation of an annual report.

Implementation Time

Since this alternative does not include remediation of contaminated soil, the time needed to put this alternative into effect (implementation time) is expected to be approximately three months. This includes time needed to prepare (and obtain DTSC approval for) a groundwater monitoring work plan, repair the existing fence (if necessary), develop the land use covenant and, record the changes on the property deed.

Groundwater Use

Of the final candidate alternatives which were considered, this alternative presents the greatest risk to present and potential future groundwater use, because none of the contaminated soil in S-3 would be removed or treated to reduce the level of contamination in this area. As a result, some contaminants (primarily petroleum hydrocarbons) could migrate to groundwater and thus pose a threat to human health and the environment. The thirty-year groundwater monitoring program would be designed to monitor the potential for additional groundwater contamination which might occur.

Environmental Impact

Because this alternative does not include remediation of contaminated soil, implementing it would not cause significant short-term environmental impact. However, environmental impacts which have already occurred would not be remedied. In the long term, this alternative could result in potentially significant adverse environmental impacts including contaminant migration either to groundwater or off-site in the form of airborne dust. Of the final candidate alternatives, this alternative provides the least long-term protection of the environment.

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Justification for Rejection or Selection

This alternative was rejected from consideration as the recommended remedial alternative because it would not meet remedial action objectives and would not provide adequate protection of human health and the environment. It would not reduce the toxicity, mobility, or volume of the contaminants at the site, nor would it eliminate the need for long-term access restrictions, strict future land use restrictions, groundwater monitoring, or long-term operation and maintenance.

6 3 3.2 Alternative 4: Containment with Institutional Controls

Objectives and Scope

This alternative would include leaving waste and contaminated soil in place, clearing away remaining debris, grading surface soil, and constructing an asphalt cap over soil contaminated above the unrestricted future land use clean-up levels. The cap would be designed to reduce infiltration of rainwater downward through contaminated soil to groundwater and prevent contaminated soil from being blown off-site by wind. The caps would be sloped so that water drains away from the capped areas into a collection system (see Figure 15).

During construction (especially at those times when contaminated soil is being moved or otherwise disturbed), soil would be wetted to minimize the amount of dust raised by these activities. Air monitoring would be conducted during construction activities to assess the effectiveness of dust minimization measures. If results of air monitoring indicate that dust emissions are unacceptable, corrective action would be taken to reduce dust emissions. An air monitoring report would be prepared at the conclusion of the remedial action activities.

The completed asphalt caps would be inspected yearly to identify necessary repairs. Regular maintenance of the asphalt surface would include re-sealing one-fourth of each cap every year in rotation so that each cap is completely resealed every four years. Additionally, the cap surface would be replaced with fresh asphalt every ten years. This maintenance program is designed to keep the caps in good condition.

In addition to construction of caps over areas where soil is contaminated above the unrestricted future land use clean-up levels, a land use covenant would be entered into by DTSC and UPRR. The land use covenant would be recorded on the deed to the property to prohibit future land uses and activities which might disturb soil contaminants and potentially cause human health risks or adverse environmental impacts. The site would be fenced to restrict unauthorized access. Groundwater quality would be monitored for a period of thirty years after the cap is finished and a report which discusses the results

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of groundwater monitoring would be submitted to DTSC yearly. Groundwater monitoring for this soil operable unit would be integrated with other soil and groundwater operable unit groundwater monitoring programs.

Cost Effectiveness

This alternative has the second highest total present worth cost of the alternatives being considered for Operable Unit S-3, but would not provide for many of the beneficial future land uses that Alternative 10 would allow. The total present worth cost of this alternative is approximately $1.5 million. This total includes both capital costs and Operation and Maintenance costs. Capital costs (for equipment, labor, and materials) are approximately $660,000 and include the cost of all construction activities and repairing and/or replacing the existing fence which surrounds the site. Operation and maintenance costs would be approximately $1.5 million over a thirty-year period. This includes the cost for cap maintenance and replacement, the groundwater monitoring program and yearly monitoring reports.

Implementation Time

The time needed to implement this alternative is expected to be six months, provided there are no unforeseen delays or difficulties encountered. This includes three months for engineering design of the cap, three months to obtain the necessary permits, and three months to clear and grade the site and construct the asphalt cap and fence. The design and permitting periods would begin at the same time.

Groundwater Use

Future groundwater use will not be significantly affected by this alternative. One purpose of the cap is to reduce the amount of water moving downward through contaminated soil and into groundwater. This alternative is therefore more likely to protect groundwater than Alternative 1, but somewhat less likely to do so than Alternative 10. The thirty-year groundwater monitoring program would be designed to provide an early warning of additional groundwater contamination which might occur because of the downward movement of soil contaminants.

Environmental Impact

Dust control measures would be used during site clearing, grading, and construction activities to reduce generation of contaminated airborne dust. Due to the nature of asphaltic material, there would be some air emissions and associated odor during paving of the asphalt cap. The expected levels of emissions would not exceed normal urban activity or result in significant environmental impacts. There would also be some increased noise and traffic at and near the site during the hours when site work is

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underway. However, these impacts would be temporary and would be limited to daylight hours during the week when most people are away from their homes. Following remediation, soil contaminants available to environmental receptors would be limited. This is a result of reduced contaminant migration, as well as isolation of the contaminated material from sensitive environmental receptors.

Justification for Rejection or Selection

Alternative 4 would reduce the mobility of contaminants at the site. Although it would not reduce the toxicity of the contaminants or the volume of contaminated soil, it would effectively eliminate the most significant pathway for human and environmental exposure to the soil contaminants. Thus, it would provide adequate protection of human health and the environment.

This alternative is more expensive than both Alternatives 1 and 10. It would require about the same time to implement as Alternative 10 and would cause similar short-term environmental impacts during implementation. However, this Operable Unit would be relatively easy to reclaim for beneficial future land uses identified by the Union Pacific Land Use Committee and the DTSC, if another remedial alternative were chosen. Alternative 4 would allow for only very limited future land use. Therefore, this alternative was rejected as the recommended remedial alternative for Operable Unit S-3.

6.3.3.3 Alternative 10: Excavation/Off-Site Disposal of Soil Above Clean-Up Levels

Objectives and Scope

This alternative consists of excavation and off-site disposal of the soil contaminated with arsenic, lead, petroleum hydrocarbons, and/or polycyclic aromatic hydrocarbons at or above the unrestricted future land use clean-up levels. After the site is cleared and construction debris disposed off-site, excavated soil would be loaded onto rail cars and/or trucks and taken off-site and disposed in an appropriately licensed and permitted landfill. Clean soil brought from off-site would be placed as fill to restore grade in excavated areas, if needed. A conceptual plan for Alternative 10 is shown on Figure 16.

During construction (especially at those times when contaminated soil is being moved or otherwise disturbed), soil would be wetted to minimize the amount of dust raised by these activities. Air monitoring would be conducted during construction activities to assess the effectiveness of dust minimization measures. If results of air monitoring indicate that dust emissions are unacceptable, corrective action would be taken to reduce dust emissions. An air monitoring report would be prepared at the conclusion of the remedial action activities.

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To verify that the soil contaminated above the remedial action objectives has been removed, confirmatory soil samples would be taken from the bottom and sides of the excavations. The samples would be sent to a laboratory and tested for arsenic and/or lead, as appropriate. The remedial action objectives apply to the soil column accessible for excavation above the water table. If statistical analysis of the test results shows that the remedial action objectives have not been achieved, excavation would continue until test results indicate that the affected soils have been cleaned up to the appropriate level.

Because this alternative provides for the removal of the soil contaminated above the unrestricted future land use remedial action objectives, a fence, land use covenants, deed notices, and groundwater monitoring would not be required to protect human health and the environment.

Cost Effectiveness

This is the most expensive alternative being considered for Operable Unit S-3, but it provides for the widest range of beneficial future land uses, as well as good protection of human health and the environment. The total present worth cost of this alternative is approximately $3.0 million. This includes capital costs for equipment, labor, and materials needed to accomplish excavating and disposing of the soil contaminated above the remedial action objectives and all related construction activities. There would be no operation and maintenance costs associated with this alternative.

Implementation Time

The time needed to implement this alternative is expected to be seven months, provided no unforeseen delays or difficulties are encountered. This includes two months for engineering design, three months to obtain the necessary permits, and four months to clear and grade the site, excavate and dispose of the soil, and backfill the pits. It is expected that design and permitting would begin at the same time.

Groundwater Use

Future groundwater use would be beneficially affected by this alternative. Disposing of the soil contaminated above the clean-up levels would reduce contaminants that could move downward into groundwater. This alternative is therefore likely to protect the groundwater more than the other final candidate alternatives considered for Operable Unit S-3.

Environmental Impact

Dust generation is expected to be higher for this alternative than for other alternatives because of the large volume of soil that would need to be excavated and disposed. Standard construction industry

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dust control measures would be used during site clearing, grading, excavation, and construction activities to reduce generation of airborne dust. There would also be some increased noise and traffic at and near the site during the hours when site work is underway. However, these impacts will be temporary and would be limited to daylight hours during the week when most people are away from their homes. Following remediation, soil contaminants available to environmental receptors would be limited. Soil contaminated above the unrestricted site clean-up levels would be disposed in a facility specifically designed for the long-term management of such wastes.

Justification for Rejection or Selection

Alternative 10 would reduce the volume of soil contaminants at the site. This alternative would effectively eliminate the most significant pathway for human exposure to soil contaminants and would thus provide adequate protection of human health.

The implementation time for this alternative is longer than Alternative 1, but about the same as Alternative 4. The magnitude of short-term environmental impacts would be about the same for this alternative as those associated with Alternative 4. This alternative would provide for virtually unlimited future beneficial land uses, and is reasonably cost-effective. Because the potential benefits of removing the soil contaminated above the clean-up levels justify the short-term environmental impacts and cost, Alternative 10 was selected as the recommended remedial alternative for Operable Unit S-3.

6.3.3.4 Recommended Remedial Alternative

Justification for Selection

Alternative 10 was selected as the recommended remedial alternative for Operable Unit S-3 for the following reasons:

- It would effectively eliminate the primary exposure pathways (inhalation of contaminated dust and ingestion of contaminated soil).
- Alternative 10 provides adequate overall long-term protection of human health and the environment through reduction of mobility, toxicity, and volume of contaminants at the site.
- It is reasonably cost-effective.
- It provides for unlimited future land uses, including all desirable land use types identified by the Union Pacific Land Use Committee and the DTSC at a reasonable cost.

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Following approval of this Final Remedial Action Plan, a Remedial Action Design Work Plan will be prepared. It will provide detailed design specifications for the recommended remedial alternative for this Operable Unit. After the Remedial Action Design Work Plan is prepared, it will be submitted to the DTSC for review and approval. Design and construction activities associated with the recommended remedial alternative are discussed in Section 6.5.1.

6.3.4 Groundwater Operable Unit GW-1

Groundwater Operable Unit GW-1 consists of an approximately 35-acre groundwater plume which extends off-site (Plume A on Figure 8). This plume contains nickel, chlorinated volatile organic compounds, and volatile aromatic hydrocarbons at concentrations above the groundwater clean-up levels.

There are two final candidate alternatives for Operable Unit GW-1:

- Alternative 1 - No Action
- Alternative 4 - Extract, Treat, and Discharge.

This section presents a summary of the detailed analysis performed for these alternatives during preparation of the Addendum Feasibility Study. This analysis is also summarized in Table 13, and Table 14 is a cost summary.

6.3.4.1 Alternative 1: No Action

Objectives and Scope

The No Action Alternative involves neither clean-up of contaminated groundwater, nor groundwater monitoring. Consideration of the No Action Alternative is required by the National Oil and Hazardous Substances Pollution Contingency Plan. The amount of risk reduction provided by each of the other final candidate alternatives is compared to the No Action Alternative to assess how effective they are.

Cost Effectiveness

The No Action Alternative is the least expensive of the groundwater alternatives being considered for Operable Unit GW-1. There are no costs associated with this alternative. However, this alternative provides no protection of human health or the environment.

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Implementation Time

Since the No Action alternative does not include any activities, it does not require any time to implement.

Groundwater Use

If implemented, this alternative will adversely affect future groundwater use at and in the vicinity of the site because existing contamination would continue to move off-site and may affect downgradient groundwater which is not currently impacted.

Environmental Impact

Since there are no clean-up activities associated with this alternative, there are no short term-impacts to the environment due to construction. However, this alternative may result in significant adverse environmental impacts as contaminants continue to migrate off-site. Of the final candidate alternatives for operable unit GW-1, this alternative provides the least protection of the environment.

Justification for Rejection or Selection

This alternative was rejected from consideration as the recommended remedial alternative because it would not meet remedial action objectives and would not provide adequate protection of human health and the environment. It would not reduce the toxicity, mobility, or volume of contaminants in groundwater.

6.3.4.2 Alternative 4: Extract, Treat, and Discharge

Objective and Scope

The objective of this alternative is to remove and treat contaminated groundwater until contaminant concentrations are below groundwater clean-up levels. This alternative consists of extraction, treatment of contaminated groundwater, and discharge of treated water to the sewer, monitoring groundwater to evaluate the effectiveness of remediation, and limiting the potential exposure to groundwater during remedial action by prohibiting permits for drilling of groundwater supply wells in Operable Unit GW-1. Groundwater monitoring for this operable unit would be integrated with other soil and groundwater operable unit groundwater monitoring programs. It also includes preparation of a report of groundwater monitoring results which would be submitted to the DTSC yearly

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TABLE 13
COMPARISON OF GROUNDWATER FINAL CANDIDATE ALTERNATIVES
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Operable Unit	Alternative	Short-term Effectiveness	Long-term Effectiveness	Reduction of Toxicity, Mobility and Volume	Implementability	Cost*	Compliance with ARARs	Overall Protection of Human Health and Environment	State Acceptance	Community Acceptance
GW-1	1 No Action	Poor	Poor	Poor	Fair	0	Poor	Poor	Poor	Poor
	4 Extract/ Treat/ Discharge	Good	Good	Good	Good	$980,000 - $3.1 million	Good	Good	Good	Good
GW-2	1 No Action	Poor	Poor	Poor	Poor	0	Poor	Poor	Poor	Poor
	2 Limited Action	Poor	Fair	Fair	Poor	$180,000	Poor	Poor	Poor	Poor
	4 Extract/ Treat/ Discharge	Good	Good	Good	Good	$170,000 - $280,000	Good	Good	Good	Good

*When range of costs is presented for GW-1, the lower cost is based on 2 wells pumping at 10 gpm each for 30 years. Higher costs are based on 10 wells pumping at 20 gpm each for 30 years. For GW-2, lower cost is for air stripping; higher cost is for UV/Oxidation.

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TABLE 14
SUMMARY OF ESTIMATED COSTS
GROUNDWATER ALTERNATIVES
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Operable Unit	Alternative	Capital Costs*	Operation and Maintenance Costs**	Total Costs	Total Present Worth Cost ***
GW-1	1	$0	$0	$0	$0
	4	$320,000 to $1.7 Million	$1.2 to $2.4 Million	$1.5 Million to $4.1 Million	$980,000 to $3.1 Million
GW-2	1	$0	$0	$0	$0
	2	$0	$293,000	$293,000	$180,000
	4	$64,000	$115,000 to $231,000	$187,000 to $303,000	$170,000 to $280,000

* All capital costs are expended in the first year of the project life.

** O&M costs may not be constant over the project life.

*** Net present worth cost at 5% annual interest rate.

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To remove contaminated groundwater, **extraction wells** would be placed on- and off-site. The exact number and location of the wells is not currently known, but will be determined before completion of the Remedial Action Design Work Plan, or during final design of the groundwater remedial system.

Extracted groundwater would be pumped through a piping system to a treatment system which will be located near the east central side of the site. Piping and wiring would need to be installed in a trench to connect the wells with the treatment system. Soil would be wetted, as necessary, during construction of the trench and treatment system foundation to minimize the amount of dust generated during construction. A conceptual plan of a groundwater extraction and treatment system is shown on Figure 17.

In order to improve efficiency, extend the operating life, and enhance the cost-effectiveness of the groundwater treatment system, some form of **pre-treatment** may be used. Pre-treatment of extracted water might consist of either physical (such as filtering) or chemical pre-treatment, depending on the quality of the extracted groundwater and the final treatment system used. Based on current knowledge of groundwater conditions, pre-treatment does not appear to be necessary.

The final groundwater treatment system may consist of one or more of the following:

- **Air stripping** transfers volatile organic contaminants from the water to the air in a closed system, creating a contaminant-rich air stream that is treated before it is released to the atmosphere. Treatment of air is accomplished either through **thermal oxidation** or **carbon adsorption.** Thermal oxidation is done by either burning contaminants or passing contaminants over a catalyst similar to a catalytic converter in a car's exhaust system. Carbon adsorption transfers contaminants from water (or air) to carbon. As more contaminants are transferred to the carbon, the pores in the carbon become full, it loses its effectiveness and must be replaced. The **spent carbon,** or carbon that has lost its ability to adsorb contaminants, is then transported off-site and recycled.

- **Granular activated carbon** uses activated carbon to remove volatile organic contaminants from groundwater.

- **UV-oxidation** uses ultraviolet light to destroy volatile organic contaminants in groundwater. A UV-oxidation system destroys contaminants by pumping contaminated groundwater to a treatment unit, injecting chemicals such as hydrogen peroxide or ozone into the contaminated groundwater, and then exposing the water to ultraviolet light in a closed system. The chemicals help the light break down contaminants more effectively. This process produces no residuals.

- If required as a condition of **effluent** discharge permits, the treatment system will include a process to remove nickel from groundwater. The planned groundwater Interim Remedial Measure is expected to provide additional information which will aid in assessment of the need to remove nickel prior to discharge.

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The type of treatment best suited to this task depends on a number of factors including the type and concentration of groundwater contaminants and the flow rate of water through the system. These systems may be used independently or they may be combined to produce the best treatment at the least cost.

Treated groundwater would be discharged to the existing City of Sacramento sewer system through underground piping. The treated groundwater will flow through the sewer to a waste water treatment plant owned and operated by Sacramento County. Finally, treated groundwater will be discharged into the Sacramento River.

Cost Effectiveness

Alternative 4 is more costly than Alternative 1, but will remedy groundwater contamination and allow beneficial uses of groundwater after remedial action is complete. The total present worth cost of this alternative for Operable Unit GW-1 ranges from about $980,000 to $3.1 million, depending on the number and location of wells and which treatment system is selected. The least expensive treatment system is an air stripper that treats water at a low flow (approximately 20 gallons per minute). This system would also include treatment of air before release to the atmosphere. The most expensive system is UV-oxidation treatment at high flow rate (approximately 200 gallons per minute).

Capital costs are estimated to range from about $320,000 to $1.7 million and include costs for equipment, labor, materials, and equipment installation. Operation and maintenance costs are estimated to range from about $1.2 to $2.4 million over a three- to thirty-year period and include groundwater monitoring, sampling and analysis of treated groundwater, pump operation, treatment system operation, and annual reporting.

Implementation Time

The time needed to implement this remedial alternative for Operable Unit GW-1 is expected to be about 12 months, provided no unforeseen delays or difficulties are encountered. This includes three months to design the system, three months for DTSC review, three months to obtain construction permits, six months to obtain well permit restrictions, and three months for construction (i.e., installing groundwater extraction wells, trenching, installing piping and wiring, and installing the treatment system). It is assumed that obtaining well permit restrictions would be completed concurrently with DTSC review and approval. It is not currently known how long groundwater extraction and treatment would continue, but it is expected to take three to thirty years.

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Groundwater Use

The overall long-term effects of this remedial alternative on groundwater use will be beneficial. After remedial action is complete, this resource will be available for future beneficial uses. During treatment, there may be local lowering of the groundwater table, but this is not expected to impact existing nearby groundwater users.

Environmental Impact

Short-term environmental impacts would occur during construction of the system and may include increased traffic congestion, noise and dust from construction equipment used to drill wells, dig trenches, and install the treatment system. Standard construction industry dust control measures will be used, as necessary, during trenching and construction of the treatment system foundation. Noise and traffic impacts will be temporary and limited to daylight hours when most people are away from home. Following remediation, contaminants previously available to environmental receptors would be removed.

Justification for Rejection or Selection

This remedial alternative would result in some short-term environmental impacts during construction and system operation. However, these impacts would be minor and would be out-weighed by long-term advantages of removing contaminated groundwater. Extraction and treatment of contaminated groundwater would reduce the toxicity, mobility, and volume of contaminants in Operable Unit GW-1, thereby providing adequate protection of human health and the environment and allowing future beneficial uses of groundwater. This alternative uses proven technologies to extract and treat groundwater, and though this alternative is more expensive than the No Action Alternative, the extra costs are justified by the long-term benefits. Therefore, this alternative was selected as the recommended remedial alternative for Operable Unit GW-1.

6.3.4.3 Recommended Remedial Alternative

The recommended remedial alternative for Operable Unit GW-1 is Alternative 4. This alternative consists of extraction of contaminated groundwater, treatment of contaminated groundwater, and discharge of treated water to the sewer. Also included in this alternative are groundwater monitoring to assess plume migration and the effectiveness of groundwater remedial action, and restrictions on the number and type of permits for the drilling of groundwater supply wells during groundwater clean-up to control access to contaminated groundwater.

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As an enhancement of this alternative, a soil vapor extraction system will be installed in the Central Fill Area and Oil House Area. The purpose of the soil vapor extraction system will be to remove volatile organic compounds from soil in these areas. Removal of volatile organic compounds from soil above the water table in these areas will remove the primary source of volatile organic compounds to groundwater, thereby reducing the length of time necessary to remediate groundwater.

Justification for Selection

Alternative 4 was selected as the recommended remedial alternative for the following reasons:

- It will provide the greatest protection of human health and the environment.
- It will reduce the toxicity, mobility, and volume of contaminants.
- It uses proven technologies that are well tested and easy to implement.
- It is reasonably cost-effective.
- Short-term impacts during construction and system operation will be minor and would be outweighed by the long-term advantages of meeting Remedial Action Objectives for groundwater.

Following approval of this Final Remedial Action Plan, a Remedial Action Design Work Plan will be prepared. It will provide detailed design specifications for the recommended remedial alternative for this Operable Unit. After the Remedial Action Design Work Plan is prepared, it will be submitted to the DTSC for review and approval. Design and construction activities associated with the recommended remedial alternative for Operable Unit GW-1 are discussed in Section 6.5.2.

6.3.5 Groundwater Operable Unit GW-2

Groundwater Operable Unit GW-2 is the smaller on-site groundwater contaminant plume (Plume B on Figure 8). This smaller plume covers an area of about 5 acres and contains volatile organic compounds and nickel above the groundwater clean-up levels. Three final candidate alternatives for Operable Unit GW-2 were analyzed in the Feasibility Study Supplement:

- Alternative 1 — No Action;
- Alternative 2 — Limited Action; and
- Alternative 4 — Extract, Treat, and Discharge.

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This section summarizes the detailed analysis of these three alternatives for Operable Unit GW-2. Tables 13 and 14 also contain a summary comparison of the final candidate alternatives for groundwater Operable Unit GW-2.

6.3.5.1 Alternative 1: No Action

Objectives and Scope

Consideration of the No Action Alternative is required by the National Oil and Hazardous Substances Pollution Contingency Plan. The amount of risk reduction provided by each of the other final candidate alternatives is compared to the No Action Alternative to assess how effective they are. The No Action Alternative involves neither clean-up of contaminated groundwater, nor groundwater monitoring.

Cost Effectiveness

The No Action Alternative is the least expensive of the alternatives being considered for Operable Unit GW-2, but does not remedy existing groundwater contamination. There are no costs associated with this alternative.

Implementation Time

Since this No Action alternative does not include any activities, it does not require any time to implement.

Groundwater Use

Because the No Action alternative leaves the contaminated groundwater in place, groundwater use in and around the area of the contaminated groundwater would need to be limited. Over time, the contamination would move and spread in the direction of groundwater flow and might ultimately impact nearby existing groundwater users.

Environmental Impact

Since there are no clean-up activities associated with this alternative, there are no short-term impacts to the environment due to construction. However, since this alternative does not remove and/or treat contaminants, this alternative provides the least protection of the environment of all the final candidate alternatives for Operable Unit GW-2.

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Justification for Rejection of Selection

This alternative was rejected from consideration as the recommended remedial alternative because it would not meet Remedial Action Objectives and would not provide adequate protection of human health and the environment. It would not reduce the toxicity, mobility, or volume of the contaminants in groundwater, and could prevent future beneficial uses of this resource.

6.3.5.2 Alternative 2: Limited Action

Objectives and Scope

The objective of the Limited Action Alternative is to provide human health protection beyond the No Action Alternative by monitoring groundwater, and by limiting the potential exposure to contaminated groundwater by implementing restrictions on drilling permits for groundwater supply wells in Operable Unit GW-2.

The Limited Action Alternative involves no clean-up of contaminated groundwater. However, it does include groundwater monitoring for 30 years. Groundwater monitoring for this operable unit would be integrated with other soil and groundwater operable unit groundwater monitoring programs. It also includes preparation of a report of groundwater monitoring results which would be submitted to the DTSC yearly.

Cost Effectiveness

The Limited Action Alternative is the least expensive of the alternatives being considered for Operable Unit GW-2 and provides adequate protection of human health. This alternative is estimated to have a total present worth cost of about $180,000. This includes only operation and maintenance costs. Operation and maintenance costs include groundwater sampling, analytical tests, and preparation of an annual groundwater monitoring report for 30 years. The total present worth cost does not include the costs for drilling permit restrictions because the costs for these restrictions are unknown.

Implementation Time

The time expected to put this alternative into effect is about nine months. This includes three months to prepare a groundwater monitoring work plan, three months for review and approval of the work plan by DTSC, and six months to obtain well permit restrictions. It is assumed that obtaining permit restrictions would be concurrent with DTSC review and approval. There are no construction activities associated with the Limited Action Alternative.

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Groundwater Use

This alternative leaves the contaminated groundwater in place and limits groundwater use in the area of GW-2. Because there is currently no known use of groundwater in GW-2, this alternative will not adversely affect present beneficial use of this resource. Over time, the concentration of contaminants in GW-2 will decrease due to natural breakdown of the contaminants and dilution. The rate at which the concentrations will decrease is unknown, but levels could drop below groundwater clean-up levels in a relatively short period of time so that future beneficial use of the groundwater would not be adversely affected. The groundwater monitoring program included in this alternative would monitor both the movement and concentrations of the contaminants in the plume to evaluate the reduction of the concentration of contaminants in the plume through natural degradation.

Environmental Impact

Since there are no clean-up activities associated with this alternative, there are no short-term impacts to the environment due to construction. However, because this alternative does not remove or treat contaminants, it provides less protection of the environment than Alternative 4, and is only marginally better than Alternative 2 in this respect.

Justification for Rejection of Selection

This alternative would not provide an immediate remedy for existing environmental impacts. However, it would allow for the reduction of the volume and toxicity of contaminants through natural degradation over an extended period. Human health would be protected by monitoring contaminant degradation and potential migration and by limiting access to the groundwater through permit restrictions. Because Alternative 2 does not remedy existing impacts and will prevent future beneficial uses of groundwater for many years, it was rejected from further consideration as the recommended remedial alternative for Operable Unit GW-2.

6.3.5.3 Alternative 4: Extract, Treat, and Discharge

Objective and Scope

The objective of this alternative is to treat contaminated groundwater until contaminant concentrations are below groundwater clean-up levels. Alternative 4 consists of extraction, treatment of contaminated groundwater, and discharge of treated water to the sewer, monitoring groundwater to evaluate the progress of clean-up, and limiting the potential exposure to groundwater during remedial action through restrictions on permits for drilling of groundwater wells in Operable Unit GW-2.

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Groundwater monitoring for this operable unit would be integrated with other soil and groundwater operable unit groundwater monitoring programs. It also includes preparation of an annual groundwater monitoring report which would be submitted to DTSC.

To remove contaminated groundwater, extraction wells would be placed on-site. The exact number and location of the wells is not currently known, but will be determined before completion of the Remedial Action Design Work Plan. It is estimated that the total flow to the treatment system would be 20 gallons per minute, and that pumping and treatment would last for about 3 years.

Extracted groundwater would be pumped to a treatment system that is assumed to be located near the east central portion of the site. Piping and wiring would need to be installed in a trench to connect the wells with the treatment system. Soil would be wetted during construction of the trench and treatment system foundation, as necessary, to minimize the amount of dust generated during construction. A conceptual plan for Groundwater Alternative 4 is shown on Figure 17.

In order to improve the efficiency, extend the operating life, and enhance the cost effectiveness of the treatment system, some form of pretreatment may be used. The type of pretreatment that may be required and associated costs cannot be specified until more data is collected on the quality of extracted water. Based on current knowledge of groundwater conditions, pretreatment is not expected to be necessary.

The final groundwater treatment system may consist of one or more of the following:

- Air stripping transfers the volatile organic contaminants from the water to the air in a closed system, creating a contaminant-rich air stream that is treated before it is released to the atmosphere. Treatment of the air is accomplished either through thermal oxidation or carbon adsorption. Thermal oxidation is done by either burning the contaminants or passing contaminants over a catalyst similar to a catalytic converter in a car's exhaust system. Carbon adsorption transfers contaminants from water (or air) to carbon. As more contaminants are transferred to the carbon, the pores in the carbon become full, it loses its effectiveness and must be replaced. The spent carbon, or carbon that has lost its ability to adsorb contaminants, is then transported off-site and recycled.
- Granular activated carbon uses activated carbon to remove volatile organic contaminants from groundwater.
- UV-oxidation uses ultraviolet light to destroy volatile organic contaminants in groundwater. A UV-oxidation system destroys contaminants by pumping contaminated groundwater to the surface of the site, injecting chemicals such as hydrogen peroxide or ozone into the contaminated groundwater, and then exposing the water to ultraviolet light in a closed system. The chemicals help the light break down contaminants more effectively. This process produces no residuals.

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- If required as a condition of effluent discharge permits, the treatment system will include a process to remove nickel from groundwater. The planned groundwater Interim Remedial Measure is expected to provide additional information which will aid in assessment of the need to remove nickel prior to discharge.

The type of treatment best suited to this task depends on a number of factors including the type and concentration of groundwater contaminants and the flow rate of water through the system. These systems may be used independently or they may be combined to produce the best treatment at the least cost.

Treated groundwater would be discharged to the existing City of Sacramento sewer system and will flow through underground pipe to a waste water treatment plant owned by Sacramento County. The treated groundwater will ultimately be discharged into the Sacramento River.

Cost Effectiveness

Alternative 4 is the most expensive alternative considered for Operable Unit GW-2. However, it will remedy existing groundwater impacts relatively quickly and allow future beneficial uses of groundwater sooner than either Alternative 1 or 2. The total present worth cost of this alternative for Operable Unit GW-2 ranges from $170,000 to $280,000. The least expensive system is an air stripper that also includes treatment of the air before release to the atmosphere. The most expensive system is UV-oxidation treatment. Capital costs are estimated to be about $60,000 if the groundwater from GW-2 is treated using the same equipment designed for GW-1. They include costs for equipment, labor, materials, and installation. Operation and maintenance costs are estimated to range from about $110,000 to $230,000. They include costs for groundwater monitoring, sampling and analysis of treated groundwater, pump operation, treatment system operation, and annual reporting.

Implementation Time

The time needed to implement this alternative for Operable Unit GW-2 is expected to be about eleven months, provided no difficulties or unforeseen delays are encountered. This includes three months to design the system, three months for DTSC review, three months to obtain construction permits, six months to obtain well permit restrictions, and two months for construction (i.e., installing groundwater extraction wells, trenching, installing piping and wiring, and installing the treatment system). It is assumed that obtaining well permit restrictions would be completed concurrently with DTSC review and approval. Operation and maintenance of the treatment system are expected to continue for 3 years or longer.

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Groundwater Use

The long-term effects of this alternative on future groundwater use will be beneficial because groundwater contaminants will be removed through treatment.

Environmental Impact

Short-term impacts would occur during construction of the system and may include increased traffic congestion, noise and dust from construction equipment used to drill the wells, dig trenches, and install the treatment system. Standard construction industry dust control measures, such as using water to wet down soil, will be used as necessary during construction of the trench and treatment system foundation. Noise and traffic impacts will be temporary and work will occur during business hours when most people are away from home.

Justification for Rejection or Selection

This alternative would result in some short-term environmental impacts during construction and system operation. Removal of contaminated groundwater would reduce the toxicity, mobility, and volume of contaminants in Operable Unit GW-2, thereby providing adequate protection of human health and the environment and providing for beneficial use of groundwater resources. Alternative 4 is also reasonably cost-effective. Therefore, this alternative was selected as the recommended remedial alternative for Operable Unit GW-2.

6.3.5.4 Recommended Remedial Alternative

The recommended remedial alternative for Operable Unit GW-2 is Alternative 4 (Extract, Treat, and Discharge). This alternative consists of extraction of contaminated groundwater, treatment of contaminated groundwater, and discharge of treated water to the sewer. Also included with this alternative are groundwater monitoring and restrictions on the number and type of permits for the drilling of groundwater wells during groundwater clean-up.

Justification for Selection

Alternative 4 was selected as the recommended remedial alternative for the following reasons:

- It will provide the greatest protection of human health and the environment.
- It will reduce the toxicity, mobility, and volume of contaminants.

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- It uses proven technologies that are well tested and easy to implement.
- It is reasonably cost-effective.
- Short-term impacts during construction and system operation will be minor and would be outweighed by the long-term advantages of meeting Remedial Action Objectives for groundwater.

Following approval of this Final Remedial Action Plan, a Remedial Action Design Work Plan will be prepared. It will provide detailed design specifications for the recommended remedial alternative for this Operable Unit. After the Remedial Action Design Work Plan is prepared, it will be submitted to the DTSC for review and approval. Design and construction activities associated with the recommended remedial alternative for Operable Unit GW-2 are discussed in Section 6.5.2.

6.4 REMEDIAL ACTION FOR SOIL OPERABLE UNIT S-5

Prior to completion of the additional investigation in the northeastern portion of Operable Unit S-5, a feasibility study analysis for this operable unit was planned based on the assumption that soil impacts present in that area would be considered to pose a threat to groundwater quality, human health, and/or the environment. However, data obtained from that additional subsurface investigation indicate that soil impacts do not pose a threat to human health. Groundwater impacts appear to be very limited, and do not currently exceed established RAOs. These minimal impacts to soil and groundwater may be further reduced by naturally occurring biodegradation. A formal feasibility study analysis was therefore not completed for this portion of the site.

In keeping with the recent findings, planned remedial action for Operable Unit S-5 will consist of the following:

- Cleanup of diesel-impacted soil using in-situ bioremediation will be considered if diesel impacts to groundwater later become significant. Otherwise, no action to address these soil impacts will be taken;
- Providing and maintaining a cover over selected slag and/or metals-impacted soil, and removal of agreed-upon areas of slag; and
- If, after one year of groundwater monitoring, groundwater impacts are demonstrated, a focused feasibility study of remedial alternatives for groundwater will be performed. For the purpose of this Final Remedial Action Plan, the preliminary clean-up level for diesel hydrocarbons in groundwater is 100 μg/L.

These proposed actions are discussed in greater detail in the following sections

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6.4.1 Remedial Action to Address Petroleum Hydrocarbons in Soil

As discussed in the Additional Subsurface Investigation Report (Dames & Moore, 1993b), petroleum hydrocarbons were reported (as diesel, kerosene, and lubricating oil) for soil samples collected from the northeastern portion of Operable Unit S-5 at concentrations ranging from 65 to 8,300 mg/Kg. The majority of reported detections were less than 2,000 mg/Kg. Soil samples judged in the field to have the greatest concentrations of petroleum hydrocarbons were also analyzed for polycyclic aromatic hydrocarbons. Polycyclic aromatic hydrocarbons were not detected in any of the soil samples analyzed.

The area of impacted soil is estimated to have an aerial extent of approximately 10,000 square feet, and extends from approximately five feet below ground surface (bgs) into the saturated zone (up to 29 feet bgs). The areal extent of these impacts is shown on Figure 5.

Due to the lack of complete exposure pathways and significant groundwater impacts associated with this operable unit, no action has been selected. If future groundwater monitoring indicates that impacts are increasing, in-situ bioremediation of the impacted soil may be attempted.

6.4.2 Remedial Action to Address Petroleum Hydrocarbons in Groundwater

During the additional subsurface investigation, diesel hydrocarbons were detected in three of six Hydropunch groundwater samples in the northeastern portion of Operable Unit S-5. Detections of diesel ranged from 0.29 to 2.9 mg/L in these three samples, and polycyclic aromatic hydrocarbons were not detected in any of the six groundwater samples (Dames & Moore, December 1993b).

In April 1994, additional in-situ groundwater samples were collected in operable unit S-5 to delineate the downgradient extent of diesel hydrocarbon impacts to groundwater (Dames & Moore, 1994c). In July 1994, one well (MW-48) and two piezometers (P-10 and P-11) were installed to verify the extent of impacts and to enable monitoring of the groundwater flow direction and gradient in this area.

Diesel was reported in the in-situ water samples at concentrations ranging from less than the detection limit of 0.05 mg/L to 0.79 mg/L, and oil was reported at concentrations ranging from less than the detection limit of 0.5 mg/L to 2.2 mg/L. Results of subsequent monitoring of MW-48, P-10, and P-11 have shown that these constituents are typically not detected. Diesel was reported for the sample collected from MW-48 during first-quarter 1995 groundwater monitoring at 0.43 mg/L (Dames & Moore, 1995b).

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Based on currently available data, groundwater impacts in the northeastern portion of Operable Unit S-5 appear to be limited to a small area (less than 7,000 square feet), and are contained within the UPRR property boundary (see Figure 8, Plume C). Furthermore, analytical data indicate that there are no carcinogenic or toxic constituents in groundwater in this area. No action has therefore been selected for groundwater impacts in Operable Unit S-5.

For the purposes of this Final Remedial Action Plan, the preliminary clean-up level for diesel hydrocarbons is 100 μg/L and clean-up levels for other constituents will be as stated in Table 8.

6.4.3 Remedial Action to Address Slag and Metals Impacted Soil

As discussed in the report, Development of Remedial Action Levels (Dames & Moore, 1992b), the concentrations of metals detected in soil in Operable Unit S-5 do not exceed the calculated risk-based allowable exposure concentrations. This is conservative in that exposure point concentrations were calculated without considering the low bioavailability of the metals present in the slag.

An air monitoring study was performed in operable unit S-5 from August to November 1994 (Dames & Moore, 1995b). The purpose of the study was to assess the concentrations of arsenic and lead in airborne particulates emanating from the active railyard. The results of air monitoring showed that lead concentrations were, in all samples, less than the ambient air quality standard of 1.5 $\mu g/M^3$. Arsenic was detected in only two samples, both collected during the last round of air monitoring, with the highest concentration reported for the sample collected from the background station. Therefore, the following plan will be implemented to minimize airborne slag particulates:

- Track reballasting with rock will take place as part of an ongoing railyard operation and maintenance;
- Gravel cover will be maintained over exposed slag along non-rail (truck) traffic ways (the eastern portion of the active yard) to mitigate potential particulate emissions;
- The gravel cover will be periodically inspected and replenished as necessary;
- Exposed slag in the eastern portion of Operable Unit S-5 has been replaced with rock ballast as part of the slag removal Interim Remedial Measure in late 1993.

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6.5 REMEDIAL ACTION DESIGN AND CONSTRUCTION ACTIVITIES

This section describes activities which will take place after this Final Remedial Action Plan is finalized, including pre-design, design, and construction activities. These activities are discussed in general terms, because many of the specific details are not yet known. After the Remedial Action Plan has been accepted as final, work will begin on a detailed Remedial Action Design Work Plan. The purpose of the Remedial Action Design Work Plan is to:

- Describe the remedial actions which have been selected to remedy soil and groundwater contamination at the site.
- Discuss soil and groundwater remedial pre-design activities that must be completed prior to initiation of remedial systems design and remedial actions.
- Provide a detailed description of how soil and groundwater treatment systems or activities will be designed.
- Provide a detailed schedule for site-wide remedial action including engineering design, construction, and operation and maintenance.

Typical elements of the Remedial Action Design, either included in the Work Plan or described in the Work Plan and provided as subsequent submittals, are listed below:

- Excavation Plan;
- Grading Plan;
- Transportation Plan;
- Sampling and Analysis Plan;
- Quality Assurance Project Plan; and
- Data Management Plan.

Recommended remedial alternatives for soil are discussed in Section 6.4.1, and groundwater recommended remedial alternatives are discussed in Section 6.4.2.

Due to recent advances in groundwater remediation system operations, and UPRR's intent to proceed with full-scale groundwater remediation implementation, discussion of groundwater activities in the Remedial Action Design Work Plan may not be needed.

6.5.1 Recommended Remedial Alternatives for Soil

Soil Alternative 10 (Excavation and Off-Site Disposal of Soil Above Clean-Up Levels) was selected for soil Operable Units S-1, S-2, and S-3. The recommended remedial alternative includes

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excavating soil contaminated above the clean-up levels, loading excavated soil onto railcars or trucks and transporting it to an appropriately licensed and permitted landfill for disposal. It is anticipated that remedial action for soil in Operable Unit S-5 will consist of in-situ treatment. Initially, a pilot study will be performed. Design, construction, construction monitoring, and Health and Safety monitoring activities which will be performed are discussed in general terms below. Environmental impacts associated with construction activities are also discussed.

6.5.1.1 Design Activities

Areas of soil removal will be identified for each operable unit as part of the design activities associated with Alternative 10. Clean-up levels for each operable unit will depend on future land uses as identified in Section 6.1. Clean-up levels will be used together with soil contaminant distribution information collected during the Remedial Investigation to plan a series of excavation areas. It is anticipated that excavation areas will be similar in location and size to the areas shown on Figures 5, 6, 7, and 12. Engineering design for Alternative 10 will consist of planning soil excavation and transport activities and will include several design drawings, a construction specification, and other engineering documents. Products of engineering design may include the following:

- Excavation and Grading Plan drawings
- Identification of temporary on-site soil stockpile areas
- Equipment and material lists
- Contractor bid and performance specifications.

Because soil contamination at this site tends to be shallow and spread over relatively large areas, shoring of excavations to prevent cave-in is not expected to be needed. One exception to this is the Central Fill Area in Operable Unit S-2. The Central Fill Area contains debris and soil contamination to a depth of approximately 15 feet below the existing ground surface. Shoring or bracing may therefore be required in this area. In addition, the exact nature and location of all waste materials present in this area are not currently known. As mentioned previously, miscellaneous debris including drums have been encountered during remedial investigation of this area. Prior to beginning excavation activities in Operable Unit S-2, an attempt will be made to evaluate the area using **electromagnetic survey** or other **geophysical investigation** techniques to identify the location of potential metallic subsurface obstacles such as drums.

In addition to DTSC approval, soil remedial action activities at the site are expected to require other state and local agency permits. It is expected that the Sacramento Metropolitan Air Quality Management District will issue an air emissions permit. Also, grading and construction permits from the City of Sacramento Building Department will be needed. Other permits necessary for this project will be identified during preparation of the design documents.

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6.5.1.2 Construction Activities

After the Remedial Action Design Work Plan and engineering design drawings and documents are completed and approved by the DTSC, construction activities will begin. Potential site remediation contractors will be asked to submit bids for site work. The bids will be evaluated, and a qualified contractor will be selected to perform the remedial activities. It is anticipated that site work and construction activities associated with Soil Alternative 10 will take place in the following order:

- The site will be **cleared and grubbed** (shrubs, trees, and debris will be removed and disposed off-site).
- An attempt will be made to locate subsurface hazards such as piping and drums (if present in the Central Fill Area) using electromagnetic surveying or other geophysical investigation techniques. Once located, these objects will be carefully excavated. If drums are found, each drum (except those which are empty and dry) will be placed in a protective overpack to prevent leakage. Following **waste characterization**, drums will be taken off-site for recycling or other disposal, as appropriate.
- Soil contaminated above the clean-up levels will be excavated and loaded onto railcars and/or trucks (depending on its destination) for transport off-site. Transport vehicles will be covered to prevent load loss during transit. The hazardous waste hauler(s) will be certified, and waste materials will be manifested and transported in accordance with applicable state and federal regulations.
- Temporary soil stockpiles will be covered as necessary to prevent wind-blown dust.
- Confirmatory soil samples will be collected from the walls and bottom of each excavation. These samples will be submitted to a laboratory for testing to assess residual contaminant concentrations after soil excavation. If statistical analysis of the test results indicates that the clean-up levels have been met, excavation will discontinue. Otherwise, additional excavation and sampling will continue until the desired clean-up levels have been reached. Sampling and analysis methods will be described in detail in the Sampling and Analysis Plan.
- Clean soil may be brought from an off-site location and placed in the excavations to restore grade and/or eliminate safety hazards, if needed. As the clean soil fill is placed in the excavations in thin layers, it will be compacted in accordance with specifications to reduce potential for settlement.
- The fence that currently surrounds the site will be maintained to prevent unauthorized access to the site during construction activities.

To limit the amount of dust generated by construction activities, water will be sprayed onto contaminated soil as needed until excavation and backfilling operations are finished.

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6.5.1.3 Construction Monitoring

During construction activities, the quality of work will be inspected at appropriate intervals as specified in the Quality Assurance Project Plan and construction specifications. Several tests commonly used to measure compliance with construction specifications will be performed. These tests may include:

- Testing of imported fill for chemical constituents prior to placement.
- **Modified Proctor Test** (Moisture-Density Relationship) of clean soil fill used to backfill excavation pits.
- Testing **clean fill** after compaction to verify that the proper density has been achieved

6.5.1.4 Health and Safety Monitoring

Site work activities may create a temporary increase in airborne dust and therefore a short-term health risk to the public and on-site workers. However, dust control measures will be used to minimize airborne dust and the potential threat to site workers and the public. Air monitoring will be conducted to measure potential dust emissions during remedial activities.

Air sampling will be conducted by a trained specialist during construction activities that could create airborne dust. Air sampling typically consists of collecting samples of airborne dust in the work area and at various other locations using low- or high-volume air samplers and/or monitoring fugitive dust levels using **real-time direct-reading instruments**. Samplers will be located upwind of the site to indicate normal background levels and downwind to capture emissions produced by the work activities. Samples will be tested regularly to assess levels of contaminated dust.

If levels of dust or contaminants of concern (lead, arsenic, and/or asbestos) exceed allowable levels established in the **Site Health and Safety Plan** or permit requirements, construction will be stopped and work methods modified so that dust and/or airborne contaminants are reduced to acceptable levels. If the wind speed rises above limits set in the Site Health and Safety Plan or existing permits, construction work will stop until the wind dies down to an acceptable speed. If necessary, site workers may be required to use **personal protective equipment** (such as air-purifying respirators and protective suits) to prevent breathing and/or swallowing contaminated dust and to prevent contamination of clothing and skin. Signs will be posted around the site to inform the public of potential health and safety risks.

Prior to initiation of site work, the DTSC will be informed in writing of additional monitoring required as a result of permit restrictions. These will also be incorporated into the Site Health and Safety Plan and/or the Remedial Action Design Work Plan. On-site personnel will be properly trained in accordance with the **Occupational Safety and Health Act**, will participate in a **medical surveillance**

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program, and will be equipped with personal protective equipment as specified in the Site Health and Safety Plan. Workers will be checked frequently during site work to verify compliance with the Site Health and Safety Plan.

6.5.1.5 Environmental Impacts

Implementation of the recommended remedial alternative will likely create short-term environmental impacts caused by construction activities. These impacts are expected to include increased noise, truck traffic, and dust emissions on the site and in the vicinity. The impact of noise and traffic will be temporary, and site work will be limited to daylight hours during the week when most people are away from their homes. Dust emissions will be mitigated through the use of standard construction industry dust control measures.

The only long-term environmental impact associated with Alternative 10 is the potential need to restrict future land uses in Operable Units S-1 and S-2. Redevelopment plans for these areas must incorporate engineered controls to prevent exposure to the relatively low levels of contamination that will be left in place after clean-up. Future land use in Operable Unit S-3 will be unrestricted after remediation is complete.

6.5.2 Recommended Remedial Alternatives for Groundwater

Groundwater Remedial Alternative 4 (Extract, Treat, and Discharge) was selected as the recommended remedial alternative for groundwater Operable Units GW-1 and GW-2. Alternative 4 includes pumping contaminated groundwater to a treatment unit, treating the water to remove contaminants, and discharging the treated groundwater to the City sewer. Design, construction, monitoring, and Health and Safety monitoring are discussed in general terms below. Environmental impacts associated with construction activities are also discussed.

6.5.2.1 Design Activities

Design of the extraction system will include selecting the optimum location for extraction wells. Well locations should optimize groundwater extraction while minimizing adverse impacts to the surrounding community. Location of wells will also consider the best possible route for the trench that will carry piping and wiring between off-site wells and the on-site treatment system. Other important elements of system design will be safeguards to prevent untreated water from accidentally being discharged to the sewer and automatic controls to shut the system down if flow within the sewer exceeds its design capacity.

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Design of the treatment system will include selecting a treatment unit of sufficient size to accommodate the flow of groundwater from the extraction wells. The engineering design of the system may include several design documents and drawings which will be incorporated into the Remedial Action Design Work Plan. These documents may include the following:

- Trench design drawings
- Treatment system pad and enclosure design drawings
- Treatment system design drawings
- Extraction well design drawings
- Piping design and layout drawings
- Existing infrastructure drawings
- Equipment and materials list
- Subcontractor bid and performance specifications.

Appropriate permits will be obtained for system construction and discharge of treated groundwater. These permits may include but not be limited to: building permits, well drilling permits, sewer discharge permits (allowed flow rates, discharge location, and contaminant concentrations), air permits (if an air stripper is used), and an agreement with the City of Sacramento to permit use of the City sewer system. Additionally, water supply well installation permit restrictions will be developed for DTSC review and approval. Water supply well permit restriction will prohibit new supply wells within the contaminant plumes until groundwater remediation is complete.

6.5.2.2 Construction Activities

A design work plan for extraction and treatment of off-site groundwater has been submitted to the DTSC for review and approval and design is underway. Potential groundwater remediation system contractors will be asked to submit bids for construction and installation of the groundwater treatment system in August 1995. The bids will be evaluated, and a qualified contractor will be selected to perform the work. Construction activities will begin only after DTSC approval is received. Construction of different parts of the system will probably be concurrent and include the following:

- Extraction well installation
- Trench excavation, piping and wiring installation, and trench backfilling
- Installation of a foundation pad and enclosure for the treatment system
- Installation of the treatment system
- Installation of piping to the discharge point.

Once the system is completed, it will be tested over a period of about two months to evaluate its performance. Flows from different wells may be adjusted, treated water will be sampled to make sure

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the system is working properly, and safeguards will be tested to ensure that they also are working properly. This initial operation period is commonly called "system start-up".

6.5.2.3 Construction Monitoring

During construction, quality of the work will be periodically inspected. Inspections will include review of extraction well construction, trenching, treatment system foundation and enclosure construction, and piping and wiring tests.

6.5.2.4 Health and Safety Monitoring

Site work activities may create a temporary increase in airborne dust. However, site work for groundwater remediation will be much less extensive than work required for soil remediation, and the potential for exposure to site workers and the public is not considered significant. As a safety precaution, dust control measures will be used to control visible dust emissions from the site, if necessary.

On-site personnel will be properly trained in accordance with the Occupational Safety and Health Act, will participate in a medical surveillance program, and will be equipped with personal protective equipment as specified in the Site Health and Safety Plan. Workers will be checked frequently during site work to verify compliance with the Site Health and Safety Plan.

6.5.2.5 Environmental Impacts

Implementation of this alternative will result in short-term impacts due to construction activities. Short-term impacts are expected to include increased traffic congestion, noise, and dust from construction equipment used to drill wells, dig trenches, and install the treatment system. Noise and traffic impacts will be temporary and limited to daylight hours when most people are away from their homes.

6.6 REGULATORY COMPLIANCE

DTSC guidelines for preparation of Remedial Action Plans (Department of Health Services, 1987), call for an evaluation of the consistency of the recommended remedial alternatives with the Health and Safety Code, and for the incorporation in the Remedial Action Plan of any applicable Resource Conservation and Recovery Act (RCRA) or California Code of Regulations (CCR) Title 22 technical and administrative requirements. Furthermore, compliance of the Remedial Action Plan and recommended remedial alternatives with the Comprehensive Emergency Response and Clean-up Liability Act (CERCLA) Section 101(24) requirements must be briefly discussed, as well as development of a health

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and safety plan for remediation workers and its consistency with California Occupational Safety and Health Administration (CAL-OSHA) regulations. The following sections address these issues.

6.6.1 Health and Safety Code Section 25356.1(c)

Subdivision (c) of Chapter 6.8, Section 25356.1 of the Health and Safety Code states that Remedial Action Plans for sites on the Hazardous Substance Account or Hazardous Substance Clean-up Fund list must be prepared and approved in a manner consistent with Title 40 of the Code of Federal Regulations (CFR), Section 300.61 et seq (National Oil and Hazardous Substances Pollution Contingency Plan) and amendments thereto. It also states that Remedial Action Plans must consider all of the following:

- The health and safety risks posed by conditions of the site
- The effect of contamination upon present, future, and probably beneficial uses of resources
- The effect of alternative remedial action measures on reasonable availability of groundwater resources for present, future, and probable beneficial uses
- Site-specific characteristics including off-site migration, surface and subsurface soil and hydrogeological conditions
- Cost-effectiveness of alternative remedial action measures
- Potential environmental impacts of alternative remedial action measures

The Feasibility Study (Dames & Moore, 1991b), Addendum Feasibility Study (Dames & Moore, 1991d), Feasibility Study Supplement (Dames & Moore, 1992c), and this Final Remedial Action Plan have considered all of the above-mentioned factors in detailed analyses of final candidate alternatives and selection of the recommended remedial alternative for each operable unit.

6.6.2 40 CFR 260-270 and CCR Title 22 Applicable Requirements

6.6.2.1 Soil Remediation

A hazardous waste facility is defined as a facility used for the treatment, transfer, storage, disposal, or recycling of hazardous waste (22 CCR 66260.10). Because the site does not meet this definition based on historical facility operations, and because the recommended remedial alternatives do not propose the creation of such a facility, federal and state requirements for a hazardous waste facility are not applicable. However, should hazardous wastes be generated during remediation activities, federal

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and state requirements for hazardous waste management as specified for generators and transporters will apply.

The Remedial Action Design Work Plan will describe methods to be used to determine whether soils are classified as hazardous waste. Soil classification will comply with all appropriate regulatory requirements contained in 40 CFR Part 261 and CCR Title 22, Section 66261.

The Remedial Action Design Work Plan will also describe actions to be taken to package, manifest, and transport soils determined to be hazardous waste. These actions will comply with all appropriate regulatory requirements contained in 40 CFR Part 262 and Section 66262 of CCR Title 22.

40 CFR, Part 268 and CCR Title 22 Section 66268 impose land disposal restrictions on hazardous waste. Prior to landfilling hazardous wastes, the regulations specify that wastes must be treated to meet prescribed standards. To determine the applicability of these regulations (including potential treatment standards) to contaminated soil in Operable Units S-1, S-2, and S-3, additional analytical studies will be performed. The results of this work will be submitted to the DTSC as part of the Remedial Action Design Work Plan. If the contaminated soil is subject to the land disposal restrictions, the Remedial Action Design Work Plan will contain a strategy for compliance with these regulations.

6.6.2.2 Groundwater Remediation

Technical and administrative requirements of 40 CFR and Title 22 of CCR which are applicable to recommended remedial alternative for Operable Unit GW-1 include:

- 40 CFR 262.30-34/22 CCR 66262.30-34 (Pre-transport Requirements)
- 40 CFR 268.43/22 CCR 66268.43 (Treatment standards expressed as waste concentration)
- 40 CFR 141.61/22 CCR 64444.5 and 64473 (Maximum contaminant levels for organic contaminants)
- 40 CFR 141.50 (Maximum contaminant level goals for organic contaminants)
- 40 CFR 264.601/22 CCR 264.601 (Environmental Performance Standards)
- 22 CCR 66270.60 and 67450 (Permits by Rule for Transportable Treatment Unit (TTU))
- 22 CCR 66747 67450.11 (List of Approved Treatment Process, Influent Waste Streams)

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The recommended remedial alternatives for GW-1 and GW-2 have been developed and selected to be in compliance with all of the regulations listed above. The manner in which the installation, operation, and maintenance of these alternatives will comply with these regulations will be described in the Remedial Action Design Work Plan.

6.6.3 CERCLA Section 101 (24)

Section 101 (24) of CERCLA states that the terms "remedy" or "remedial action" are those actions which are consistent with a permanent remedy taken and which prevent or minimize the release of hazardous substances so that they do not migrate or cause substantial danger to present or future health or welfare or the environment. The use of these terms in this Final Remedial Action Plan is consistent with this definition.

6.6.4 Health and Safety Plan

29 CFR Section 1910.120(b)(4) requires that a site-specific Health and Safety Plan be developed and implemented during construction and maintenance of any remediation at sites containing hazardous substances. The Health and Safety Plan must assign responsibilities, establish personnel protection standards and mandatory safety procedures, and provide for contingencies that may arise while operations are being conducted at the site. To comply with these requirements, a Site Health and Safety Plan will be developed as part of the Remedial Design Work Plan and submitted to the DTSC for review. The main components of the Site Health and Safety Plan will include:

- Names of key personnel and alternates responsible for site safety and health, and appointment of a Site Safety Officer.
- Safety and health risk monitoring during excavation, backfilling, and other construction activities.
- Employee training assignments.
- Medical surveillance requirements.
- Frequency and types of air monitoring, personnel monitoring, and contaminant sampling techniques.
- Site control measures.
- Decontamination measures.

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- A contingency plan meeting the requirements of paragraph (1) (1) and (1) (2) of Section 29 CFR 1910.120 for safe and effective responses to emergencies including necessary personal protective equipment.

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7.0 IMPLEMENTATION SCHEDULE

7.1 SOIL REMEDIATION

The preliminary implementation schedule for recommended remedial alternatives for Soil Operable Units S-1 through S-5 is presented on Figure 18. The total time (from issuance of the Final Remedial Action Plan to end of construction activities) needed to implement the recommended remedial alternatives for Operable Units S-1, S-2, S-3, and S-5 is estimated to be approximately 22 months. Operable Unit S-4 is not included in the implementation schedule because remedial action for this Operable Unit was completed under an Interim Remedial Measure in 1991.

Remedial activities will start with preparation of a Remedial Action Design Work Plan. Work on the Remedial Action Design Work Plan is scheduled to begin immediately after approval of the Final Remedial Action Plan by DTSC. Preparation of the Remedial Action Design Work Plan is expected to take approximately six months. DTSC review and approval of the Remedial Action Design Work Plan is expected to take approximately two months. Completing design documents, obtaining necessary construction permits, procuring equipment, and mobilizing crews and equipment to the site should take approximately five months after receiving DTSC approval of the Remedial Action Design Work Plan.

Implementation times presented in this Final Remedial Action Plan were estimated based on the assumption that all on-site activities will take place 8 hours per day, 5 days per week. It was also assumed that an average of 1,000 tons of soil can be excavated and loaded onto transport vehicles (railcars and/or trucks) every day. This was based on the assumption that more than one excavation will be underway at a given time, and is subject to modification during remedial design for soil operable units.

In preparing the implementation schedule, it was assumed that no significant delays would result from soil sampling or analysis activities, and that the type and concentration of contaminants encountered will be the same as those discovered during the Remedial Investigation. It should be noted that any of the following events could delay completion of excavation activities:

- The occurrence of excessive dust or vapor emissions or wind speeds above an established threshold, requiring a work stoppage.
- Permitting delays
- Modification of the staging area locations or the scheduling of trucks or railcars.
- Excavation of a larger volume of soil than is specified in the Feasibility Study Supplement (Dames & Moore, 1992c and 1993).

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Because several details will not be known until completion of the Remedial Action Design Work Plan and pre-design activities, a revised schedule will be submitted to the DTSC as new information becomes available.

7.2 GROUNDWATER REMEDIATION

As discussed in Section 2.1.7, clean-up of Groundwater Operable Units GW-1 and GW-2 began in 1993 as Interim Remedial Measures. The Operable Unit GW-1 Interim Remedial Measure is currently operating. An air stripper groundwater treatment unit with an activated carbon vapor recovery system was installed in the southeast area of the site. Two existing on-site wells are being pumped, and contaminated water flows through underground pipes into the treatment unit. The treated groundwater is being discharged to the City sewer.

The GW-2 Interim Remedial Measure is planned for early 1994. A pump will be installed in one of the existing wells in the southern area of the site. Extracted groundwater will be routed through underground piping to the GW-1 treatment unit.

If the groundwater treatment system is effective in meeting the goals of the Interim Remedial Measures, final remedial action for groundwater may consist primarily of installing a separate off-site treatment system at the toe (end) of the GW-1 groundwater plume.

The preliminary implementation schedule for recommended remedial alternatives for Operable Units GW-1 and GW-2 is presented on Figure 18. Total time (from issuance of the Final Remedial Action Plan to the end of construction activities) required to implement groundwater remediation is estimated to be approximately 17 months.

Predesign activities are scheduled to begin during development of the Remedial Action Design Work Plan, and are expected to take approximately seven and one-half months. Remedial action design for Operable Unit GW-1 will begin upon completion of predesign activities and approval of the Remedial Action Design Work Plan, and is expected to take about five months. Final system construction is expected to take about five months. Remedial action for Operable Unit GW-2 will proceed as an interim remedial measure, subject to DTSC approval of the Design Work Plan.

Implementation times for remedial action construction were estimated based on an 8-hour work day, 5 days per week. Construction implementation times were estimated using the following assumptions:

- One groundwater monitoring well can be installed in two days.

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- 250 feet of utility trench with necessary piping and wiring can be installed per day.
- Five days will be required for treatment system installation.

Some activities listed above may be performed concurrently.

It was assumed that no significant delays will be encountered during construction and that the type and concentration of contaminants encountered will be the same as those discovered during the Remedial Investigation. It should be noted that permitting delays or discovery of unforeseen subsurface obstacles during utility trench construction will delay the completion of construction activities. Because several details will not be known until completion of the Remedial Action Design Work Plan and design documents, a revised schedule will be submitted to DTSC as new information becomes available.

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8.0 NON-BINDING PRELIMINARY ALLOCATION OF FINANCIAL RESPONSIBILITY

8.1 INTRODUCTION

Section 25356.1 of the California Health and Safety Code states that Remedial Action Plans shall include "a non-binding preliminary allocation of responsibility among all identifiable Potentially Responsible Parties at a particular site, including those parties which may have been released, or may otherwise be immune from liability pursuant to this chapter or any other." This section of the Final Remedial Action Plan provides a proposed preliminary allocation of responsibility.

California Health and Safety Code Section 25323.5 defines responsible party to mean those persons described in Section 107(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). According to CERCLA, the following parties are potentially liable for the costs of remedial actions at hazardous waste sites:

1. The owner and operator of a facility
2. Any party who, at the time of disposal of any hazardous substance, owned or operated any facility at which such hazardous substances are disposed
3. Any party who by contract, agreement, or other manner arranged for disposal or treatment of hazardous substances owned or possessed by such party or by any other party or entity, at any facility owned by another party or entity and containing such hazardous substances
4. Any party who accepts or accepted any hazardous substances for transport or disposal; treatment facilities or sites selected by such party from which there is a release of a hazardous substance or a threatened release which causes response costs to be incurred

After the DTSC issues the Final Remedial Action Plan pursuant to Section 253566.1(d), any Potentially Responsible Parties with aggregate alleged liability in excess of 50 percent of the costs of the removal and remedial action may convene an arbitration proceeding pursuant to Section 25356.3 by agreeing to submit to binding arbitration. If an arbitration panel is convened, any other Potentially Responsible Parties may also elect to submit to binding arbitration.

Section 25256.3(c) of the Health of Safety Code states that the arbitration panel is to apportion liability based on the following factors:

1. The amount of hazardous substance for which each party may be responsible
2. The degree of toxicity of the hazardous substance

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3. The degree of involvement of the Potentially Responsible Parties in the generation, transportation, treatment, or disposal of the hazardous substance

4. The degree of care exercised by the Potentially Responsible Parties, with respect to the hazardous substances, taking into account the characteristics of the substance

5. The degree of cooperation by the Potentially Responsible Parties with federal, state, and local officials to prevent harm to human health and the environment.

8.2 IDENTIFICATION OF POTENTIALLY RESPONSIBLE PARTIES

Historical information indicates that the Western Pacific Railroad operated a railroad maintenance yard at the site commencing in 1910. From 1910 through the mid-1950s, the site was used primarily for maintaining and rebuilding steam locomotives, boilers, refurbishing rail cars, and assembling trains. During the mid-1950s, diesel engine repair and maintenance began. In 1982 UPRR acquired WPRR. UPRR discontinued railroad maintenance operations at the site in 1983, and remaining railroad maintenance buildings and structures on the site were demolished by UPRR in 1985 and 1986.

8.3 NON-BINDING PRELIMINARY ALLOCATION

Given that during the approximately 70 to 80 year operating history of the Sacramento Yard, WPRR owned and operated the facility for a total of at least 72 years, it is likely that WPRR generated, transported, treated and/or disposed of as much as 99 percent of the hazardous substances which are present at the site. Since UPRR owned and operated the facility for only one year, it is probable that UPRR's contribution of hazardous substances is minimal. However, WPRR as a corporate entity ceased to exist when purchased by UPRR. Therefore, UPRR is responsible for all hazardous substances at the site.

This allocation of responsibility is non-binding and preliminary. Parties assigned responsibility have various options for challenging the allocation. Based on the foregoing information, UPRR is allocated 100 percent of the financial responsibility for the hazardous substances which are at the site.

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9.0 OPERATION AND MAINTENANCE REQUIREMENTS

9.1 SOIL REMEDIATION

Recommended remedial alternatives for each of the soil Operable Units in the inactive portion of the site (Operable Units S-1, S-2, and S-3) consist of excavation and off-site disposal of soil contaminated above the DTSC-approved clean-up levels. After final remedial action is complete, long-term maintenance of the site will not be needed. Therefore, post-construction activities will be associated only with inspection and repair of the existing fence around the site, as necessary.

The recommended remedial alternative for Operable Unit S-4, which has already been implemented, involved off-site disposal of soils with contaminant concentrations exceeding the Remedial Action Objectives and does not require any maintenance or monitoring following remediation. If applicable, an operation and maintenance plan will be prepared and implemented for in-situ remediation of diesel hydrocarbon impacts soil in Operable Unit S-5.

9.2 GROUNDWATER REMEDIATION

Recommended remedial alternatives for GW-1 and GW-2 include groundwater extraction, treatment and discharge. Groundwater monitoring would be conducted during the remedial action (3 to 30 years, depending upon several factors). Because the recommended remedial alternatives for Operable Units GW-1 and GW-2 are the same (Alternative 4), operation and maintenance requirements will be essentially the same. Operation and maintenance for the groundwater operable units are therefore discussed together. Specific operation and maintenance requirements for the system or systems used to remediate Operable Units GW-1 and GW-2 will depend on the treatment technology and pumping rates selected. General operation and maintenance needs are discussed below.

If necessary, a long-term groundwater monitoring and maintenance plan will be prepared for groundwater in Operable Unit S-5. The monitoring and maintenance plan will identify specific monitoring parameters and frequency. Monitoring and maintenance reports will be submitted to the DTSC annually.

9.2.1 Post-Construction Activities

System Operation

Each well will have a submersible electric pump to extract groundwater. Controls will be used to monitor the operation of each pump and of the treatment system. Controls will include safeguards to

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prevent discharge of untreated water to the sewer. In addition, any loss in pressure as a result of a leak of underground piping will automatically cause the pump to shut off. If required to preserve storm drain capacity during storm events, the treatment system will be designed to shut down automatically during rain storms.

System Maintenance

Groundwater treatment systems would be operated 24 hours a day. After the initial start-up period for an air stripper, maintenance would be minimal and will include sampling of the treated effluent and periodic shutdown and cleaning of the air stripper. Maintenance of a UV-oxidation system (if selected) would include periodic cleaning and/or replacement of ultraviolet lights when they burn out. Maintenance of a granular activated carbon system would be greater than for either of the other two systems and would include replacement of used carbon on a regular basis. Carbon is typically contained in large vessels. Each carbon vessel would be replaced periodically, depending on how quickly the adsorptive capacity of the carbon is used up. Major factors influencing carbon life are groundwater contaminant concentrations and total flow of contaminated water into the treatment unit.

Inspection

A **Site Supervisor** will be designated within 30 days of DTSC approval of the Remedial Action Design Work Plan. A letter identifying the designated Site Supervisor and specifying the rationale for choosing him or her will be sent to the DTSC. This selection will be subject to DTSC review and approval.

The Site Supervisor's responsibilities will include immediately reporting to DTSC unusual operating conditions, such as high or low pressure, burnt-out UV light bulbs, etc. The Site Supervisor will also be responsible for making sure that the treatment system is checked every time samples of treated effluent are collected. He/she will be responsible for the preparation and submittal of an annual inspection report to the DTSC. This report will detail the results of inspections, unusual conditions discovered, and repairs undertaken (including their location and extent).

Replacement

Although it is assumed that extraction pumps may require periodic replacement, it is also assumed that whatever treatment system is used, its components will require minimal replacement. Replacement of one or more extraction pumps is expected to occur every 5 to 10 years.

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Monitoring

Groundwater Alternative 4 provides for two kinds of monitoring during groundwater clean-up:

- Sampling and testing the quality of groundwater using monitoring wells.
- Sampling and testing the quality of groundwater before it enters the treatment system, and treated effluent before it is discharged into the sewer.

On-going groundwater quality monitoring will include collecting samples from approximately 30 monitoring wells located both on- and off-site. Representative groundwater samples will be submitted to an analytical laboratory and tested to assess levels of the contaminants of concern (nickel, volatile organic compounds, and volatile aromatic compounds. Groundwater monitoring is expected to continue for several years (or until groundwater clean-up is completed).

To monitor the performance of the treatment system, samples of treated effluent will be collected from the treatment unit and tested. Treated effluent will be submitted to an analytical laboratory and tested to measure levels of the contaminants of concern (nickel, volatile organic compounds, and volatile aromatic compounds). The frequency of effluent testing will depend on the type of treatment used. If air stripping or UV-oxidation is selected, treated effluent would be tested every week for the first three months, then every month for the next three months, and finally, every three months for the next several years, depending on the number of wells and total flow rate into the treatment unit.

If a granular activated carbon system is used, more frequent testing may be required because the efficiency of carbon decreases over time. Testing will occur frequently enough to assess when the carbon canisters need to be changed. Treated effluent testing may be done as often as every four days (for flows of 200 gallons per minute) or every 15 days (for flows of 20 gallons per minute) if granular activated carbon is used.

9.2.2 Cost of Post-Construction Activities

The cost of operation and maintenance of groundwater treatment depends on the type of system used, the number of extraction wells, and the total flow into the treatment unit. The yearly cost of system operation and maintenance and groundwater monitoring for both operable units is expected to range from approximately $77,000 to $96,000.

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9.2.3 Performance Assurance

A groundwater monitoring report and a report describing system operation and maintenance, including the results of analysis of treated effluent, will be submitted on a yearly basis to the DTSC. These reports will demonstrate that UPRR has conducted all post-construction activities specified in this Final Remedial Action Plan.

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11.0 GLOSSARY

11.1 INTRODUCTION

The purpose of the glossary is to provide definitions for words which may be unfamiliar to the reader. Some of the words used in this Draft Final Remedial Action Plan have specific meaning for certain technical specialists which may not be apparent to people unfamiliar with the specialty. In this glossary, words having special technical meaning are defined using the technical meaning. The technical specialty with which the word is associated is included in brackets ([ ]) at the beginning of the definition. Site-specific references are included where appropriate.

11.2 DEFINITIONS

Abandon(ment) [GEOLOGY, ENGINEERING] — Refers to the practice of closing or sealing a well, mine shaft, or other underground feature such as piping. Well abandonment is performed using industry-accepted and/or agency-required procedures and usually includes filling the well casing with cement grout.

Adsorbed [CHEMISTRY] — See **adsorption.**

Adsorption [CHEMISTRY] — The process through which molecules (or small particles) of one substance become attached to particles of another substance. Metals dissolved in groundwater can become **adsorbed** to clay particles. Adsorption can also be used to remove organic contaminants from air or water using activated carbon or other similar material.

Advection [HYDROGEOLOGY] — The process through which contaminants move in groundwater in the direction of groundwater flow.

Air Stripper [ENGINEERING] — Equipment designed to remove groundwater contaminants by enhancing the circulation of an air flow through water. **Volatile** compounds turn into vapor form, and are removed from groundwater in the form of contaminated air. If necessary, the contaminated air can be treated to remove or destroy the contaminants before release to the atmosphere.

Ambient — Pertaining to the natural (undisturbed) environment. In site-specific terms, ambient air quality refers to normal air quality in the site vicinity, excluding any impacts to air quality which may be due to conditions at the site. Ambient air quality may be poor in some areas due to environmental pollutants from a variety of sources.

Analysis — A method of determining a scientific fact. Depending on the goal, analysis may involve the use of mathematical calculations, laboratory testing, or the application of critical thinking skills and specialized knowledge.

Applicable or Relevant and Appropriate Requirements (ARARs) — Federal, state, or local regulatory standards, requirements, criteria, or limitations that are determined legally to be applicable or relevant and appropriate. Under the Comprehensive Environmental Recovery, Compensation, and Liability

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Act, remedial action at Superfund sites must comply with the ARARs which have been identified for each site

Assemblage [GEOLOGY] — A readily identifiable natural grouping of geologic features, such as sedimentary layers, which are correlatable from one area to another.

Backfill(ing) [ENGINEERING, GEOLOGY] — Material used to fill a man-made hole or trench (such as soil, gravel, concrete); the act of placing backfill.

Background Concentration [GEOLOGY] — The concentration of a chemical in areas surrounding the site which have presumably not been affected by site activities. Many toxic chemicals are found naturally in soil and water. The types and concentrations of chemicals normally found in soil and water varies regionally. In some areas, normal background concentrations of chemicals in soil or water can pose a health risk.

Ballast [ENGINEERING] — Coarse gravel or crushed rock laid down to form a structural base for railroad tracks.

Basin [GEOLOGY, HYDROLOGY] — Topographic (surface) feature or subsurface structure that is capable of collecting, storing, and discharging water. A lake is an example of a basin. A groundwater basin is a contiguous underground feature of soil, sediments, and/or fractured rock where groundwater collects. The Central Valley is one groundwater basin composed of thick sediment deposits

Bioavailable [TOXICOLOGY] — The degree to which a chemical is capable of being effectively absorbed by human or animal organ systems, once taken into the body through ingestion, inhalation, or other pathways. Bioavailability of a chemical is an important part of determining its toxicity and health risks associated with exposure to it.

Biological Receptors [TOXICOLOGY] — Organisms (such as people, animals and plants) that can be affected by a substance or material if exposed by breathing, swallowing, and/or skin contact.

Bunker Fuel — A heavy residual petroleum oil used for fuel by ships, industry, and large-scale heating and power production installations.

By-Product — Something produced in the making of something else.

California Environmental Quality Act (CEQA) — A group of state regulations and procedures which agencies and developers must use to assess the environmental impacts of a proposed land development project or land use.

California Natural Diversity Data Base [BIOLOGY, NATURAL SCIENCE] — A computerized data base of rare, threatened or endangered species together with the location of potential and known habitat and last known sightings. The Natural Diversity Data Base is maintained by the California Department of Fish and Game.

Capital Costs [ECONOMICS, BUSINESS] — Costs for equipment, or improvement or additions to a property or facility.

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Carbon Adsorption [ENGINEERING, CHEMISTRY] — A physical contaminant removal process using granular activated carbon which, because of its large surface area, has the ability to trap and remove organic contaminants from air or water

Carcinogenic [TOXICOLOGY] — cancer-causing

Chemical Analysis [CHEMISTRY] — Testing to evaluate the presence and concentration of chemical substances. Chemical analysis usually refers to precise special tests performed in a laboratory, but some test kits are available which allow less precise results outside of a laboratory setting.

Claypan [GEOLOGY, ENGINEERING] — A layer of compact, very stiff to hard, non-cemented clay. Claypan usually impedes the flow of water.

Clean Fill — A construction term referring to clean material (usually soil and/or gravel) used to fill an excavation or depression, or raise ground surface elevation on a site.

Clean-up — Action taken to deal with a release or threatened release of hazardous substances that could affect human health and/or the environment.

Clear and Grub — A construction term referring to removal of unwanted trees, shrubs, weeds, and debris or trash from a property.

Climatology — The study of the regional variation of weather patterns over many years.

Coliform Bacteria [MICROBIOLOGY] — Type of bacteria often found in human and animal feces. May cause illness if ingested. Possible sources of coliform bacteria in groundwater include livestock feed lots, inadequate septic systems, and sewer leaks.

Compliance (Regulatory Compliance) — The act of obeying a regulation or law.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) — Provides for liability, compensation, clean-up, and emergency response for hazardous substances released into the environment and clean-up of inactive hazardous waste disposal sites.

Conservative Assumptions — Conservative assumptions are assumptions that tend to produce a worst-case estimate. The Health Risk Assessment methodology developed by the United States EPA uses conservative assumptions to estimate human health risks posed by environmental contaminants. The term may also be applied to cost estimates or other technical estimates (such as contaminant transport rates).

Contaminant Mobility [HYDROGEOLOGY, HYDROLOGY] — the ability of a contaminant to move through air, soil, surface water, or groundwater.

Contaminant — A substance which is present at a concentration greater than normal (background concentration) in air, soil, or water; a pollutant.

Criterion — A standard, rule, or test, forming the basis for a decision or judgment. The plural is **criteria**.

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Degreaser — A solvent used to remove grease from machinery or equipment.

Demography — The statistical study of human populations.

Dermal Contact [TOXICOLOGY] — Touching or allowing the skin to come into contact with contaminated material (such as soil and/or groundwater). A type of exposure pathway.

Dilution - [CHEMISTRY] The process of reducing the concentration of a solution. Dilution of contaminated groundwater occurs naturally as a contaminant plume migrates into uncontaminated groundwater.

Dispersion [CHEMISTRY] — The process of breaking up or scattering. Dispersion of soil contaminants can occur due to small particles of contaminated material being carried by wind.

Dissolution Kinetics [CHEMISTRY] — The chemical and physical circumstances under which chemicals become dissolved. A study of dissolution kinetics would include identifying potential solvents and running a series of laboratory tests to assess how well the target chemicals dissolve in them. Temperature and pH can also have an effect on how soluble a chemical will be in a given solvent.

Downgradient [GEOLOGY, HYDROLOGY] — The direction in which the elevation of the water table declines relative to another location. Groundwater flows in the downgradient direction similar to the way surface water flows downhill.

Downwind — The direction in which air travels relative to another location. If a person stands downwind of an odor source, he or she will likely be able to detect the odor.

Effluent [ENGINEERING] — An outflow or discharge of wastewater. Treated effluent is wastewater that has been treated to achieve a water quality standard. Water quality standards for treated effluent vary, depending on the ultimate fate of the effluent.

Electromagnetic Survey [GEOLOGY, ENGINEERING] — A field investigation technique using an instrument which measures magnetic fields in order to locate or detect the presence of underground metallic objects, such as piping, tanks, or drums.

Electroplating [CHEMISTRY] — A process through which a dissolved metal is removed from a solution by electric current and deposited on the article to be plated.

Environmental Impacts — Effects on the environment. These impacts can be either negative (adverse) or positive (beneficial).

Estimated Lifetime Cancer Risk [TOXICOLOGY] — The sum of all calculated cancer risks a given receptor will experience in a lifetime. Used to estimate the likelihood that cancer will result from known exposures. Estimated Lifetime Cancer Risk is usually presented as a ratio, such as one in one million. This means that for every one million receptors experiencing the same exposure during their lifetime, it is estimated that one of them will contract cancer caused by that exposure.

Exposure Pathways [TOXICOLOGY] — The potential means of exposure to contaminants. These may include ingestion, inhalation, or direct contact with contaminants.

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Exposure Scenarios [TOXICOLOGY] — The activities or circumstances which may cause receptors to be exposed to contaminants.

Extraction Well [GEOLOGY, ENGINEERING] — A groundwater well used to remove or extract groundwater from the subsurface. Often, the water is extracted by a pump placed in the well.

Feasibility Study — An engineering study used to identify and evaluate alternative ways of cleaning up contaminants or reducing significant health risks at a site. Alternatives are analyzed based on a variety of criteria, and ranked based on their ability to achieve the clean-up goals in a cost-effective manner. The selected alternative is the alternative that offers the most benefits, while incurring the fewest adverse impacts.

Final Candidate Alternatives — Under CERCLA Feasibility Study guidance, final candidate alternatives are the ones that survived screening and were selected for detailed analysis in the Feasibility Study.

Flood Plain Deposits [GEOLOGY] — Fine-grained sediments (clays, silts, and fine sands) deposited adjacent to a river channel when a river overflows its banks during a flood stage.

Flora [BIOLOGY] — Plants.

Food Chain [BIOLOGY] — A succession of organisms in a community that make up a feeding chain in which food energy is transferred from one organism to another as each consumes a lower member and in turn is preyed upon by a higher member.

Forbes [BIOLOGY] — Herbaceous plants other than grass. Usually found in fields or meadows.

Geophysical Investigation [GEOLOGY] — Subsurface exploration (either from the surface or in a borehole) that relies upon the relative physical properties of rock and soil to assess subsurface conditions. Ground-penetrating radar is one surface geophysical method that uses sound waves to locate variations in subsurface features.

Granular Activated Carbon [ENGINEERING] — A form of carbon used to remove contaminants from air or water. The contaminants **adsorb** to the carbon as the contaminated stream passes through it.

Groundwater Basin — see **Basin**

Groundwater Modeling [HYDROLOGY] — Mathematical methods of estimating flow characteristics of groundwater. Many groundwater models are computer based and allow the user to use site-specific geological information to predict groundwater movement and contaminant transport over several years.

Groundwater Monitoring [GEOLOGY] — Program designed to measure groundwater quality in monitoring wells and to track contaminant plumes as they move through groundwater. Samples of groundwater are taken from the wells and laboratory tests are used to determine the level of contaminants present.

Groundwater Gradient [HYDROGEOLOGY, HYDROLOGY] — The rate of change of water table elevation per unit distance. The gradient indicates both the direction of groundwater flow and the steepness of the water table surface.

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Habitat [BIOLOGY] — The environment in which an organism or biological population usually lives or breeds.

Hardpan [GEOLOGY] — A layer of hard, cemented subsoil or clay. Hardpan often exhibits relatively low permeability to water.

Hazard Index [TOXICOLOGY] — A ratio comparing the estimated exposure to a non-cancer-causing contaminant with acceptable exposure guidelines and/or standards.

Hazard Quotient [TOXICOLOGY] — The sum of one or more **Hazard Indices** which produce the same effect (such as liver damage). If the Hazard Index for a given health effect is greater than 1, the effect of the exposure is considered to be significant.

Hazardous Substance — Any material or waste that may pose a substantial present or potential threat to human health and/or the environment.

Hazardous Substances Release Sites — Sites where hazardous materials have been released into the environment due to the activities of man.

Health Risk Assessment [TOXICOLOGY] — An evaluation of the risk posed by contaminants to the public. The results of this evaluation are used to assess the need for and/or type of clean-up which may be needed at a hazardous substance release site.

Hot Spots — Areas where contaminant concentrations are unusually high compared to the rest of the site.

Hydrogeology — The study of the interrelationship of geologic materials and processes with water.

In-Situ [GEOLOGY] - Refers to actions taken without removing the matter of interest (such as soil or groundwater) from its place.

In-Situ Groundwater Sampling [GEOLOGY] — A method of obtaining a groundwater sample without using a well. Typically consists of driving or pushing a sampling device into soil below the groundwater table. Groundwater flows into the sampling device, and can then be removed for laboratory testing. Often used to assess the extent of a groundwater contaminant plume, but less suitable for long-term groundwater monitoring because of high cost.

Infiltration [HYDROGEOLOGY] — The process through which liquids permeate soil by passing through the spaces between soil particles.

Ingest [TOXICOLOGY] — To take in by swallowing.

Insoluble [CHEMISTRY] — Not capable of becoming dissolved in. For example, oil is insoluble in water, but some oils contain other chemicals which are soluble in water.

Interim Remedial Measures — Clean-up actions taken to immediately reduce the potential for exposure to contaminants. Typically interim remedial measures are short-term remedies and/or small-scale clean-up measures.

Lagging Material — A type of pipe insulation.

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Land Use Covenant — A document which provides information about residual contamination at a site. The document is an agreement which would be entered into by DTSC and UPRR. The agreement would have provisions to notice the deed to the property, to ensure monitoring and maintenance is conducted as required, and restrict land use as appropriate.

Leachability [GEOLOGY, CHEMISTRY] — The ability of a contaminant to dissolve in water (or other liquid), thereby enhancing the mobility of the contaminant in soil.

Leachate [GEOLOGY, CHEMISTRY] — Contaminated liquid resulting from contact of water (or other solvent) with soluble contaminants.

Lye [CHEMISTRY] — A caustic solution of potassium hydroxide or sodium hydroxide used in industry.

Maximum Contaminant Level(s), or MCL - Maximum allowable concentration of a chemical in drinking water. MCLs are established by either the United States Environmental Protection Agency or the California Environmental Protection Agency. Primary MCLs are intended to be protective of human health, whereas secondary MCLs are developed in consideration of other criteria such as taste or odor.

Mean Sea Level — The elevation of the ocean's surface, halfway between high and low tide. The elevation of mean sea level is often used as a reference point for surveys of elevation.

Medical Surveillance — A program whereby hazardous waste workers are periodically examined by a doctor to see if their health is being (or is likely to be) affected by their work environment. A medical surveillance program may also include periodic blood and urine tests, x-rays, and lung-function tests, depending on the hazardous substances to which the worker is exposed.

Medium — An entity in which objects exist and events take place. The plural form of the word is **media**. Relevant examples of media are air, water, soil, and groundwater.

Meteorological Station — A temporary or permanent installation where instruments are used to measure climate data such as temperature, wind speed and direction, relative humidity, and rainfall.

Micrograms per deciliter [CHEMISTRY] — A unit of measure for concentration in a liquid. If a child has a lead concentration of 10 micrograms per deciliter in his or her blood, it means that for every deciliter (1/10th of a liter) of blood, 10 micrograms (10 one-millionths of a gram) of lead were detected.

Mobility [GEOLOGY, HYDROGEOLOGY] — The ability of contaminants to move. Mobility depends on the contaminant, the **medium** in which it is found, and many other factors.

Modified Proctor Test — A standard test used to measure the maximum density that can be achieved during compaction of soil. This test is used to assess whether soil is suitable for use as engineered fill and the best soil moisture content to use during fill placement.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP) — Federal regulations governing procedures for preparing for, and responding to, releases of hazardous substances into the environment.

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Non-Binding Preliminary Allocation of Financial Responsibility — An agreement (non-binding) naming the party who will pay for remedial action at a hazardous substance release site.

Occupational Safety and Health Act — Federal regulations contained in 29 CFR (Code of Federal Regulations) for general industry (Part 1910) and construction activities (Part 1926) that includes general health and safety standards for workers' protection.

Operable Unit — For a Feasibility Study, an operable unit is a type, volume, or area of contaminated medium which, because of its unique chemical and/or physical characteristics, can be addressed most efficiently and economically as a unit.

Operation and Maintenance — Activities conducted after implementation of a recommended remedial alternative to ensure that it is functioning properly.

Overpack Container — Typically, a polyethylene container which is large enough to contain a 55-gallon drum. It is designed to withstand chemical degradation and is used to package drums which may potentially leak or are leaking so that they can be shipped safely with minimal risk of a release due to handling and transport.

Parts per million — A unit of measurement for concentrations. One part by weight of chemical contained in one million parts of material, for example soil.

Perched Groundwater Table [GEOLOGY] — A localized phenomenon where groundwater is held above the main groundwater table, usually by a low-permeability geologic formation (such as clay or hardpan).

Permeability [ENGINEERING, GEOLOGY] — Ability of material to permit passage of liquid through itself. In general, gravels and sands are very permeable; whereas silts and clays often exhibit low permeability.

Personal Protective Equipment — Special clothing and equipment used to minimize worker contact with contaminated materials. Selection of personal protective equipment depends on the type of contaminants, their form, and other site-specific factors, and may include air-purifying respirators, plastic coveralls, boots, and/or gloves.

Petroleum Hydrocarbons [CHEMISTRY] — Organic compounds commonly found in petroleum products that contain carbon and hydrogen only.

Plume [HYDROGEOLOGY, ENGINEERING] — A contaminated portion of air or groundwater.

Polycyclic Aromatic Hydrocarbons [CHEMISTRY] — Hydrocarbon compounds consisting of two or more fused benzene rings containing only hydrogen and carbon atoms. A common minor component of diesel fuel and asphalt.

Potentially Responsible Party — Any individual or company (including owners, operators, transporters, or generators of hazardous substances) potentially responsible for, or contributing to, contamination at a hazardous substances release site.

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Pre-treatment System — A treatment system designed to remove gross contamination or compounds that might interfere with treatment. Pre-treatment is sometimes used to increase the efficiency of the following treatment steps.

Priority Pollutant — One of several chemicals judged by the U.S. EPA to be of concern to human health or the environment.

Range [ENGINEERING] — Any series of townships of the U.S. Public Land Survey System aligned north and south and numbered consecutively east or west from a standard regional baseline.

Real-Time Direct-Reading Instruments — Monitoring instruments capable of providing specific data essentially instantaneously. Contrast to other instruments that collect a sample which must be then sent to a laboratory for analysis, or instruments that indicate whether a constituent is present, but not the concentration.

Recommended Remedial Alternative — An alternative for clean-up of contamination that has been recommended based on several criteria considered during a feasibility study evaluation.

Remedial Investigation — A study including collection and analysis of soil, groundwater and air samples to assess the nature and extent of contamination at a site.

Remedial Action Objectives — Medium- and contaminant-specific clean-up goals for protecting human health and the environment.

Remedial Alternative — One or more remedial technologies assembled into one alternative clean-up plan. Each alternative should include technologies which, combined, will address all contaminants in the medium of interest (soil or groundwater, for this site).

Remedial Technologies — Methods used to clean up environmental contamination. Some examples of remedial technologies are chemical or physical treatment, and containment.

Remedial Action Plan — Document that provides information regarding contaminants present at a hazardous substances release site and the proposed clean-up strategies.

Remedial Action Design Work Plan — Provides detailed design information and engineering specifications about the recommended remedial alternatives for clean-up of a hazardous substances release site.

Remediation — Correction or clean-up of environmental contamination.

Resource Conservation and Recovery Act (RCRA) — Federal regulations governing procedures for treating, transporting, storing, and disposing of hazardous substances.

Rinsate — Liquid (usually water) left after washing or decontaminating an object.

Riparian [BIOLOGY] — Living or located on a riverbank.

Risk Characterization [TOXICOLOGY] — Mathematical estimates of health risks associated with exposure to environmental contaminants. Risk Characterization is part of a Baseline Health Risk Assessment.

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Section [ENGINEERING] — The unit of survey of the U.S. Public Land Survey System, representing a piece of land that is 1 mile by 1 mile. There are 36 Sections per Township.

Sediment [GEOLOGY, ENGINEERING] — Solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its origin by air, water, or ice, and has come to rest on the earth's surface.

Site Health and Safety Plan — A plan defining the procedures and equipment required to protect the health and safety of remediation workers during clean-up activities.

Site Supervisor — The person designated in the Site Health and Safety Plan who is responsible for making sure that all site visitors and workers follow the Health and Safety Plan rules, or a person designated responsible for operation and maintenance of remediation systems.

Slag [MINING, ENGINEERING] — The vitreous (glassy metallic) mass left as a residue of metallic ore smelting.

Soil Vapor Study [GEOLOGY, ENGINEERING] — An investigative method used to assess the concentration of organic contaminants (in vapor form) within soil pores. Soil gas surveys typically use soil gas probes which are inserted below ground. Soil gas flows into the probe, and is collected and analyzed for contaminants of concern. Soil vapors may come from volatile liquid contaminants in soil.

Solvent [CHEMISTRY] — A liquid capable of dissolving other substances. Common household organic solvents include paint thinner, spot remover, paint remover, and nail polish remover. Many organic solvents are potentially toxic. Water is also a solvent for some compounds.

Spent Carbon [ENGINEERING] — Activated carbon which is no longer effective in adsorbing contaminants. Typically, this occurs when contaminants fill pore space within a carbon bed and there is no room for additional contaminants to be adsorbed to carbon surfaces. Spent carbon may be recycled or disposed.

Stoddard Solvent — A type of petroleum product with a standard chemical formulation. Often used as a solvent and in dry cleaning.

Surface Impoundment — A man-made pond designed to contain liquids. Unlined surface impoundments are a potential source of groundwater contamination if used to store liquids containing hazardous substances.

Thermal Oxidation [ENGINEERING] — A process that removes or destroys organic contaminants using heat treatment.

Total Present Worth Cost — The net present worth of a series of cash disbursements over a given time, with a given interest rate. Expressed as an equivalent sum of money in present day dollars. Conceptually, the total present worth cost is the amount of money that must be deposited in a savings account today, if the money and the interest it earns are to be used to pay a series of debts whose amounts and future due dates are known.

Total Dissolved Solids [CHEMISTRY] — The concentration of minerals and other substances dissolved in water. A common indicator of water quality.

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Township [ENGINEERING] — The unit of survey of the U.S. Public Land Survey System, representing a piece of land that is approximately 6 miles by 6 miles with a specific north/south and east/west boundary.

Toxicity — The degree to which a chemical compound can cause illness in humans or animals.

Track Ballast — see **Ballast.**

Trespasser — An individual who gains unauthorized entry to a property.

Upwind — The direction from which air travels. If a person stands upwind of an odor source, he or she will probably not detect the odor.

UV-oxidation [ENGINEERING] — A process using the properties of ultraviolet light to chemically alter or destroy organic contaminants in groundwater.

Volatile Aromatic Compounds [CHEMISTRY] — A type of volatile organic compound containing one or more benzene rings in its molecular structure.

Volatile Organic Compounds [CHEMISTRY] — Any of a group of organic compounds that can volatilize (vaporize) at normal temperatures and pressures.

Volatilization [CHEMISTRY] — The process of turning into a vapor. Water volatilizes when it evaporates.

Waste Characterization — Laboratory tests or other analyses used to assess the chemical composition of waste materials.

Water Table [GEOLOGY] — The surface of a groundwater body. Water tables are often reported in terms of depth below the ground surface or elevation with respect to Mean Sea Level.

Water-Bearing Zone [GEOLOGY] — Subsurface zone made up of gravel, sand, silt or porous rock that contains or yields groundwater.

Weedy Species [BIOLOGY] — Highly competitive plants that tend to choke out other species, and are among the first to colonize cleared land.

Well Casing [GEOLOGY, ENGINEERING] — Slotted pipe casing (usually plastic or stainless steel) installed in a soil boring to make a groundwater well. Groundwater flows through the slots into the casing, where it can then be sampled or pumped to the surface.

LETTER 5: SIERRA CURTIS NEIGHBORHOOD ASSOCIATION

Response to Comment 5-1

The comment is an introductory statement and does not address the adequacy of the DEIR.

Response to Comment 5-2

The comment is a generalized statement and recommends that the DEIR be recirculated.

Response to Comment 5-3

The comment is a generalized statement regarding the DEIR and lacks adequate information to issue a response. See Responses to Comments 5-12 through 5-16 for detailed information regarding the environmental impacts associated with the hazardous materials and cleanup required at the site.

Response to Comment 5-4

The comment is a generalized statement regarding the DEIR and lacks adequate information to issue a response. See Responses to Comments 5-17 through 5-25 for detailed information regarding the range of alternatives chosen for the site.

Response to Comment 5-5

The comment is a generalized statement regarding the DEIR and lacks adequate information to issue a response. See Responses to Comments 5-26 through 5-32 for detailed information in regard to the project description.

Response to Comment 5-6

The comment is a generalized statement regarding the DEIR and lacks adequate information to issue a response. See Responses to Comments 5-33 and 5-34 for detailed information regarding traffic impacts of the proposed project.

Response to Comment 5-7

The comment is a generalized statement regarding the DEIR and lacks adequate information to issue a response. See Responses to Comments 5-35 through 5-39 for detailed information regarding land use designations for the site as related to the City of Sacramento General Plan.

Response to Comment 5-8

The comment is a generalized statement regarding the DEIR and lacks adequate information to issue a response. See Response to Comment 5-40.

Response to Comment 5-9

The comment is a generalized statement regarding the DEIR and lacks adequate information to issue a response. See Responses to Comments 5-41 through 5-46 for detailed information regarding greenhouse gas (GHG) emissions discussion.

Response to Comment 5-10

The comment is a concluding statement and does not address the adequacy of the DEIR. Recommendations will be forwarded to decision-makers for their consideration.

Response to Comment 5-11

The comment is a generalized statement regarding the DEIR and lacks adequate information to issue a response, but will be forwarded to decision-makers for their consideration.

Response to Comment 5-12

As noted on page 3-4, of the DEIR, the approved RAP assumes that all contaminated soils would be removed from the Curtis Park Village site via rail or trucks. However, subsequent to the approval of the 1995 RAP, the volume of contaminated soils was found to be more than assumed in the RAP. Because removal by rail or truck is not economically feasible, the project proponent proposes to change the methods for disposal of the additional soils.

At the top of page 3-5, of the DEIR, is the list of the potential remedies for addressing the additional contaminated soils. The DEIR analyses the potential environmental effects resulting from these remedies. Each impact in the DEIR is divided between an analysis of the update to the RAP and the Curtis Park Village project. These analyses include information about the baselines, anticipated changes, and the basis for the impact assessments. The potential remedies are analyzed for impacts to air quality; transportation and circulation; noise; biological resources; cultural resources; geology and soils; public health; hydrology, water quality, and drainage; public services and utilities; and parks (see Chapter 5 of the DEIR). For these reasons, the statement on page 1-2 of the DEIR is correct. The DEIR examines the potential *remedies* that could be used to address the additional volumes of contaminated soils. The DEIR does not contain the specific engineering design details of the proposed cleanup option. However, this DEIR does not examine the *remedial actions* necessary to implement the potential remedies. As noted on page 5.8-11, of the DEIR, consistent with the requirements of SB 120, DTSC cannot approve the update to the RAP until the City has approved a land use plan for the project site, such as the Curtis Park Village project. As noted on page 5.8-7, of the DEIR, following approval of the EIR by the City of Sacramento, the draft updated RAP would be submitted to DTSC for review and approval. Because the specific remedial actions and cleanup standards cannot be determined by DTSC until the City Council approves a land use plan for the Curtis Park Village site this DEIR intentionally does not contain information about the specific actions, such as size/location of the containment cells and types of membranes.

As noted on page 5.8-7, of the DEIR, the draft updated RAP would be circulated for public review for a minimum of 30 days. The Draft RAP would include detailed descriptions of the remedial actions that would be undertaken. The public will have the opportunity to comment on the remedial actions at that time. Following the RAP public review, the Final RAP would be prepared. The Final RAP would incorporate the public comments received during the review of the draft updated RAP. DTSC has the authority to approve the RAP.

DTSC and the preparers of the DEIR coordinated during the preparation of the DEIR to ensure that the EIR for the Curtis Park Village project (SCH 2004082020) includes the analyses of the potential impacts due to the potential remedies. DTSC reviewed the Draft EIR. See Letter 4 DTSC sent during the public review period of the DEIR and the City's responses to their comments.

Response to Comment 5-13

As stated on page 5.8-7 of the DEIR, "Following approval of the EIR by the City of Sacramento, the updated RAP would be submitted to the DTSC for review. The DTSC would review the Curtis Park Village EIR to ensure that all of the environmental impacts have been adequately addressed, as they pertain to the remediation remedies proposed in the updated RAP, and the draft updated RAP would be circulated for public review for a minimum of 30 days (separate from the CEQA public review required for the Curtis Park Village EIR). Following the RAP public review, the Final RAP would be prepared. The DTSC-approved Final RAP would include detailed descriptions of the remedial actions that would be undertaken, and would incorporate public comments received during the review of the draft updated RAP." The comment lacks adequate information to issue a more specific response.

Response to Comment 5-14

Pages 5.8-1, 5.8-2, and 5.8-4 of the DEIR includes a description of the existing environmental setting of the Curtis Park Village project including existing on-site uses, historical uses of the site, and surrounding sensitive receptors. Furthermore, page 5.8-2 and 5.8-4 of the DEIR includes a description of the on-site hazards related to the RAP activities and the Curtis Park Village project. Impact statement 5.8-1 on page 5.8-8 of the DEIR states that Metals, Petroleum Hydrocarbons, Semivolatile Organic Compounds (SVOCs) are the remaining chemicals present in the project area. A discussion of each of the toxins found to exist on the project site includes information such as the extent of contamination and potential remediation methods.

Page 5.8-2 of the DEIR states that, in 2008, subsequent sampling indicated that additional areas of remediation would be required, which would result in a substantially larger amount of contaminated soil on the site as opposed to what was previously anticipated. The types of chemicals found on-site have not changed; only the volume of chemicals leading to the revised RAP in order to modify the potential remedies. The DEIR analyzed potential impacts related to the implementation of additional remediation methods. As part of DTSC's review of the revised RAP, it will ensure the adequacy of the environmental review. Should the proposed remedies need to be modified, DTSC will determine whether additional CEQA review is required.

Response to Comment 5-15

See comment 4-2 on page 3.1-26 of this chapter, which was submitted by the DTSC and states the following:

> "…As you are aware, as a Responsible Agency under the California Environmental Quality Act (CEQA), DTSC has been coordinating with the City to ensure the Draft EIR contains an analysis of potential impacts associated with activities to be contained in a proposed Remedial Action Plan amendment (RAP) subject to DTSC approval that would address additional contamination found at the proposed project site…"

The City and the DTSC had several meetings and phone conversations and DTSC participated in the review of the Administrative DEIR.

Response to Comment 5-16

The commenter refers to Appendix A for more detailed information regarding issues associated with toxins on the project site and the cleanup and mitigation issues. See Response to Comments 5-47 through 5-85 for response to comments presented in Appendix A.

Response to Comment 5-17

Five alternatives were explored in Chapter 7.0 of the DEIR. In addition, three alternatives were considered but dismissed from further consideration because they were not considered viable. The alternatives explored are in compliance with CEQA Guidelines 15126.6. As stated on page 7-2 of the DEIR:

> According to the CEQA Guidelines Section 15126.6(f), "[…] the alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project." In addition, alternatives must be feasible. Section 15126.6(f)(1) defines feasible as "[…] 'capable' of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

CEQA Guidelines Section 15126.6 (a) states "[…] An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation." Although the alternatives presented may be similar in nature, the purpose of the alternatives analysis is to explore feasible options as compared to the proposed project. Table 7-12 on page 7-40 of the DEIR summarizes the impacts of the alternatives directly compared to the proposed project. The purpose of the alternatives analysis is not to compare environmental impacts to other alternatives, but only to the proposed project.

The proposed project includes construction of retail services that would serve the surrounding Curtis Park Village neighborhood and reduce vehicle miles traveled. In addition, the project considered the

No Project/No Build Alternative that would avoid impacts related to vehicle miles traveled and GHG emissions. However, development of the project site with residential or commercial uses would result in the generation of GHG emissions. See the Master Response related to GHG emissions in Chapter 3, Master Responses, of this FEIR.

Response to Comment 5-18

The commenter suggests a fully detailed Transit Oriented Development option be included in the Alternatives analysis. In accordance with CEQA regulations, the DEIR is not required to analyze and include every possible alternative, but rather, a reasonable range of alternatives. Recommendations will be forwarded to decision-makers for their consideration during the review process.

Response to Comment 5-19

As stated on page 7-1 of the DEIR:

> The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6(a) of the California Environmental Quality Act (CEQA) Guidelines, is to "[…] describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Furthermore, Section 15126.6(f) states, "The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice."

As stated on page 7-39 of the DEIR:

> Of the alternatives analyzed, the Single-Family Alternative provides the greatest reduction in the level of environmental impacts while meeting some of the overall objectives of the project, such as completing the environmental cleanup the project site, locating new single-family residences adjacent to existing single-family residences, and minimizing traffic impacts. By eliminating the commercial uses, the Single-Family Alternative would reduce impacts to the following areas: aesthetics; transportation and circulation; air quality; noise; hydrology, water quality, and drainage; and public services and utilities.

The Single-Family Alternative was chosen as the environmentally superior alternative based on the overall reduction of environmental impacts, as compared to the proposed project. Therefore, consistent with the DEIR, the Single Family Alternative would be the most logical choice as the environmentally superior alternative.

Response to Comment 5-20

The commenter suggests a fully detailed Transit Oriented Development option be included in the Alternatives analysis. The DEIR is not required to analyze and include every possible alternative, but rather, a reasonable range of alternatives. Five alternatives were explored in Chapter 7.0 of the DEIR. The proposed project and several alternatives are mixed use projects which include a range of residential densities and size of commercial development. Recommendations will be forwarded to decision-makers for their consideration during project review.

Response to Comment 5-21

The commenter references an alternative submitted by SCNA known as the Village Green Alternative. The comment summarizes the components of the Village Green Alternative. See Response to Comments 5-22 through 5-24 for more detailed responses regarding the Village Green Alternative.

Response to Comment 5-22

As stated on page 7-6 of the DEIR, the Village Green Alternative was dismissed from consideration because the Alternative is not anticipated to reduce environmental impacts that would result from implementation of the proposed project. Furthermore, the Village Green Alternative would not reduce impacts to a greater extent than the alternatives included in the analysis, and could increase impacts as a result of the high number of residential units included in the Alternative. Many of the components of the Village Green Alternative were included in the Reduced Commercial Alternative A, Reduced Commercial Alternative B, and the Multi-family Alternative.

As stated on page 7.4 of the DEIR, Table 5.2-10 in the Transportation and Circulation chapter of the DEIR indicated that the mix of commercial uses included in the proposed project would result in traffic throughout the day, whereas residential traffic typically is concentrated at the peak morning and evening commute hours. Therefore, the substantial number of additional residential units included in the Village Green Alternative would result in greater impacts to traffic.

The analysis of traffic impacts related to the Village Green Alternative is included in the Transportation and Circulation Chapter of the DEIR, Table 5.2-10, on pages 5.2-23 through 5.3-27. Data is presented for seven options in Table 5.2-10. Among the seven options evaluated, Alternatives 3 and 4, like the Village Green Alternative, analyze traffic impacts with reduced commercial square footage. Traffic impacts would be expected to be similar to Alternatives 3 and 4 as presented in Table 5.2-10, and therefore, the analysis would be sufficiently supported by quantitative data.

Response to Comment 5-23

Residential areas generally require additional public services and facilities such as parks and schools. Generally, development of residential units in place of retail commercial uses would generate a similar demand for police and fire services. As the commenter states in comment 5-23, commercial development brings an associated need for housing of employees, which would

result in the need for additional public services. Therefore, the commercial development would not directly increase impacts to public services, but rather residential development would create a more direct impact. In addition, as stated on page 7-4 of the DEIR, due to the increased population associated with the additional residential units, this Alternative would increase the demand for park and school facilities, beyond what is anticipated for the proposed project, thereby increasing associated impacts.

Response to Comment 5-24

The commenter is correct that the payment of school impact fees would fully mitigate and impacts that would result from the proposed project. The proposed project includes the development of 527 residential units, seven greater than anticipated in the General Plan Master EIR. The development of seven additional units would not result in a substantial increase in an environmental impact. However, the Village Green Alternative would result in the development of 602 residential units, 82 greater than anticipated in the General Plan Master EIR. In accordance with CEQA guidelines, the purpose of the Alternatives Chapter is to evaluate impacts as they compare to the proposed project. As stated on page 7-4 of the DEIR, the Village Green Alternative would increase, and furthermore would not reduce, impacts to police and fire protection services, as well as park and school facilities as compared to the proposed project. In addition, the Reduced Commercial Alternative B would contain less commercial space than the Village Green Alternative, and has fewer residential units. The Village Green Alternative was dismissed from consideration because the alternative would increase impacts, and a majority of the components of the Village Green Alternative have been included amongst the other Alternatives in the analysis.

Response to Comment 5-25

To correct text, page 2-9 of the DEIR is revised as follows:

> **Alternative 2: Reduced Commercial Alternative A**
>
> The Reduced Commercial Alternative A would include a reduction in the commercial land use area from approximately 260,000 square feet to 150,000~~100,000~~ square feet. The reduction in square footage in the commercial land-use area from the amount contemplated in the proposed project would instead be developed as single-family residential lots at a density of nine dwelling units per acre.
>
> **Alternative 3: Reduced Commercial Alternative B**
>
> The Reduced Commercial Alternative B would include a reduction of square footage in the commercial land use area from the proposed plan of 260,000 square feet to 100,000 square feet. The reduction in square footage in the commercial land-use area from the amount contemplated in the proposed project would instead be developed as single-family residential lots at a density of nine dwelling units per acre.

The above change is to correct text and does not alter the conclusions of the DEIR.

A detailed analysis of the alternatives is presented in Chapter 7.0, Alternatives. As shown on pages 7-12 and 7-23 of the DEIR, the following tables summarize the Reduced Commercial Alternative A, and Reduced Commercial Alternative B.

Table 7-2
Reduced Commercial Alternative A

Land Use Area	Acreage	Use	Square Feet/Units	Units or Square Feet/Acre
Commercial Use Area	10	Commercial	100,000 s.f.	10,000 s.f./acre
Mixed Use Area	4.3	Commercial	50,000 s.f.	11,628 s.f./acre
		Multi-Family	172 units	40 units per acre
Multi-Family Area	4.6	Multi-Family	138 units	30 units per acre
Single-Family Area	28 acres	Single-Family	252 units	9 units per acre
Off-Site Single-Family Area	1.1	Single-Family	7 units	6.4 units per acre
Parks/Open Space	6.4 net acres	Parks/Open Space	N/A	N/A
Roadways	16.8 acres	N/A	N/A	N/A

Table 7-6
Reduced Commercial Alternative B

Land Use Area	Acreage	Use	Square Feet/Units	Units or Square Feet/Acre
Commercial Use Area	5	Commercial	50,000 s.f.	10,000 s.f./acre
Mixed Use Area	4.3	Commercial	50,000 s.f.	11,628 s.f./acre
		Multi-Family	172 units	40 units per acre
Multi-Family Area	4.6	Multi-Family	138 units	30 units per acre
Single-Family Area	32.2 acres	Single-Family	290 units	9 units per acre
Off-Site Single-Family Area	1.1	Single-Family	7 units	6.4 units per acre
Parks/Open Space	7.0 net acres	Parks/Open Space	N/A	N/A
Roadways	17.6	N/A	N/A	N/A

In addition to Reduced Commercial Alternatives A and B, three other alternatives were considered – the No Project/No Build Alternative, the Single-Family Alternative, and the Multi-Family Alternative. Therefore, the DEIR provided a reasonable range of alternatives.

Response to Comment 5-26

See Responses to Comments 5-28 through 5-32 for more specific responses to the comment.

Response to Comment 5-27

See Responses to Comments 5-28 through 5-32 for more specific responses to the comment.

Response to Comment 5-28

The table provided by the commenter is not accurate. The table below shows a comparison of the page 36 of Appendix D of the DEIR (page 417 of the full appendices), DEIR project description, and FEIR revised project description land uses.

Land Use	DEIR Project Description	FEIR Project Description	DEIR Traffic
Retail	160,000 sq. ft.	154,000 sq. ft	135,500 sq. ft.
Retail/Grocery Store			53,500 sq. ft.
Retail/Book Store			25,000 sq. ft.
Retail/Commercial	16,000 sq. ft.	16,000 sq. ft.	
Other Entertainment	38,000 sq. ft.	38,000 sq. ft.	
Restaurants	2 x 6,500 sq. ft. = 13,000	2 x 6,500 sq. ft. = 13,000	13,000 sq. ft.
Dinner Theater	38,000 sq. ft.	38,000 sq. ft.	502 Seats ~ 38,000 sq. ft.
Total Retail/Commercial	**265,000**	**259,000**	**265,000**
Multi-family Residential	212 units	248 units	212 units
Senior Residential	80 units	90 units	80 units
Single Family Units	178 units	189 units	183 units
Total Residential units	**470 units**	**527 units**	**475 units**
Park/Open Space	8.7 gross/6.8 net acres	8.7 gross/6.8 net acres	7 acres

The traffic analysis assumed a worst-case buildout scenario for the retail portion of the site, including a 53,500 sq. ft. grocery store and 25,000 sq. ft. book store, which would generate additional vehicle trips in comparison to general retail stores.

As stated on page 5.2-1 of the DEIR; "Area 1, located in the southernmost portion of the site, would contain a 53,500 square-foot grocery store, a 25,000 square-foot bookstore, and 76,300 square feet of other retail commercial space." The total approximate square feet would be 154,800." Page 3-10 of the DEIR states that Area 1 would include approximately 160,000 square feet of retail uses. Although there is a difference of 5,200 square feet, it should be noted that the project description describes the 160,000 square feet as approximate. Actual buildout conditions are subject to change.

As stated on page 3-12 of the DEIR, "Other commercial uses would include an additional 38,000 square feet of entertainment uses on the first floor of the same building housing the dinner theater and two restaurant pads of approximately 6,500 square feet…" The DEIR does not attempt to specify the actual square footage of the dinner theatre in this chapter, but rather designates a general square-footage for entertainment purposes.

As stated on page 3-12 of the DEIR, "[…] housing the dinner theater and two restaurant pads of approximately 6,500 square feet each […]" As stated on page 5.2-1 of the DEIR, "[…] Area 3, located north of Area 1 and Area 2, would consist of […] two 6,500 square-foot restaurants […]" The DEIR states in both locations that the proposed project would include two restaurants, which

are 6,500 square feet each. Areas 4, 5, and 6 were included in the traffic analysis and therefore briefly discussed in Chapter 5.2 of the DEIR.

As indicated in the Trip Generation Comparison Memorandum in Appendix D, which compares the proposed project to the land uses as analyzed in the Transportation and Circulation Section, the total number of trips generated by the proposed project is significantly lower than that by the land uses as analyzed in the Transportation and Circulation of the DEIR. While it is correct that different types of land uses may have different distribution patterns, it would not have significant effects on the analysis in this case. An assessment was prepared to figure out if there will be any difference in trip assignments with the revised land uses and it was found that the number of trips generated by the proposed project is lower on all roadways than trips generated by the land uses as analyzed in the DEIR, except at locations indicated in the table below. Considering the small number of trips as shown on the table below, it is clearly justified that the impacts identified for the project evaluated in the DEIR would be as great as or greater than the impacts of the proposed project, and the mitigation measures would be as effective in reducing impacts of the proposed project.

Number of Trips on Roadway under Proposed Project Scenario vs. as Analyzed in Transportation and Circulation Chapter of DEIR

	AM Peak Hour	PM Peak Hour	Saturday Peak Hour
24th Ave northbound	+2		
Donner Way eastbound	+1		
Road J southbound		+2	+2
Sutterville Road westbound			+2
Donner Way westbound			+1

The increase in trips generated by the proposed project for the above locations are minor and would not change the conclusions in the DEIR.

Response to Comment 5-29

Information regarding access to the proposed project site is discussed on page 5.2-3 in Chapter 5.2 of the DEIR. As stated on page 5.2-1 of the DEIR, the transportation analysis was prepared by Dowling Associates, Inc. and addresses the impacts to local streets resulting from the proposed project.

Response to Comment 5-30

The commercial land use area for the proposed project was erroneously listed as 314,000 square feet on page 2-9 of the DEIR. For clarification purposes, the sixth paragraph on page 2-9 of the DEIR is hereby revised to read:

> The Multi-Family Alternative would include a reduction of the total commercial land use area of the proposed project from approximately ~~314,000~~ 260,000 square feet to 194,400 square feet. The reduction in square footage in the commercial

> land-use area from the amount contemplated in the proposed project would instead be developed as multi-family residential lots at a density of 30 dwelling units per acre.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-31

To correct text, the first paragraph on page 3-12 of the DEIR is hereby revised to read:

> The affordable senior housing site in Area 2 would include a four-story building providing ~~80~~90 independent living apartment units and a community room for seniors within the Curtis Park Village community representing a net density of approximately ~~62~~65 units per acre on the 1.4 net (1.7 gross) acre site.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

It should be noted that in addition to revisions to the project description, the applicant submitted a revised Inclusionary Housing Plan (See Appendix D of this FEIR).

Response to Comment 5-32

As noted in Responses to Comments 5-26 through 5-31, the minor modifications noted do not alter any of the conclusions of the DEIR and do not result in substantial new information requiring recirculation.

Response to Comment 5-33

As indicated on page 5.2-32, "[…] the Freeport Boulevard/21st Street Two-Way Conversion Project is included as a baseline project." The assessment of project impacts was performed for baseline conditions, which included adjustments to the traffic volumes to represent baseline conditions after conversion of Freeport Boulevard and 21st Street to two-way operations.

The description of 21st Street under the Environmental Setting section on page 5.2-3 states, "A portion of the one-way segment was recently converted to two-way traffic operations as part of the Freeport Boulevard/21st Street Two-Way Conversion." The description of Freeport Boulevard on the page 5.2-3 states, "As with 21st Street, a portion of Freeport Boulevard was recently converted to two-way traffic operations." These statements are provided to ensure that the description of the environmental setting is accurate, complete, and fully discloses the conditions that existed at the time of the Notice of Preparation.

For clarification purposes, page 5.2-9 of the DEIR is revised as follows:

> At locations where Year 2007 counts are not available, Year 2005 traffic volumes were adjusted based on Year 2007 counts at adjacent locations if the approach volumes are projected to be higher than Year 2005 counts. Traffic volumes were adjusted for the analysis of project impacts to account for the conversion of Freeport Boulevard and 21st Street to two-way operations. Please refer to the Baseline Conditions section.

The above change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-34

Comment 5-34 is a generalized statement regarding traffic related impacts of the DEIR and lacks adequate information to issue a response. See Response to Comments 5-86 through 5-137 for responses specific to Appendix B. See Response to Comments 5-138 through 5-158 for responses specific to Appendix C.

Response to Comment 5-35

As stated on page 4-4 of the DEIR, as well as page 2-68 of the Sacramento 2030 General Plan:

> The Traditional Center designation allows for densities of 15 to 36 du/ac and a FAR of 0.3 to 2.0. This designation provides for predominantly nonresidential, moderate intensity, single-use commercial development or horizontal and vertical mixed-use development that includes the following:
>
> - Retail, service, office, and/or residential uses;
> - Central public gathering places; and
> - Compatible public, quasi-public, and special uses.

As stated in Chapter 1.0 of this FEIR, Introduction and List of Commenters, the applicant submitted revisions to the project description. The Area 1 of the proposed project includes the development of approximately 170,000 sq. ft. of commercial on 11.8 net acres, a Floor to Area Ratio (FAR) of 0.33. Therefore, the commercial portion of the site would consistent with the current General Plan designation of Traditional Center because the proposed project includes development of mixed retail uses and the proposed project complies with the density requirements as stated above.

Response to Comment 5-36

It should be noted that applicant-submitted revisions to the project description include development of the senior units along the western border of the site, adjacent to the railroad tracks and proposed multifamily units. Policy LU 2.1.4 on page 2-16 and Policy LU 4.3.5 on page 2-60 of the Sacramento 2030 General Plan state, "Where a developer proposes a multi-parcel development project, with more than one residential density or FAR, the applicable density or FAR range of the General Plan Land Use Designation shall be applied to the net developable area of the entire project site rather than individual parcels within the site. Some parcels may be zoned for

densities/intensities that exceed the maximum allowable density/intensity of the project's Land Use Designation, provided the net density of the project as a whole is within the allowed range." Furthermore, as stated on page 4-4 of the DEIR:

> The project application includes a request to rezone the project site from Heavy Industrial to Shopping Center (SC-PUD), Single-Family Alternative (R-1A-PUD), Multi-Family (R-4-PUD), Multi-Family (R-5-PUD), and Agriculture-Open Space (A-OS-PUD) in order to be consistent with the Sacramento 2030 General Plan designations (See Figure 3-6 in Chapter 3, Project Description).

A rezone of the proposed project would be approved prior to development of the site. Therefore, with the proposed rezone, the senior development would be consistent with the zoning designation. Upon approval of the project, which includes a General Plan Amendment, the overall project density would be consistent with the Sacramento 2030 General Plan.

Response to Comment 5-37

As stated on page 5.8-11 of the DEIR, consistent with SB 120 requirements, the DTSC cannot approve an update to the RAP until the City has approved land uses for the project site. In addition, SB 120 Section 1(d) states that "[…] the Department of Toxic Substances Control shall not make a determination […] until after the city has completed its land use planning process and all response actions necessary to conform to the approved land use plan are complete." As the level of remediation is dependent on the proposed land uses, approval of land uses must occur prior to the approval of an updated RAP and DTSC determination. Approval of the proposed DEIR land uses would be consistent with and would not circumvent SB 120. Therefore, consistent with the conclusions in the DEIR, approval of the proposed land use would occur prior to approval of an updated RAP. DTSC, through the RAP process, will ensure that the cleanup levels are appropriate for the approved land use, consistent with State law.

Response to Comment 5-38

The primary purpose of the Alternatives Analysis is to explore a range of reasonable alternatives, as they compare to the proposed project, not one another. The Alternatives Analysis Chapter of the DEIR considers consistency with the 2030 General Plan land use designations only where the designations would differ from the proposed project.

Response to Comment 5-39

See Responses to Comments 5-159 to 5-185 for responses specific to Appendix E.

Response to Comment 5-40

The commenter refers to Appendix F of the letter, which includes an air quality analysis by Mr. Earl Withycombe. See Responses to Comments 5-186 through 5-208 for information pertaining specifically to Appendix F.

Response to Comment 5-41

Pages 5.3-18 to 5.3-23, of the DEIR present the analysis of the potential impacts and GHG emission reduction measures related to the project's production of GHG emissions. The discussion in the Draft EIR, which references the 2030 General Plan Master EIR (See Impact 5.3-9 on page 5.3-23 of the DEIR) provides adequate information to decision-makers and complies with the requirements of the California Environmental Quality Act.

Response to Comment 5-42

As with global climate change impacts generally, the City has no substantial evidence that would equate the project emissions with any identifiable climate event. The cumulative effects of development that could occur under the 2030 General Plan were analyzed in the Master EIR.

The Master EIR includes extensive discussion of the potential direct and indirect effects of GHG emissions. See, for example:

Draft EIR: Air Quality (Pages 6.1-1 et seq.)
Final EIR: Climate Change Master Response (Pages 4-1 et seq.)
Errata No. 2: Climate Change (pages 2 et seq.)

The Draft EIR refers to the analysis included within the Master EIR. Utilizing the analysis included in the Master EIR is a recognized and appropriate manner of dealing with an inherently cumulative impact such as global climate change. See, e.g., CEQA Guidelines Section 15178.

Response to Comment 5-43

See Master Response regarding GHG Emissions in Chapter 3.0, Master Responses, of this FEIR.

Response to Comment 5-44

As noted on Page 5.3-18, of the DEIR, analysts have yet to define protocols for establishing the effect of a specific local development project on a cumulative global temperature increase. In addition, see Chapter 3 for a Master Response regarding GHG emissions.

Response to Comment 5-45

The analysis of the proposed project's cumulative impacts related to GHG emissions is on pages 5.3-23 and 5.3-24 of the DEIR.

Response to Comment 5-46

The commenter refers to Appendix H for additional comments related to various sections of the DEIR. See Response to Comment 5-234 for information pertaining specifically to Appendix H.

Response to Comment 5-47

The comment summarizes the background of the Curtis Park Village RAP and does not address the adequacy the EIR.

Response to Comment 5-48

See Response to Comment 5-12.

Response to Comment 5-49

As noted on page 5.8-11, of the DEIR, DTSC cannot approve updates to the RAP until the City has approved a land use plan for the project site. This is a requirement of SB 120 that ensures that any areas cleaned to restricted standards (i.e., land uses would be restricted over the areas not cleaned to unrestricted standards) coincide with the appropriate land uses and are subject to long-term agreements with DTSC.

Response to Comment 5-50

As stated in Response to Comment 5-12, the DTSC cannot approve the updates to the RAP until the City has approved a land use plan for the project site. Page 5.8-2 of the DEIR states that in 2008, subsequent sampling indicated that additional areas of remediation would be required, which would result in a substantially larger amount of contaminated soil on the site as opposed to what was previously anticipated. The types of chemicals found on site have not changed, only the volume which is leading to the revised RAP in order to modify the potential remedies. The DEIR analyzed potential impacts related to the implementation of additional remediation methods. In addition, Response to Comment 5-37, states that the level of remediation is dependent on the proposed land uses. DTSC, through the RAP process, will ensure that the cleanup levels are appropriate for the approved land uses, consistent with State law. See Responses to Comments 5-51 through 5-58 for additional responses.

Response to Comment 5-51

Text on page 5.8-8 of the DEIR is corrected as follows:

> The remaining chemicals present in the project area soils mainly fall into the following categories:
>
> - Metals;
> - Petroleum Hydrocarbons; and
> - Semivolatile Organic Compounds (SVOCs).
>
> ~~Although there is some overlap among these categories, typically each category possesses characteristics that influence where the chemicals are likely to be found given their mobility in the environment.~~ The SVOCs (PAHs) and metals are often

found together. Areas of petroleum hydro carbons impact (TPH) in some cases include both metals and PAHs.

The above correction does not change the conclusions in the DEIR.

Furthermore, the discussion that follows on pages 5.8-8 through 5.8-10 describes the sources, distribution, and potential remediation methods of these types of chemicals, which are evaluated in this analysis. The types of chemicals have not changed, only the volume which is leading to the revised RAP in order to modify the methods of dealing with the additional volumes of contaminated soils.

Response to Comment 5-52

See Response to Comment 5-50.

Response to Comment 5-53

See Response to Comment 5-50. See Figure 5 and Figure 7 previously presented in this FEIR, page 3.1-31 and 3.1-32.

Response to Comment 5-54

See Response to Comment 5-50. It should be noted that development of the Curtis Park Village project would not occur until the site has been cleaned to DTSC standards, pursuant to the updated RAP. See Response to Comment 5-51.

Response to Comment 5-55

See Response to Comment 4-8.

Response to Comment 5-56

See Response to Comment 4-8.

Response to Comment 5-57

DTSC will certify the property when the approved remedy has been fully implemented. Upon certification, DTSC will require completion of a land use covenant for any area that does not satisfy the requirements for unrestricted land uses. Any area that has a land use covenant will also be required to have a long-term operation and maintenance agreement. The agreement will address the discovery of soil contamination post certification.

Response to Comment 5-58

The stockpiling of the contaminated soils is undertaken as part of the current RAP approved for the site. Once DTSC approves the update to the RAP, the stockpiles will be removed. Until then DTSC is the agency with oversight to ensure safety of the stockpiled soils.

Response to Comment 5-59

The comment is concerned additional volumes of contaminants would be removed via truck and does not address specifics in the DEIR. See Response to Comments 5-60 through 5-64 for detailed responses.

Response to Comment 5-60

As stated on page 5.2-46 of the DEIR, approximately 2,667 trucks trips would occur over the course of a three-month period. The likeliest route trucks would be Southbound 99 (or Northbound 99), exiting Sutterville Road and traveling West, then making a right onto the Western Pacific Loop and immediately entering the site to the north. In addition, the transportation of contaminated soils would required to comply with Title 22 that identifies federal and State hazardous waste criteria, and regulates the storage, transportation, and disposal of waste.

Response to Comment 5-61

As stated on page 106 of the 1995 Final RAP, transport vehicles will be covered to prevent load loss during transit. The hazardous waste hauler(s) will be certified, and waste materials will be manifested and transported accordance with applicable state and federal regulations. In addition, to limit the amount of dust generated by construction activities, water will be sprayed onto contaminated soils as needed until excavation and backfilling operations are finished.

Response to Comment 5-62

See Response to Comment 5-61.

Response to Comment 5-63

A stated on page 5.2-28 of the DEIR, Mitigation Measure 5.2-9(a), the project applicant will be required to prepare a detailed Traffic Management Plan, including the maintenance of acceptable operating conditions on local roadways and transit routes. The increased traffic is anticipated to occur over a three-month period and is considered a temporary impact.

Response to Comment 5-64

Excavation and transportation of contaminated soils will be addressed in the updated RAP. Per DTSC regulations, trucks leaving the project site would be covered with tarps and truck tires

brushed of soil and debris before leaving the site. In addition, remediation activities would be required to comply with all SMAQMD regulations, including monitoring of PM_{10} emissions.

Response to Comment 5-65

The comment lacks adequate information to issue a response. The significance thresholds used for the analyses are shown on page 5.8-7, of the DEIR. None of the thresholds require quantification in order to be addressed.

Response to Comment 5-66

As stated on page 5.8-10 of the DEIR:

> Personnel involved in on-site activities prior to the completion of the site remediation are trained in accordance with the Occupational Safety and Health Act, participate in a medical surveillance program, and are equipped with personal protective equipment as specified in the Site Health and Safety Plan. Workers are checked frequently during site work to verify compliance with the Site Health and Safety Plan.

As stated in response to comment 5-12, pursuant to SB 120, the updated RAP, which would include numerical thresholds, cannot be approved until the City approves a land use plan for the project site.

As stated on page 5.8-12 of the DEIR, development of the Curtis Park Village project would not begin until the site has been cleaned to DTSC standards, pursuant to the updated RAP. Future occupants would not be exposed to contaminated soil because toxins would be removed or encapsulated according to the standards set forth by the DTSC, prior to development of the site.

As stated on page 5.8-10 of the DEIR:

> The presence of additional volumes of contaminated soil creates the potential for an increased risk of exposure of future site occupants to contaminated soils or groundwater. However, the implementation of the remedies included in the RAP update and addressed in this chapter would ensure the on-site contaminants are cleaned to DTSC standards.

Response to Comment 5-67

As stated on page 5.8-7 of the DEIR, the following six standards of significance are addressed in the DEIR:

1. Substantially increase the risk of exposure of construction workers to contaminated soils during site development;
2. Substantially increase the risk of exposure of future occupants to contaminated soils;
3. Expose occupants to a substantial, unmitigated risk of exposure to contaminated soil or groundwater due to phased development and/or ongoing remediation efforts;

4. Expose construction workers, occupants, and/or site visitors to unmitigated hazards associated with the presence of hazardous substances (e.g., asbestos, lead, PCBs, etc.) in buildings that would be renovated and/or restored;
5. Substantially increase the risk of exposure of site occupants to inadvertent or accidental releases of hazardous substances to the environment from non-residential uses during project occupancy; and/or
6. Substantially increase the risk of exposure of site occupants to inadvertent or accidental releases of hazardous substances transported on adjacent roadways and rail lines within the project area.

In regard to standard of significance 1, as stated on page 5.8-13 of the DEIR, development of the Curtis Park Village project would not begin until the site has been cleaned to DTSC standards, pursuant to the updated RAP.

In regard to standard of significance 2, as stated on pages 5.8-10, 5.8-12 and 5.8-13 of the DEIR, the implementation of the remedies included in the RAP update and addressed in this chapter would ensure the on-site contaminants are cleaned to DTSC standards. Therefore, future occupants would not be exposed to contaminated soils, as the site would be cleaned prior to development.

In regard to standard of significance 3, as stated on page 5.8-13 and 5.8-14 of the DEIR, training and equipment requirements would be included in a long-term maintenance agreement with the DTSC, which would be periodically reviewed and updated. Implementation of the regulations governing capped soils would ensure that implementation of the proposed project would not result in adverse impacts to future residents and construction workers.

In regard to standard of significance 4, see Response to Comment 5-52 which states it is highly unlikely that asbestos and/or lead-based paints are present in the only structure located on the project site and removal of on-site buildings is included in the existing RAP. Furthermore, page 5.8-12 of the DEIR states that although asbestos has previously been found in soils on the site, but these soils have been removed pursuant to the approved RAP, to the satisfaction of the DTSC.

In regard to standard of significance 5, as stated on pages 5.8-10, 5.8-12 and 5.8-13 of the DEIR, the implementation of the remedies included in the RAP update and addressed in this chapter would ensure the on-site contaminants are cleaned to DTSC standards. In addition, as stated on page 5.8-13 and 5.8-14 of the DEIR, training and equipment requirements would be included in a long-term maintenance agreement with the DTSC, which would be periodically reviewed and updated. Therefore, future occupants would not be exposed to inadvertent accidental releases of hazardous substances, as the site would be cleaned prior to development.

In regard to standard of significance 6, as stated in Response to Comment 5-61, the hazardous waste hauler(s) would be certified and waste materials would be manifested and transported in accordance to the same laws and regulations as the current site remediation.

Response to Comment 5-68

See Response to Comments 5-66 and 5-67 for information pertaining to potential exposure of construction workers to contaminants.

Response to Comment 5-69

See Response to Comments 5-66 and 5-67 for information pertaining to potential exposure of occupants to contaminants.

Response to Comment 5-70

Comment 5-70 is a concluding comment and substantial evidence has been provided in the DEIR as described in Response to Comments 5-65 through 5-69.

Response to Comment 5-71

Pages 5.8-4 through 5.8-6 of the DEIR discusses the standards set forth by federal, State and local agencies. Although DTSC has the primary regulatory responsibility, additional federal laws and guidelines govern hazardous materials include:

- Federal Water Pollution Control Act (Clean Water Act or CWA);
- Clean Air Act (CAA);
- Occupational Safety and Health Act;
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA);
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA);
- Guidelines for Carcinogens and Biohazards;
- Superfund Amendments and Reauthorization Act Title III;
- Resource Conservation and Recovery Act (RCRA);
- Safe Drinking Water Act; and
- Toxic Substances Control Act.

Applicable State and local laws include the following:

- Public Safety/Fire Regulations/Building Codes;
- Hazardous Waste Control Law;
- Hazardous Substances Information and Training Act;
- Air Toxics Hot Spots and Emissions Inventory Law;
- Underground Storage of Hazardous Substances Act; and
- Porter-Cologne Water Quality Control Act.

Within Cal-EPA, DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the management of hazardous materials and the generation, transport and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL).

Maintaining compliance with the above regulations would ensure the allowable thresholds would not be exceeded.

As stated in Response to Comment 4-7, specific remediation methods would not be determined in the updated RAP by DTSC until after approval of the DEIR. The DEIR analyses the potential impacts of all potential remediation methods. It should be noted that if additional information, data, and remediation becomes available after certification of the Final EIR, a re-evaluation by DTSC will determine if the Final EIR adequately assessed impacts related to the proposed RAP subject to DTSC approval of additional CEQA analysis is required.

Response to Comment 5-72

A Notice of Determination for a Negative Declaration for Union Pacific Railyard Sacramento, California Final Remedial Action Plan, SCH 1995100941, was filed on July 14, 1995. As stated on pages 1 and 2 of the 1995 RAP, the RAP is a specific requirement of California Health and Safety Code Section 25356.1. Amongst other State and federal statutes, regulations, and guidance, CEQA, Public Resources Code, 21000 et seq. and Title 14, California Code of Regulations, Division 6, 1500 et seq., would be applicable to the RAP. CEQA compliance occurred at the time of approval of the 1995 RAP.

Response to Comment 5-73

See Responses to Comments 4-7 and 5-71 for information regarding regulatory standards for toxic clean-up. Implementation of the required standards would ensure significant adverse affects would be reduced to less-than-significant levels.

Response to Comment 5-74

The comment is a summary paragraph, See Responses to Comments 5-75 through 5-79 for detailed responses.

Response to Comment 5-75

The last sentence of the first paragraph on page 5.8-11 of the DEIR is referring to in-situ soils which have been chemically treated, and rendered inert. Such soils could be encapsulated beneath either the proposed park site or the commercial portions of the project site.

The last sentence of the second paragraph on page 5.8-11 of the DEIR is referring to in-situ soils which have not been chemically treated and rendered inert. Such soils would not be deemed appropriate for placement under the proposed park site and would therefore only be allowed under the commercial portions of the project site.

Response to Comment 5-76

See Response to Comment 5-12. The comment does not address the adequacy of the EIR, but is a comment based on something said at a meeting.

Response to Comment 5-77

See Response to Comment 5-12. The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 5-78

Page 5.9-10 of the DEIR, Impact 5.9-1, discusses impacts to hydrology, water quality, and drainage related to the update of the Remedial Action Plan.

Response to Comment 5-79

The DEIR evaluates the impacts of the proposed remedies in all of the technical chapters. See Impact Statements 5.1-1, 5.3-1, 5.4-1, 5.5-1, 5.6-1, 5.7-1, 5.8-1, 5.9-1, 5.10-1, 5.11-1, and 5.12-1. In addition, see Responses to Comments 5-12 and 5-74 through 5-78.

Response to Comment 5-80

The commenter includes a summary comment.

Response to Comment 5-81

The commenter is correct that a revised RAP would not be submitted until after the project FEIR is approved. See Response to Comment 5-13.

Response to Comment 5-82

The DEIR is required to conform to CEQA requirements. As stated on page 5.8-7 of the DEIR, the analysis includes all potential remedies contemplated for inclusion in the updated RAP. See Response to Comment 5-79.

Response to Comment 5-83

See Responses to Comments 5-12 through 5-14. As stated in Response to Comment 5-13, the revised RAP cannot be approved prior to the DEIR. In addition, the level of remediation is dependent on the proposed land uses and approval of the land uses must occur prior to the approval of an updated RAP and DTSC determination. Therefore, consistent with the conclusions in the DEIR, approval of the proposed land use would occur prior to approval of an updated RAP. DTSC, through the RAP process, will ensure that the cleanup levels are appropriate for the approved land use, consistent with State law.

Response to Comment 5-84

The DEIR has adequate analyzed the impacts of the proposed remedies. See Responses to Comments 5-12 and 5-79.

Response to Comment 5-85

See Responses to Comments 5-13 and 5-14.

Response to Comment 5-86

As detailed in the Trip Generation Memorandum presented in Appendix D of this FEIR, the traffic analysis was based on a set of land use assumptions that was initially proposed with the project. In comparing the amount of trips that would be generated by the proposed project and the land uses as analyzed in the traffic study, it was concluded that the total number of trips generated by the proposed project is significantly lower than the number of trips generated by the land uses as analyzed in the Transportation and Circulation Section of the DEIR and that the proposed project would not result in additional significant impacts to those already identified in the analysis. See Response to Comment 5-28 for additional information.

Response to Comment 5-87

Trip generation estimates for the proposed project land use and the land use as analyzed in the Traffic Section using ITE's Trip Generation 8th edition are attached in Appendix A of the FEIR.

Response to Comment 5-88

The 2000 Highway Capacity Manual is the latest published edition available.

Response to Comment 5-89

The land use assumptions were based on the information at the time the DEIR was prepared. If a change in the project occurs that could potentially change the findings of the DEIR, additional environmental studies would be required, consistent with CEQA requirements.

Response to Comment 5-90

The 24th Street and Sutterville Road intersection was analyzed as a signal-controlled intersection for existing and no-project conditions and as a stop-controlled intersection for all "with project" scenarios.

Response to Comment 5-91

The configuration at the Portola Way (21st Street)/Marshall Way/4th Avenue intersection has been modified with the Freeport Boulevard/21st Street Two-Way Conversion project. A northbound through movement is currently allowed from Portola Way (21st Street). The traffic study was based on information available at the time of preparation and the DEIR and construction plans for the Freeport Boulevard/21st Street Two-Way Conversion project, which assumed a northbound left-turn prohibition.

With the current configuration, some of the project traffic destined for points north, primarily those generated by the single-family residences in the northern portion of Curtis Park Village, would utilize this access point to reach 21st Street rather than taking 24th Street and one of the east-west minor roadways. Consequently, the project generated traffic and impacts on 24th Street would decrease by 7 trips in the AM peak hour, 2 trips in the PM peak hour and 4 trips in the Saturday peak hour; while traffic on the stretch of Portola Way (21st Street) between Road J and 4th Avenue as well as the 21st Street and 4th Avenue intersection would correspondingly increase. However, Portola Way and the 21st Street and 4th Avenue intersection would continue to operate at LOS A under both Baseline and Cumulative Conditions with the addition of project traffic.

The existing configuration at this intersection would deem Mitigation Measure 5.2-7(b) on Page 5.2-43 unnecessary. Therefore, page 5.2-43 of the DEIR, Mitigation Measure 5.2-7 is hereby revised as follows:

~~*5.2-7(b) The project applicant shall modify the design at the intersection of the Road J extension/Portola Way, 4th Avenue, and Marshall Way to physically prohibit the northbound left-turning movement from the Road J extension/Portola Way.*~~

5.2-7(~~c~~b) The site design shall be modified to reduce the potential for vehicles leaving parking stalls to back across pedestrian crosswalks. This change may require the elimination of some angle parking spaces.

The above text change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-92

Two-way traffic is allowed on the Road J extension. Project traffic was not assigned northbound on Road J to exit at the Portola Way location because it does not represent the most direct route to any of the trip distribution gateways with the assumption that the aforementioned northbound left-turn prohibition in the DEIR analysis. See Response to Comment 5-91 for related discussion pertaining to the project impacts with the existing intersection configuration.

Response to Comment 5-93

Two-way traffic is currently allowed on Portola Way. The Project would not alter any roadway configuration in this area, including the Portola Way/Marshall Way/4th Avenue intersection.

Response to Comment 5-94

The traffic operations findings described in the DEIR are not expected to be affected by the proposed angled parking. Angled parking is expected to slow traffic, which is intended to calm motor vehicle traffic and create a more hospitable environment for pedestrian activity.

Response to Comment 5-95

See Response to Comment 5-94. In addition, the angled parking is not expected to affect traffic flow through the intersection at Sutterville Road and Road A. To the contrary, angled parking will slow traffic approaching that intersection and act as a good traffic calming measure on Road A.

Response to Comment 5-96

The proposed angled parking along Road A shall be designed to City standards without affecting the travel lane width. Angled parking is expected to slow traffic flow on Road A, but would not divert traffic to nearby streets such as West Curtis Drive and 24th Street.

Response to Comment 5-97

The proposed project is subject to review of the Police and Fire Departments and the application has been routed for both departments for review. At the time of the project approval, any conditions requested by either department shall be placed as a condition of approval of the project.

Response to Comment 5-98

Section 15.13.4 Angled Parking in the Design and Procedures Manual states that, "Angled parking will be considered on a case-by case basis. Angled parking shall be required and/or allowed at the direction of the City Traffic Engineer. Implementation of angled parking may require specific approval by the City Council. Table 15-13.4 lists the general criteria for considering angled parking. However, meeting the criteria does not warrant installation of angled parking." Table 15-13.4 lists "Angle Parking Criteria." The City Traffic Engineer has the discretion to allow angled parking where it would be appropriate. The City Traffic Engineer has determined that angled parking on Road A would be appropriate in this situation where there is a need to promote pedestrian accessibility.

Response to Comment 5-99

See Responses to Comments 5-94 through 5-96 regarding the effect of the proposed angled parking along A Street. The assessment of parking requirements was included in the DEIR on pages 5.2-43 through 5.2-45.

Response to Comment 5-100

Mitigation Measure 5.2-7 (a) shall be considered with the approval of street layouts and the approval of the Tentative Maps.

Response to Comment 5-101

Mitigation Measure 5.2-7 (a) shall be considered with the approval of street layouts and the approval of the Tentative Maps.

Response to Comment 5-102

The analysis presented on pages 5.2-44 and 5.2-45 is for the on-site parking requirements; therefore, the City Code has been used to estimate parking required for single family units. On street parking is not usually included in the calculation of parking requirements per City Code. The City's Zoning Code requires one parking space per single family unit.

Response to Comment 5-103

The proposed project residential units with shared driveways would utilize a single driveway to access individual garages for vehicular storage. Additional on-street parking was analyzed in the Traffic Section of the DEIR.

Response to Comment 5-104

All maps and figures were available at the City of Sacramento upon request.

Response to Comment 5-105

Chapter 5.2 of the DEIR summarizes the highly technical information found in the traffic study. The comment is a generalized statement and lacks specific information to issue a response.

Response to Comment 5-106

See Response to Comment 5-33.

Response to Comment 5-107

See Response to Comment 5-33.

Response to Comment 5-108

As described in Response to Comment 5-91, the existing configuration of the intersection of Portola Way/Marshall Way/4th Avenue is different from that analyzed in the DEIR. Other revisions to the existing roadway network descriptions have been made and detailed in this FEIR. See Responses to Comments 5-112 and 5-113.

Response to Comment 5-109

Several traffic counts were collected within the study area at different dates. The first traffic counts for this project were conducted in the year 2005. Subsequently, with the project proposed changes, traffic volume counts were collected at selected locations in 2007, which were then compared with counts collected in 2005. As indicated on Page 5.2-9 of the DEIR, the 2005 counts were then adjusted if approach volumes were projected to increase. Due to recent economic downturn, traffic on roadways throughout California has declined. Therefore, 2005 and 2007 volumes are likely to be higher than current 2009 volumes; thereby the analysis is more conservative.

Response to Comment 5-110

See Response to Comment 5-33.

Response to Comment 5-111

The Sacramento City College improvement was properly considered in the traffic analysis. The intersection of Sutterville Road and Sutterville Bypass Ramps West (#16) is the access to the parking garage of the City College. Traffic volumes at this intersection were collected in 2007 with the new lane configuration after the construction of the City College improvements.

Response to Comment 5-112

To correct the text, page 5.2-3 of the DEIR, second paragraph is revised as follows:

> *24th Street* is a four-lane arterial road from Sutterville Road south through Sacramento Executive Airport and the Florin Area of Sacramento to terminate near Meadowview Park in southern Sacramento. At Sutterville Road, the roadway is off-set about 1,000 feet to the east and travels north near the project vicinity. It operates primarily as a two-lane collector road until around ~~Castro Street~~2nd Avenue where it widens to four-lanes and continues through Midtown Sacramento to the Southern Pacific railroad tracks just south of the American River.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-113

For clarification purposes, page 5.2-3 of the DEIR, fifth paragraph is revised as follows:

> *Freeport Boulevard* extends from I-80/I-50 south to the city limit. To the north, it continues as 19th Street and to the south, it becomes River Road. Between G Street and just south of 4th Avenue, it operates as a one-way southbound arterial roadway. As with 21st Street, a portion of Freeport Boulevard was recently converted to two-way traffic operations. It serves as an alternative route to connect to I-80/I-50.

The above change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-114

The text in the last paragraph on page 5.2-5 of the DEIR is corrected as follows:

> Sidewalks are provided along almost all of the streets in the project area ~~except for the elevated section of Sutterville Road~~.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-115

The existing ramp meters on SR 99 were in place when the traffic counts were collected. Therefore, its effect was included in the analysis.

Response to Comment 5-116

Should the addition of project traffic result in spill back onto city streets, the City would coordinate with Caltrans to adjust ramp meter timing to improve traffic operations within this area.

Response to Comment 5-117

As shown on page 5.2-21 of the DEIR, the existing off-ramp queue to Sutterville Road from southbound SR 99 already exceed ramp capacity during the PM and Saturday peak hours. Mitigation Measure 5.2-10(h) would mitigate the project impact for the off-ramp queue to Sutterville Road from northbound SR 99 and Mitigation Measure 5.2-1(c) would lessen the impact for the off-ramp queue from southbound SR 99 to a less-than-significant level.

Response to Comment 5-118

A number of intersections and roadways along 6th Avenue and Donner Way were evaluated and disclosed in the Transportation and Circulation chapter of the DEIR. This includes the 5th Avenue intersections of 24th Street and Franklin Boulevard, the intersection of 24th Street and Donner Way, the Donner Way segment between 24th and 25th Streets, and the 5th Avenue segment just east of 24th Street. The DEIR determined the impact to the above intersections and roadway section would operate at acceptable levels and mitigation would not be required. Retail trucks and delivery vans are anticipated to access Curtis Park Village from the south primarily via the Sutterville Road underpass.

Response to Comment 5-119

As described on page 5.2-22 of the DEIR, Access Scenario #3 has a direct connection with 10th Avenue. Under this Access Scenario, a small amount of project traffic would traverse the route as described in the comment. The potential project impact is disclosed in the Transportation and Circulation chapter of the DEIR, which evaluated the intersections of Sutterville Road and Curtis Drive West and of 24th Street and 10th Avenue.

It is projected that Curtis Park Village would add 31 vehicles to the 24th Street and 10th Avenue intersection in the AM peak hour and 25 vehicles in the PM peak hour under Access Scenario #3, the only scenario that provides a direct connection at 10th Avenue. At the same time, 562 through movement vehicles would be diverted from 24th Street to Road A in the AM peak hour and 661 through movement vehicles would be diverted in the PM peak hour.

Response to Comment 5-120

The project would add 88 vehicles and 166 vehicles to 24th Street north of Marshall Avenue in the AM and PM peak hours, respectively. The study evaluated several intersections and street segments along 24th Street and the potential impacts are fully disclosed in the Transportation and Circulation chapter and associated appendix section. With the increased background traffic under Cumulative conditions, installation of traffic signals is recommended as mitigation measures at both the 2nd Avenue (Mitigation Measure 5.2-10(a)) and Portola Way intersections (See page 5.2-4 of the DEIR). The signals would create traffic gaps allowing vehicles to back out from driveways. In addition, see Response to Verbal Comment 1-8.

Response to Comment 5-121

Project traffic was distributed and assigned on the roadway network based on projections from the travel demand model as well as shortest routes and existing travel patterns. The small amount of traffic that may traverse 4th Avenue and 3rd Avenue are not expected to result in significant impacts because these roadways were found to operate at LOS A with a cumulative traffic volume range of 360-632 vehicles per days (Table 5.2-14 on page 5.2-57 of the DEIR). All of the roadways mentioned in the comment are designed to carry up to 4,000 vehicles per day.

Response to Comment 5-122

Conditions of approval for the project would require that the design of all project elements be designed to City of Sacramento standards; therefore, the project would not result in unsafe conditions or create a hindrance for pedestrians, including unsafe pedestrian/bicycle or pedestrian/motor vehicle access.

Response to Comment 5-123

See Response to Verbal Comment 1-8.

Response to Comment 5-124

Page 5.2-36, Mitigation Measure 5.2-1(b) is revised as follows:

> *5.2-1(b)* *At the Sutterville Road / Road A intersection, provide overlap signal phasing to allow the southbound Road A right turning traffic to proceed on a green arrow simultaneously with the eastbound left turning movement, and prohibit U-turns for the eastbound left turning movement; ~~and~~ add a southbound left-right lane to provide one left-turn lane, one left-right lane, and one right turn lane, and provide a dedicated right turn lane for the westbound Sutterville Road approach to the intersection. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a* ***less than significant*** *level.*

In addition, page 5.2-54, Mitigation Measure 5.2-10(e) is revised as follows:

> *5.2-10(e) Sutterville Road / Road A – apply Mitigation Measure ~~4~~5.2-1(~~a~~b) which would provide overlap signal phasing to allow the southbound Road A Right turning traffic to proceed on a green arrow simultaneously with the eastbound left turning movement, and prohibit U-turns for the eastbound left turning movement~~; and~~ provide one left-turn lane, one left-right lane, and one right-turn lane on the southbound approach~~; Also,~~ provide a dedicated right turn lane for the westbound Sutterville Road approach to the intersection; provide an actuated exclusive pedestrian phase to serve pedestrians crossing Sutterville Road; and optimize signal timing. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a* ***less than significant*** *level.*

The above text changes do not alter any of the conclusions contained within the DEIR.

Response to Comment 5-125

The intersection of Portola Way and Road J was not selected for evaluation in the DEIR. An initial traffic assessment of the proposed project found that the Proposed Project would add a small amount of traffic to the intersection of Road J and Portola Way. It would add four (4) southbound through vehicles in the AM peak hour, ten (10) southbound through vehicles and one (1) southbound left-turn vehicle in the PM peak hour, and eight (8) southbound through and one (1) southbound left-turn vehicles in the Saturday peak hour. As the vast majority of the added trips are through, non-conflicting traffic at this T-intersection, the traffic engineer did not deem it necessary to select this intersection for evaluation.

Response to Comment 5-126

The situation described pertains to existing conditions. The sidewalk on the east side of Portola Way across the street from the sound wall provides a safe place for pedestrians to walk. The expected traffic volume on Portola Way after project implementation would be comparable with that of other residential streets in the City. Pedestrians exercising a reasonable level of caution would be able to cross Portola Way. However, the City may consider providing marked pedestrian crossing at the east leg of the Portola Way/21st Street intersection to encourage crossing and utilization of sidewalk.

Response to Comment 5-127

See Response to Comment 5-125 for the amount of projected traffic added by the proposed project. The project would not result in unsafe conditions for pedestrians.

Response to Comment 5-128

The railroad tracks on 21st Street are an existing condition. The project would not result in worsened grade crossing conditions for pedestrians because vehicles are not allowed along the pedestrian path that crosses the tracks from the east side of the roadway. The project would add transit riders/pedestrians to the grade crossing. However, the addition of pedestrians at the grade crossing would not create unsafe conditions for pedestrians and the impact would be less than significant.

Response to Comment 5-129

The City may work with RT about the feasibility of a grade separation for pedestrian crossing at the 4th Avenue/Wayne Hultgren Light Rail Station similar to the on-going feasibility study to connect the Curtis Park Village with the City College. However, this improvement is beyond the scope of the Curtis Park Village project. The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 5-130

New traffic signals are proposed on 24th Street at 2nd Avenue (Mitigation Measure 5.2-10(a)) and at Portola Way intersections (see Response to Comment 1-8). The new signals would create gaps in traffic that would provide more opportunities for pedestrians to cross at nearby intersections on 24th Street including at Castro Way. In addition pedestrians who wish to cross 24th Street could use the signalized intersection at 2nd Avenue, which is approximately 300 feet from Castro Street.

Response to Comment 5-131

The comment does not address the adequacy of the EIR.

Response to Comment 5-132

The *Pre-Census Travel Behavior Report: Analysis of the 2000 SACOG Household Travel Survey* was used to estimate travel mode share to account for the presence of the RT South Line based on data collected where LRT service was provided.

Response to Comment 5-133

Conducting a special household survey for Curtis Park residents is beyond the scope of the project. The Pre-Census Travel Behavior Report published by the Sacramento Area Council of Governments is representative of travel behavior in the region and has been a tool for RT to estimate light rail ridership in the region.

Response to Comment 5-134

Impacts of mitigation measures were assessed and secondary impacts were disclosed where they would occur. The impacts of bringing the roads into compliance with City standards would require minor adjustments to the site plan and are not expected to result in significant secondary impacts.

Any deviation from the City standards shall be subject to review and approval of the City Traffic Engineer.

Response to Comment 5-135

For intersections, the level of service worksheets showing intersection operations after implementation of mitigation measures are provided in Appendix D of the DEIR.

Response to Comment 5-136

If secondary impacts are identified due to the implementation of the proposed mitigation measures, they were noted in the Transportation and Circulation chapter. See Response to Comment 5-134.

Response to Comment 5-137

The cumulative volume forecast was derived from the Sacramento Metropolitan Travel Demand Model (SACMET) developed by the Sacramento Council of Governments (SACOG). Land uses incorporated in the model were agreed upon by SACOG and the forecasted growth was based on SACOG's member agencies' general plans.

Response to Comment 5-138

Specific responses to the assertions of erroneous assumptions and omissions are provided in responses to specific comments below. None of the reassessments made to address comments identified any new significant impacts.

Response to Comment 5-139

City staff coordinated with Caltrans regarding the analysis to assess the impacts of the project on freeways. Caltrans comments on the DEIR in their letter dated June 15, 2009, have been adequately addressed. Potential impacts to freeway traffic operations were disclosed in the DEIR and mitigation measures were proposed. As stated on page 5.2-60, "No feasible mitigation measure was identified that would reduce the impact of the project on SR 99. Although implementation of Mitigation Measure 5.2-2(a) would reduce the impact of the project on SR 99, the impact after mitigation would remain significant and unavoidable." The DEIR provides mitigation for the impacts of the project to SR 99 where feasible and discloses that impacts would remain after mitigation, as required by CEQA.

Response to Comment 5-140

The Transportation and Circulation Section of the DEIR uses the standard of significance as stated on page 5.2-30 of the DEIR. According to these standards, level of service analysis was provided for all study intersection and roadway facility. The City of Sacramento does not have queuing standards or queuing impact significance criteria. However, the results of the 95th percentile queue for each of the study scenarios can be found in the level of service worksheets included as a part of the appendix of the DEIR. Additionally, The City does not require the use of Synchro software in

preparation of traffic studies. The TRAFFIX program is widely accepted for traffic impact analysis purposes. For instance, it is one of the software explicitly recognized in Caltrans' Guide for the Preparation of Traffic Impact Studies, 2002.

Response to Comment 5-141

The referenced "Neighborhood Thresholds of Significance criteria for minor streets" have not been adopted by the City of Sacramento for evaluation of transportation impacts under CEQA. A Web search conducted on January 26, 2010, showed only two references to "Neighborhood Thresholds of Significance." One reference was Comments on NOP for Curtis Park Village October 21, 2004 and the other reference was the DEIR document which lists this as one of the Summary of Comments Received on the Notices of Preparation on page 1-10. Safety conditions along 24th Street north of the project have been assessed (See Response to Comment 5-120). Residents in the surrounding communities are encouraged to work with the City on traffic- and transportation-related issues through the process outlined in the Neighborhood Transportation Management Program.

Response to Comment 5-142

See Responses to Comments 5-115 and 5-116.

Response to Comment 5-143

The pass-by trips assumptions made in the DEIR were computed from the fitted curve equation shown in Figure 5.5 of the ITE Trip Generation Handbook. This procedure is used as an example on page 31 of the Handbook, which specifically references the fitted curve equation. The amount of retail development for the project is within the range of the data shown in the figure that was used to develop the fitted curve equation. The information referenced in the comment relates to data contained in Figure 5.6 of the Handbook. This figure does not contain a fitted curve equation nor an R^2 (Reliability) value, indicating that the data provided in the figure should be used with caution. Figure 5.6 shows average pass-by trip percentages ranging from approximately 16 percent to 53 percent for streets serving 2,000 to 3,000 p.m. peak hour vehicles. The estimate of 33 percent pass-by trips for the project is within the range of data shown in the figure and is therefore not contradicted by the data. The assertion that "the average pass-by capture rate for retail development should be no more than 25 percent" is not supported by the information provided in the Trip Generation Handbook.

Response to Comment 5-144

Figure 5.2-6, Trip Distribution, has been revised to add up to 100 percent of total traffic in the FEIR. Correct trip distribution data were used in the analysis.

Response to Comment 5-145

As indicated on page 5.2-28 under Project Trip Distribution, the trip distribution was based on the SACMET 2027 travel demand model, observations of travel patterns near the site and knowledge of the proposed access locations associated with the Project. Specifically, in distributing trips onto the

roadway network, the travel demand model took into account such factors as travel time and alternative routes. Use of the travel demand model to provide the basis for trip distribution is standard practice.

Response to Comment 5-146

The analysis has taken into account the existing and projected traffic on 24th Street and has diverted them onto Road A due to the elimination of the traffic signal at the Sutterville Road/24th Street intersection. The following clarification has been added to page 5.2-22 under the Access Section:

> The last scenario was evaluated qualitatively only based on a comparison of how trips would be distributed, and the remaining scenarios were analyzed quantitatively. With the installation of the proposed signalized intersection on Sutterville Road between West Pacific Avenue and Jefferey Avenue (Road A), the traffic signal at the Sutterville Road/24th Street intersection would be eliminated. A majority of the through and neighborhood traffic north of the project traversing 24th Street has been reassigned onto the new Road A in this analysis.

The text addition does not alter the conclusions in the DEIR.

Response to Comment 5-147

See Responses to Comments 5-33 and 5-107.

Response to Comment 5-148

As stated on page 5.2-32 of the DEIR, the Baseline Conditions analysis was performed to assess the project impact in combination with other projects that have already been approved. This analysis is the "near term horizon analysis" that the commenter described.

Response to Comment 5-149

Sufficient right-of-way exists for the proposed roadway widening; project impacts would be less-than-significant upon implementation. At locations where widening would reduce project impacts but right-of-way is insufficient, the analysis has identified the mitigation as infeasible and the project impact as significant and unavoidable.

Response to Comment 5-150

The freeway ramp flow rates presented on Table 5.2-5, page 5.2-17 of the DEIR are national standards and the source of this information is the Highway Capacity Manual as stated in the footnote of that table.

Response to Comment 5-151

The fair-share contribution to be paid as mitigation measures is only placed to mitigate impacts on the cumulative conditions. Cumulative analysis includes the effect of the project in combination with the effect of build-out of the surrounding community. Other developments within the study area shall be required to mitigate their cumulative impacts and pay toward the same signals or improvements, if required.

Response to Comment 5-152

See Response to Comment 5-124. The modification to Mitigation Measure 5.2-1(b) addresses the commenter's concern.

Response to Comment 5-153

See Response to Comment 2-4.

Response to Comment 5-154

Footnote #4 of Table 5.2-11 and Table 5.2-16 on page 5.2-34 and 5.2-51 of the DEIR clearly indicate that the Sutterville Road/24th Street intersection (#18) would be signalized under existing conditions and be converted to stop-controlled with the project. The delay and level of service results reflect the controls accordingly.

Response to Comment 5-155

See Response to Comment 2-10. Table 5.2-15 presents the parking requirement per City Code, which indicates a shortfall of supply. However, a shared parking analysis was performed as a part of the traffic study and included in the Transportation and Circulation chapter, as well as in Appendix D. The findings, as presented on pages 5.2-44 and 5.2-45 of the DEIR, indicate that the proposed parking spaces would be adequate in meeting the parking demand of the proposed mixed-use project for all land uses. See Response to Comment 5-94 regarding angled parking.

Response to Comment 5-156

It is customary that traffic studies performed for the City of Sacrament utilize a peak hour factor of 1, which is contained in the City's Traffic Study guidelines.

Response to Comment 5-157

See Response to Comment 5-125.

Response to Comment 5-158

See Response to Comment 5-28.

Response to Comment 5-159

Pages 4-2 through 4-4 of the Land Use Chapter of the DEIR provide a description of the Sacramento 2030 General Plan Land Use Designations found on site (Traditional Neighborhood Low Density, Traditional Neighborhood High Density, and Traditional Center). Pages 4-4 and 4-5 of the Land Use Chapter of the DEIR describes existing and proposed zoning designations for the site under the headers "Existing Zoning Designations" and "Proposed Zoning Designations" respectively. Page 4-5 of the Land Use Chapter of the DEIR describes adjacent Land Use Designations and Zoning. As stated on pages 4-5 and 4-6 of the DEIR:

> The City of Sacramento has adopted the following land use and zoning designations for the surrounding areas:
>
> 2030 General Plan:
> Traditional Neighborhood Low Density (3-8 du/ac)
> Urban Center Low Density (20-150 du/ac and 0.4-4.0 FAR)
> Public/Quasi-Public
>
> Zoning:
> R-1 Standard Single-Family Zone
> C-2 General Commercial Zone
> C-4 Heavy Commercial Zone
> M-1 Light Industrial Zone

The DEIR does not identify PUD as a land use designation. The commenter is correct that underlying land use zones are not eliminated by creating a PUD overlay.

Response to Comment 5-160

As stated on page 4-4 of the Land Use Chapter of the DEIR:

> Traditional Center
>
> The Traditional Center designation allows for densities of 15 to 36 du/ac and a FAR of 0.3 to 2.0. This designation provides for predominantly nonresidential, moderate intensity, single-use commercial development or horizontal and vertical mixed-use development that includes the following:
>
> - Retail, service, office, and/or residential uses;
> - Central public gathering places; and
> - Compatible public, quasi-public, and special uses.

As stated on pages 4-13 and 4-14 of the Land Use chapter of the DEIR, Commercial Area 1 would consist of retail uses, Commercial Area 2 would consist of mixed residential and commercial uses, and Commercial Area 3 would consist of an entertainment facility and some residential uses. Consistent with the General Plan definition of Traditional Center, all three commercial areas would

be predominantly nonresidential. Therefore, Commercial Areas 1, 2, and 3, as proposed by the project would be consistent with the Traditional Center Land Use Designation for the project site.

Response to Comment 5-161

The project description includes the components of the proposed retail development. The DEIR analyzes the maximum buildout potential of the commercial component of the proposed project.

Response to Comment 5-162

Page 4-11 of the DEIR does not define a "Traditional Center." Page 2-68 of the Sacramento 2030 General Plan, Part Two: Citywide Goals and Policies states the allowed uses for Traditional Center are as follows:

> Traditional Center
>
> The Traditional Center designation allows for densities of 15 to 36 du/ac and a FAR of 0.3 to 2.0. This designation provides for predominantly nonresidential, moderate intensity, single-use commercial development or horizontal and vertical mixed-use development that includes the following:
>
> - Retail, service, office, and/or residential uses;
> - Central public gathering places; and
> - Compatible public, quasi-public, and special uses.

The definition of Traditional Center found on the General Plan is consistent with page 4-4 of the DEIR. Because the proposed commercial areas are predominantly nonresidential and residential uses are permitted when part of a retail, service, or office use, the proposed project would be consistent with the Land Use Designation set forth by the Sacramento 2030 General Plan.

Response to Comment 5-163

As noted in Chapter 1.0, Introduction and List of Commenters, the applicant submitted revisions to the project description, including a General Plan Amendment and rezone for the project site. The southern portion of the site would be rezoned to Shopping Center (PUD). The Sacramento 2030 General Plan "Traditional Center" designation allows for retail, service, office, and/or residential uses. In addition, development of the retail areas would be subject to the Curtis Park Village *PUD Design Guidelines*.

Response to Comment 5-164

See Responses to Comments 5-36 and 5-143.

Response to Comment 5-165

See Master Response regarding Recirculation of the Draft EIR in Chapter 3.0, Master Responses, of this FEIR.

Response to Comment 5-166

See Master Response regarding Recirculation of the Draft EIR in Chapter 3.0, Master Responses, of this FEIR.

Response to Comment 5-167

The design of the parking lots is not included in the DEIR and the comment does not address the adequacy of the EIR.

Response to Comment 5-168

See Master Response regarding Recirculation of the Draft EIR in Chapter 3.0, Master Responses, of this FEIR.

Response to Comment 5-169

See Master Response regarding Recirculation of the Draft EIR in Chapter 3.0, Master Responses, of this FEIR.

Response to Comment 5-170

See Master Response regarding Recirculation of the Draft EIR in Chapter 3.0, Master Responses, of this FEIR.

Response to Comment 5-171

See Master Response regarding Recirculation of the Draft EIR in Chapter 3.0, Master Responses, of this FEIR.

Response to Comment 5-172

See Master Response regarding Recirculation of the Draft EIR in Chapter 3.0, Master Responses, of this FEIR.

Response to Comment 5-173

As described in Chapter 1.0 of this FEIR, Introduction and List of Commenters, the senior apartment structure was relocated to the western border of the project site. The senior apartment structure uses would be consistent with the Traditional High Neighborhood uses and with

surrounding multifamily units. The visual appearance of the project would transition from lower to higher density and would be subject to the Curtis Park Village *PUD Design Guidelines*.

Response to Comment 5-174

See Response to Comment 5-173.

Response to Comment 5-175

See Response to Comment 5-173.

Response to Comment 5-176

See Response to Comment 5-173.

Response to Comment 5-177

As stated in Chapter 1.0, Introduction of this FEIR, the proposed project includes 52 additional dwelling units than previously stated in the DEIR. The additional 52 dwelling units would an increase of approximately 130 persons, resulting in 62 fewer persons than anticipated in the General Plan. The difference between the anticipated buildout of the site and the proposed project would be less than five percent, which would not be significant.

Response to Comment 5-178

The comment is general and does not address the adequacy of the DEIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 5-179

The comment is general and does not address the adequacy of the DEIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 5-180

See Response to Comment 5-31.

Response to Comment 5-181

See Response to Comment 5-37. As stated above, the level of remediation is dependent on the proposed land uses and approval of land uses must occur prior to the approval of an updated RAP and DTSC determination. Therefore, the level of remediation would be determined by DTSC based upon the approved land uses.

Response to Comment 5-182

See Response to Comment 5-181.

Response to Comment 5-183

See Response to Comment 5-181. DTSC is required by law to ensure that appropriate cleanup is conducted for the allowable land uses.

Response to Comment 5-184

The citation in the comment refers to factors that indicate an alternative is feasible and does not mean that each alternative must be analyzed for all factors as part of the alternatives analyses. The remainder of the comment is an opinion that will be forwarded to the decision-makers for their consideration.

Response to Comment 5-185

See Responses to Comments 5-22 and 5-23.

Response to Comment 5-186

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 5-187

See Responses to Comments 5-188 through 5-192. An analysis of $PM_{2.5}$ is added to the EIR.

Response to Comment 5-188

Table 5.3-1 on page 5.3-2 of the DEIR is revised as follows:

Table 5.3-1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour 8-Hour	-- 0.075 PPM	0.09 PPM 0.070 PPM
Carbon Monoxide	8-Hour 1-Hour	9.0 PPM 35.0 PPM	9.0 PPM 20.0 PPM
Nitrogen Dioxide	Annual Average 1-Hour	0.053 PPM --	0.030 PPM 0.18 PPM
PM_{10}	Annual Average 24-Hour	-- 150 µg/m^3	20 µg/m^3 50 µg/m^3
$PM_{2.5}$	Annual Average 24-Hour	15 µg/m^3 35 µg/m^3	12 µg/m^3 --

PPM = Parts per Million
µg/m^3 = Micrograms per Cubic Meter

Source: Donald Ballanti, Air Quality Impact Analysis for the Proposed Curtis Park Project, February 2009.

The above text does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-189

The following paragraph is added after the second full paragraph on page 5.3-3 of the DEIR:

> PM10 refers to particles 10 microns or smaller in diameter. PM2.5 is a subset of PM10 and refers to particles 2.5 microns or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. In urban areas, PM10 is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities. PM2.5 is mostly a product of incomplete combustion of fuels.

The above text does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-190

For clarification Table 5.3-2 on page 5.3-4 of the DEIR is revised as follows:

Table 5.3-2
Air Quality Data Summary for Sacramento T Street Site, 2005-2007

Pollutant	Standard	Days Standard Was Exceeded During		
		2005	2006	2007
Ozone	State 1-Hour	4	6	2
Ozone	Federal 1-Hour	0	0	0
Ozone	State 8-hour	5	14	7
Ozone	Federal 8-Hour	1	3	1
PM_{10}	State 24-Hour	4	8	5
PM_{10}	Federal 24-Hour	0	0	0
$PM_{2.5}$	Federal 24-Hour	14	19	5
Carbon Monoxide	Federal 8-Hour	0	0	0
Carbon Monoxide	State 8-Hour	0	0	0
Nitrogen Dioxide	State 24-Hour	0	0	0

Source: California Air Resources Board. Aerometric Data Analysis and Management (ADAM) System, 2008.

The above text change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-191

See Response to Comment 3-4.

Response to Comment 5-192

The second full paragraph on page 5.3-3 of the DEIR is hereby revised as follows:

> Particulate matter (PM) is a mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small drops of liquid. These particles vary greatly in shape, size, and chemical composition and can be made up of many different particles, including metal, dust, soot, aerosols, and other matter, which are small enough to remain suspended in the air for a long period of time. A portion of the particulate matter in the air is due to natural sources such as wind blown dust and pollen. Man-made sources include combustion, automobiles, field burning, factories, and road dust. Wood burning in fireplaces and stoves is a significant source of PM, particularly during cold, stagnant wintertime episodes when levels are highest. Motor vehicle PM emissions include tailpipe and tire wear emissions; however, greater quantities are generated by re-suspended road dust. A portion of the particulate matter in the atmosphere is also a result of photochemical processes.

> Inhalable PM consists of particles less than 10 microns in diameter, and is defined as "suspended particulate matter," or PM_{10}. Fine PM is less than 2.5 microns in diameter ($PM_{2.5}$). By definition, $PM_{2.5}$ is included in PM_{10}.

As stated in the above text addition, $PM_{2.5}$ is, by definition, included in PM_{10}. The air quality analysis determined that although the levels of PM_{10} that would be created by the project would slightly exceed the threshold, implementation of Level 3 SMAQMD-required mitigation would reduce the project's impact to a less-than-significant level. Therefore, the level of $PM_{2.5}$ would also be reduced to less-than-significant level with implementation of the required mitigation.

Response to Comment 5-193

See Response to Comment 3-2. The 1986 Sacramento Air Quality Plan was erroneously listed. The DEIR air quality analysis is consistent with all documents listed by the commenter.

Response to Comment 5-194

To correct the text, page 5.3-4 of the DEIR, last paragraph is revised as follows:

> The SMAQMD and CARB have ~~has~~ seven air pollution monitoring sites within Sacramento County and three within the City of Sacramento. The air quality monitoring stations measure hourly pollutants and record sufficient data to meet EPA and/or ARB criteria for quality assurance. The closest monitoring site to the project area is located at 13th Street and T Street. This monitoring site measures multiple pollutants. A summary of the annual air quality measurements from this monitoring site is shown in Table 5.3-2.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-195

For clarification purposes, page 5.3-5 of the DEIR is revised as follows:

> The U.S. Environmental Protection Agency (USEPA) is the federal agency responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. The USEPA regulates emission sources that are under the ~~exclusive~~ authority of the federal government.

The above text change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-196

The commenter is correct that the CARB is not part of the USEPA. CARB is part of the California Environmental Protection Agency (CALEPA). To correct the text, page 5.3-5 of the DEIR is revised as follows:

> The California Air Resources Board (CARB), a part of the ~~USEPA~~ California Environmental Protection Agency (CALEPA), is responsible for the coordination and administration of ~~both federal and~~ State air pollution control programs within California. The CARB conducts research, sets State ambient air quality measure standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-197

As stated on page 5.3-1 of the DEIR, the SVAB is the Sacramento Valley Air Basin.

For clarification purposes, page 5.3-7 of the DEIR is revised as follows:

> The SMAQMD is the agency primarily responsible for ensuring that National and State Ambient Air Quality Standards are not exceeded by Sacramento County and that Sacramento County air quality conditions are maintained in the SVAB.

The above text change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-198

See Responses to Comments 5-199 through 5-201.

Response to Comment 5-199

For clarification purposes, the second paragraph on page 5.3-4 of the DEIR is revised as follows:

> "Sensitive receptors in the area include local residences, ~~and~~ C. K. McClatchy High School, the Sacramento Children's Home, the Eskaton Monroe Lodge senior citizen complex and child day care facilities.

The above text change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 5-200

The methodology used in analyzing RAP activity and Curtis Park Village construction activity emissions from equipment and vehicles is described in detail on page 5.3-9 of the DEIR. The URBEMIS-2007 results for RAP and project construction activities are shown in Table 5.3-4 on page 5.3-11 of the DEIR. The URBEMIS-2007 outputs were not included in the air quality chapter of the DEIR, but were included in Appendix E of the DEIR, cited as a source for the air quality chapter, and referenced as citation 3 in the endnotes.

Diesel particulate impacts of RAP activities were based on the identification of worst-case exposure of receptors to diesel vehicles. The location of maximum exposure is off-site where diesel truck traffic passes near to existing homes. Diesel particulate impacts are identified and mitigated in Impact 5.3-1.

Fugitive dust impacts of RAP activities and Curtis Park Village construction are identified in Impact 5.3-2. Impact 5.3-2 quantifies construction emissions, including diesel exhaust, in Table 5.3-4. This impact discussion also includes a qualitative analysis of Curtis Park Village construction diesel exhaust impact health risks to nearby receptors. Although not identified as having a significant impact, diesel exhaust from Curtis Park Village construction activities would be substantially reduced by Mitigation Measure 5.3-3(a), which requires that heavy duty equipment to be used in construction of the project achieve a 45 percent diesel exhaust particulate matter reduction, based on the most recent CARB fleet average at the time of construction.

Response to Comment 5-201

The health risk assessment referenced in Comment 5-201, dated August 10, 2005, is not the most recent documentation addressing health risks to future residents at the Curtis Park Village. A *Screening Health Risk Evaluation for Railway Diesel Emission Exposure*[1] (Risk Evaluation) was performed in February of 2008. The Risk Evaluation was performed to estimate the potential for adverse health effects to future residents of Curtis Park Village due to diesel emissions from passing train traffic. The screening analysis, which was used for a similar project,[2] was performed using methodologies recommended by the Sacramento Metropolitan Air Quality Management District (SMAQMD) and approved by the City of Sacramento.

Based on the results of implementing the recommended methodology, a specific health risk analysis, including atmospheric dispersion modeling, was not warranted. Please refer to Response to Comment 3-5 for more details.

The Union Pacific Railroad would not disclose rail traffic frequency and idling trains. Therefore, as stated in Section 2.1 of the Risk Evaluation, train traffic was based on a KNBR news story on a 15 March reporting that "Union Pacific runs more than 20 trains a day through Sacramento"

[1] ERM. *Screening Health Risk Evaluation for Railway Diesel Emission Exposure*. February 2008.
[2] ENVIRON. *Sacramento Rail Yards Redevelopment Screening Health Risk Assessment of DPM from Freeway and Railway*. July 2007.

according to a survey conducted in the summer of 2006. UPRR would not confirm whether the trains would operate on the freight line passing the western boundary of Curtis Park Village. Therefore, the risk evaluation utilized the conservative assumption that diesel emissions from passing locomotives would be generated by 40 trains per day passing Curtis Park, and assuming all trains would travel along the freight line near Curtis Park Village, emissions due to periods of idling locomotives would be accounted for. The study assumed each train was powered by 2.9 locomotives, which is consistent with the average number of locomotives per train in the Roseville Study. Cancer risk estimates are based on an annual average emission rate and assume a 70-year exposure period. The conservative assumption of 40 trains includes intermittent emissions from idling locomotives.

Response to Comment 5-202

See Response to Comment 5-201. Based on the conclusions of the risk evaluation, further analysis, including atmospheric dispersion modeling, was not required. The risk evaluation included analysis of carcinogenic (chronic and acute) health effects. However, acrolein is not considered carcinogenic.

Response to Comment 5-203

See Responses to Comments 5-201 and 5-202.

Response to Comment 5-204

As stated on page 5.3-9 of the DEIR, URBEMIS-2007 was utilized to estimate the maximum construction emission from import of fill related to remediation of site soil contamination from trucks, equipment exhaust, construction worker vehicles trips and fugitive dust. All URBEMIS model runs were included in appendix E of the DEIR.

Response to Comment 5-205

Acrolein is considered to be a non-carcinogenic. As noted by the commenter, acrolein is a constituent of diesel emissions. The DEIR determined that the emission of PM_{10} could exceed the particulate matter ambient air quality standards and includes mitigation to reduce emission of PM_{10}.

Response to Comment 5-206

See Response to Comment 5-201.

Response to Comment 5-207

Development of the project site would occur after project site is adequately cleaned to DTSC standards. In addition, as stated on page 5.8-13 of the DEIR post-certification excavation or soil removal is not permitted without prior DTSC approval.

Response to Comment 5-208

The comment does not address the adequacy of the EIR.

Response to Comment 5-209

The comment is a generalized statement and does not address the adequacy of the DEIR.

Response to Comment 5-210

The comment relates project greenhouse emissions to the disclosure standards of the Air Resources Board. The Board standards do not purport to establish a threshold of significance. The City has recognized that the GHG emissions from development that could occur under the 2030 General Plan would be cumulatively considerable, and has adopted strategies to reduce such emissions. In addition, see Chapter 3 for a Master Response regarding GHG emissions.

Response to Comment 5-211

The City of Sacramento has implemented demonstrable action to respond to the cumulative effects of GHG emissions. In addition, see Chapter 3 for a Master Response regarding GHG emissions.

Response to Comment 5-212

Per Section 15151 of the CEQA Guidelines, the evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. The Draft EIR and the 2030 General Plan Master EIR identified anticipated emissions.

The Local Government Operations Protocol for the quantification and reporting of GHG emissions inventories issued by the California Air Resources Board in September 2008 provides guidelines for local government operational inventories. The Guidelines identify three types of emissions:

Scope 1: All direct GHG emissions (with the exception of direct CO2 emissions from biogenic sources).

Scope 2: Indirect GHG emissions associated with the consumption of purchased or acquired electricity, steam, heating, or cooling.

Scope 3: All other indirect emissions not covered in Scope 2, such as emissions resulting from the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity (e.g., employee commuting and business travel), outsourced activities, waste disposal, etc.

The Guidelines provide that local governments should, at a minimum, quantify and report all Scope 1 and Scope 2 emissions. Reporting of Scope 3 emissions is optional.

The City has not included Scope 3 emissions in its project-specific inventories. The information disclosed by such analyses is, due to the nature of the inquiry, less accurate and less informative than the information about Scope 1 or Scope 2 emissions, which are subject to control by the local agency.

Response to Comment 5-213

The comment refers to analysis of Scope 3 emissions (See Response to Comment 5-212, above). Such reporting is optional, is not required and has not been included for the reasons stated.

Response to Comment 5-214

The comment refers to analysis of Scope 3 emissions (See Response to Comment 5-212, above). Such reporting is optional, and is not required and has not been included for the reasons stated.

Response to Comment 5-215

The City believes, consistent with the quotation from the Draft EIR, that the proposed project, and indeed other projects developed consistent with the 2030 General Plan, will help to reduce vehicle miles traveled in the community. This was not, however, the baseline that was used for analysis of impacts. The baseline utilized was current conditions.

Response to Comment 5-216

The text on page 5.3-19 does not state that the proposed project would reduce GHG emissions. The statement reads "Given the high density and mixed-use nature of the proposed development coupled with the proximity to existing employment centers and retail attractions in the City, the *proposed project could reduce daily vehicle travel* (emphasis added). This would aid in California's goal to reduce GHG under AB 32."

Response to Comment 5-217

The comment relates to the threshold of significance utilized in the Draft EIR for emission of GHGs. The Draft EIR indicates that protocols for establishing the effect of a specific development project on a cumulative global temperature increase have not been developed. Extensive hearings and consideration by the California Air Resources Board failed to result in any definitive threshold, and the Office of Planning and Research revisions to the CEQA Guidelines were also general in nature.

CEQA Guidelines Section 15064.7 (a) encourages public agencies to develop and publish thresholds of significance, and the Draft EIR provides as much information regarding the standard as is reasonable under the circumstances, given the absence of substantial evidence on the relationship between a specific project and global changes. The Draft EIR indicates that its discussion "[…] focuses on the proposed project's contribution to global climate change by quantifying GHG emissions and qualitatively discussing project GHG reductions […]" (See

Impact 5.3-7, page 5.3-18) This discussion and approach is informative, and is sufficient based on the state of current knowledge of the issue.

Response to Comment 5-218

The comment relates to the threshold of significance utilized in the Draft EIR for emission of GHGs. See Response to Comment 5-217.

Response to Comment 5-219

The comment relates to the threshold of significance utilized in the Draft EIR for emission of GHGs. See Response to Comment 5-217.

CEQA Guidelines Section 15002 (g) defines "significant effect on the environment" as a "[…] substantial adverse change in the physical conditions which exist in the area affected by the proposed project." The Master EIR concluded that the GHG emissions that could result from development consistent with the 2030 General Plan would be cumulatively considerable, and identified mitigation in response, eventually concluding that the effect was significant and unavoidable. As noted above, extensive investigation and hearings at the California Air Resources Board failed to identify a reliable measure of effect that could be used as a threshold for GHG emissions and individual development projects, and the conclusion regarding the effect of general plan development was not based on evidence of any specific and quantifiable change.

The City of Sacramento has, however, recognized the need for action, and has also recognized the need for compliance with the state mandates for GHG emissions reductions. Guidelines for development in the goals and policies of the 2030 General Plan, and the preparation of a Climate Action Plan, are designed to comply with the needed emission reductions. The commenter has provided no substantial evidence that this project, or any specific individual project, would cause specific and measurable changes in global climate, and the City is aware of no such evidence. In the absence of such substantial evidence, the approach taken in the Draft EIR is reasonable, and adequately informs the decision-makers and the public.

Response to Comment 5-220

The comment refers to references to policies in the consideration of impact of GHG emissions. The City has not, as implied in the comment, attempted to rely on CEQA Guidelines Section 15064(h)(3) in its analysis. In fact, of the various state requirements considered by the City, including AB32, and the various statements of potential actions to reduce GHG emissions, including those propounded by the Office of the Attorney General, Association of Environmental Professionals and the California Air Pollution Control Officers' Association, none assert a method of identifying specific and measurable changes in climate change to specific projects, and none could meet the standards required by the cited section. The City of Sacramento has responded to the challenge in a manner its feels is likely to result in positive action, through the adoption of programs and policies in the 2030 General Plan and the analysis of cumulative effects in the 2030 General Plan Master EIR, which has been incorporated by reference (see

Master Response). The City has adopted an approach which reviews the facts and circumstances and provides a reasonable assessment of the impact.

Response to Comment 5-221

The comment relates to the threshold of significance utilized in the Draft EIR for emission of GHGs. See Response to Comment 5-217. The comment supports the City's response to Comment 5-220, above.

Response to Comment 5-222

The comment relates to the threshold of significance utilized in the Draft EIR for emission of GHGs. See Response to Comment 5-217. The comment supports the City's response to Comment 5-220, above.

Response to Comment 5-223

The comment refers to the Master EIR and the City's response to the comment letter submitted by the Office of the Attorney General. See also Errata No. 2, which revised the City's response to the Attorney General's comments.

The comment's assertion that the Draft EIR fails to discuss and consider GHG emissions reduction measures is inaccurate. See, e.g., Table 5.3-8, "Greenhouse Gas Reduction Measures," Draft EIR page 5.3-21 et seq.

Response to Comment 5-224

The Draft EIR discusses GHG emissions in detail (See Impact 5.3-7) and in the course of that discussion specifically references the Attorney General suggestions for emission reductions. The Draft EIR discussion includes project design in its review, and the Planned Unit Development Guidelines (PUD Guidelines), referenced by the commenter, are included in this discussion. The PUD Guidelines are one method the City uses in regulating development, and provide the City with both a means of encouraging design, and a means of enforcement. This approach is consistent with the City's view that any meaningful, long-term, reduction in GHG emissions must be based, in substantial part, on changes in our land use strategies. PUD Guidelines for development projects, as in this case, are part of that strategy.

The commenter disagrees with the use of the word "mitigation" in the discussion, and the commenter may be technically correct. The discussion of the impact as a whole, however, makes it clear that the City has analyzed the cumulative effects of development in the Master EIR, and is taking effective steps in individual projects to reduce GHG emissions as part of the City's long-term strategy. The discussion is adequate to inform decision-makers and the public of any project impacts.

Response to Comment 5-225

The comment addresses the use of the word "mitigation" in the discussion of Impact 5.3-7. See response to Comment 5-224.

Response to Comment 5-226

The comment addresses the reference to Governor's Executive Order S-3-05. See response to Comment 5-220.

Response to Comment 5-227

The comment refers to the California Air Resources Board reporting requirements for covered facilities such as electrical generation plants. The Board's action in excluding mixed use and residential projects from the reporting requirement is instructive, and points to the difficulty in crafting a meaningful measure for such development. The reporting limit of 30,862 tons referenced by the commenter is irrelevant to the discussion in the Draft EIR.

The commenter also refers to per capita emission levels got California residents. The statewide GHG inventory includes many sectors that are irrelevant in the Sacramento urban setting, including forestry, agricultural and industrial. The statewide emissions figures do not measure the same emissions types as referred to in the comment.

Response to Comment 5-228

See Response to Comment 5-227, above.

Response to Comment 5-229

The City has recognized that such emissions should be considered. See, for example, the discussion of construction and operations emissions in the Master EIR, pages 8-35 et seq. See also the discussion of construction and operations impacts in the discussion of Impact 5.4-7 in the Draft EIR, pages 5.3-18 et seq.

Response to Comment 5-230

The comment correctly points to the Draft EIR reference to the Master EIR as providing an appropriate cumulative context for the analysis of GHG emissions. As discussed at greater length in the Master Response regarding GHG Emissions, the City has adopted general plan policies and goals that direct efforts to the design and development of a city that minimizes vehicle miles traveled, and designs buildings that are more efficient. In addition, the City, consistent with the 2030 Plan directive, is preparing a Climate Action Plan that identifies specific and enforceable measures that can be implemented to reduce GHG emissions city-wide.

Response to Comment 5-231

The comment summarizes the actions taken by the City Council relating to climate change as part of the certification of the 2030 General Plan Master EIR, and does not require a response.

Response to Comment 5-232

The City concluded that the development that could occur under the 2030 General Plan would be cumulatively considerable; the Draft EIR concludes that such emissions that could occur as a result of the project would not be cumulatively considerable. The comment does not point to any substantial evidence in the record that contradicts the finding in the Draft EIR. See also the Master Response regarding GHG Emissions and Response to Comment 3-8.

The Draft EIR identified GHG emissions as a potential impact, discussed the emissions that would be generated by the project, and referred to the Master EIR and its analysis of GHG emissions that could be generated by development consistent with the 2030 General Plan. While the commenter disagrees with the City's conclusion that the GHG emissions from the project would not be cumulatively considerable, such disagreement does not require recirculation. No new significant impacts have been identified, and none of the reasons for recirculation identified in CEQA Guidelines Section 15088.5 are present. See also the Master Response related to Recirculation.

Response to Comment 5-233

The comment requires no additional response. See the Master Response regarding GHG Emissions and Response to Comment 3-8.

Response to Comment 5-234

For clarification purposes, Mitigation Measure 5.4-7 on page 5.4-28 of the DEIR is revised as follows:

> *5.4-7 Prior to the issuance of building permits, a noise barrier shall be shown on the plans along the western boundary of the project site, from the northern boundary of the CPV site to the southern end of ~~the Multi-family parcel,~~any parcel with residences for the review and approval of the City Engineer. A barrier 10 feet in height (relative to nearest outdoor activity elevations) would intercept line of sight to railroad pass-bys, thereby reducing future UPRR noise levels to 70 dB Ldn or less at the nearest outdoor activity areas proposed adjacent to the tracks.*
>
> *Barriers can take the form of earthen berms, solid walls, or a combination of the two. Appropriate materials for noise walls include precast concrete or masonry block. Other materials may*

be acceptable provide they have a surface density of approximately four pounds per square foot.

The above revision is for clarification purposes and does not change the conclusions in the DEIR.

Response to Comment 5-235

See Response to Comment 5-50.

Response to Comment 5-236

See Responses to Comments 5-50 through 5-54 and 5-57.

Response to Comment 5-237

The 1995 RAP has been available at the City of Sacramento Community Development Department.

Response to Comment 5-238

See Responses to Comments 5-50 through 5-54, 5-57, and 5-71.

Response to Comment 5-239

See Responses to Comments 5-12 and 5-13.

Letter 6

Sacramento Area Bicycle Advocates
SABA
Making Sacramento a cycling capital

909 12th Street Ste 114 Sacramento, CA 95814 (916) 444-6600 www.sacbike.org

May 15, 2009

Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

RE: Curtis Park Village Project DEIR (P04-109)

Dear Ms. Hageman:

6-1 Thank you for the opportunity to comment on the DEIR on the Curtis Park Village Project. We are concerned that the project with its commercial space as currently described and laid-out does not meet the project objective of adding "vibrant, supportive components to the existing neighborhood structure." The existing neighborhood structure is characterized by small-scale streets and retail clusters that invite pedestrian and bicyclist use. The current Curtis Park Village layout does not respond aggressively to the opportunities to link residents and visiting pedestrians and bicyclists to the light-rail stations at Sacramento City College and 4th Avenue.

6-2 The Curtis Park Village site has poor external connections and the opportunities for connectivity are limited because of the rail tracks on the west, the elevation of the Sutterville Road overcrossing at the south end and existing development pattern i.e., continuous row of houses lots along Portola Way and 24th Street north and east of the project site. The current project proposal has only three planned connections to the east, though the existing neighborhood to the east has 12 blocks over the length of the project site. The existing street grid is not continued into the project site.

6-3 The commercial area at the southern end of the project site is based on a suburban model rather than a more urban model. The commercial space is separated from the street by a parking lot which discourages trips by bicyclists and pedestrians.

6-4 The proposed project does not support transit-oriented development near the 4th Avenue light rail station because of its planned single-family, low-density residential in that vicinity.

6-5 The DEIR describes a significant adverse impact of the current project on traffic levels on Sutterville Road east and west of the project entrance. The DEIR describes mitigation measure 5.2-2(a) to partially reduce the impact which remains "significant and unavoidable." The project's long-term increase of criteria air pollutants and its cumulative contribution to adverse regional air quality conditions also remain significant and unavoidable. We have several comments about these impacts and recommendations for their mitigation:

6-6

**Letter 6
Cont'd.**

6-7 1. Increased traffic on Sutterville Road not only adversely affects vehicle use on that street but also adversely affects pedestrians and bicyclists who travel Sutterville Road between neighborhoods, retail areas, parks, and schools both east and west of the project. The adverse effects include noise, vehicle exhaust, the unpleasantness of traveling next to high traffic volumes and an increased risk of traffic crashes.

6-8 2. The mitigation measures described are insufficient to fully address the impact of the increased traffic on Sutterville Road. We believe neither the shuttle to the light-rail station or reserving the pedestrian-bridge footprint is complete mitigation for this impact.

3. We recommend additional bicycle and pedestrian mitigation measures be adopted to decrease vehicle trips and address the traffic, air quality and noise impacts:

6-9 a. Redesign the commercial and retail space at the southern end of the project to constitute a neighborhood-oriented "Traditional Retail Center" (of small-scale retail spaces) clustered around the eastern landing of the pedestrian/bicycle bridge from the project to the City College light-rail station (thereby removing large commercial spaces aimed at attracting customers by vehicle from distant locations)

6-10 b. If a major grocery store is included in the commercial area, reorient the store that it is directly fronts the street rather than is removed from the street behind a parking lot. A grocery store is likely to be the largest trip generator on the site so its access is especially important. The store could "back up" to Sutterville Road and have vehicle parking on the side.

6-11 c. Contribute financially to the construction of a pedestrian/bicycle bridge or at grade crossing between the project and the City College light-rail station.

6-12 d. Increase residential density near the 4th Avenue light rail station.

6-13 e. Provide an at grade bicycle and pedestrian crossing to the 4th Avenue light rail station.

6-14 f. Provide additional bicycle/pedestrian connections to the east. This could be through bicycle/pedestrian paths connecting to the mini-parking lot across the street from the middle of the commercial area and to the planned alley connection near the park area. It appears that connection through the parking lot could be done without significant changes to the plan. The alley connection would require purchase and demolition of an existing residence. These connections would significantly improve bicycle and pedestrian access from the existing Curtis Park neighborhood to the project commercial area, park and residences.

6-15 g. Align the planned western north/south street in the northern quarter of the site so that it forms an intersection with the 22nd Street bicycle/pedestrian path from Portola Way to improve visibility, security and safety at the new intersection.

6-16 h. Long term and short term bicycle parking should be provided throughout the project site.

2

Letter 6
Cont'd

6-17 We are also concerned that the large-scale commercial spaces proposed at the southern area of the project will cause levels of traffic on the streets internal to the project that are not friendly to pedestrians and bicycle users on the project streets and on the connecting streets to the adjacent Curtis Park neighborhood. We therefore request that the large-scale commercial spaces be removed from the project.

6-18 SABA is an award-winning nonprofit organization with more than 1400 members. We represent bicyclists. Our aim is more and safer trips by bike. We are working for a future in which bicycling for everyday transportation is common because it is safe, convenient, and desirable. Bicycling is the healthiest, cleanest, cheapest, quietest, most energy efficient, and least congesting form of transportation.

Thank you for considering our requests.

Yours truly,

Walt Seifert for

Jordan Lang
Project Assistant

3

LETTER 6: JORDAN LANG, SACRAMENTO AREA BICYCLE ADVOCATES

Response to Comment 6-1

The comment is an introductory statement that discusses the merits of the project and does not address the adequacy of the DEIR.

Response to Comment 6-2

The commenter is correct that there are 12 roadways along the eastern portion of the project site. However, as shown on Figure 3-3 on page 3-6 of the DEIR, existing residential structures inhibit the construction of additional roadway connections.

Response to Comment 6-3

All streets within the proposed site would be designed in accordance with the City's "Pedestrian Friendly Street Standards" that would provide for pedestrian needs and enhance connectivity with existing City streets. Therefore, consistent with the conclusions in the DEIR, mitigation would not be required for the proposed project or any access scenarios.

Response to Comment 6-4

As stated on page 5-43 of the DEIR, the Regional Transit District has agreed to relocate Routes 63 and 64 to provide bus stops at 10th Avenue, Donner Way, and 5th Avenue. Relocation of the bus stops would not only provide convenient access to the project, but would also improve the overall bus transit network in the area.

Response to Comment 6-5

The comment reiterates language in the DEIR and does not address the adequacy of the DEIR.

Response to Comment 6-6

The comment reiterates language in the DEIR and is an introductory statement for comments 6-7 through 6-16.

Response to Comment 6-7

The impacts of traffic on Sutterville Road were analyzed in Chapter 5.2, Transportation and Circulation, of the DEIR. In addition, traffic-related noise impacts were addressed in Chapter 5.4, Noise, and traffic-related air quality impacts were addressed in Chapter 5.3, Air Quality. The increase in traffic on Sutterville Road from the project would not result in unsafe conditions for bicyclists or pedestrians, including unsafe pedestrian/bicycle or pedestrian/motor access, nor would the project hinder or eliminate an existing designated bikeway, or interfere with implementation of a proposed bikeway. Therefore, the increase in traffic from the project on Sutterville Road would have less-than-significant impacts related to bicycle and pedestrian travel.

Response to Comment 6-8

The comment suggests implementation of alternative mitigation measures for an impact already found to be less-than-significant with implementation of the mitigation measures in the DEIR. The alternative mitigation measures in comments 6-9 through 6-16 will be forwarded to the decision-makers for their consideration.

Response to Comment 6-9

The comment suggests implementation of an alternative mitigation measure for an impact already found less-than-significant with implementation of the mitigation measures in the DEIR. The small-scale retail space alternative mitigation will be forwarded to the decision-makers for their consideration.

Response to Comment 6-10

The comment suggests implementation of an alternative mitigation measure for an impact already found less-than-significant with implementation of the mitigation measures in the DEIR. The grocery store orientation alternative mitigation will be forwarded to the decision-makers for their consideration.

Response to Comment 6-11

The comment suggests implementation of an alternative mitigation measure for an impact already found less-than-significant with implementation of the mitigation measures in the DEIR. The fair-share alternative mitigation will be forwarded to the decision-makers for their consideration.

Response to Comment 6-12

The comment suggests implementation of an alternative mitigation measure for an impact already found less-than-significant with implementation of the mitigation measures in the DEIR. The increased density alternative mitigation will be forwarded to the decision-makers for their consideration.

Response to Comment 6-13

The comment suggests implementation of an alternative mitigation measure for an impact already found less-than-significant with implementation of the mitigation measures in the DEIR. The pedestrian/bicycle crossing alternative mitigation will be forwarded to the decision-makers for their consideration.

Response to Comment 6-14

The comment suggests implementation of an alternative mitigation measure for an impact already found less-than-significant with implementation of the mitigation measures in the DEIR. The

pedestrian/bicycle connection alternative mitigation will be forwarded to the decision-makers for their consideration.

Response to Comment 6-15

The comment suggests implementation of an alternative mitigation measure for an impact already found less-than-significant with implementation of the mitigation measures in the DEIR. The alignment alternative mitigation will be forwarded to the decision-makers for their consideration.

Response to Comment 6-16

The comment suggests implementation of an alternative mitigation measure for an impact already found less-than-significant with implementation of the mitigation measures in the DEIR. The bicycle parking alternative mitigation will be forwarded to the decision-makers for their consideration.

Response to Comment 6-17

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 6-18

The comment is a concluding statement that does not address the adequacy of the EIR.

Letter 7

ECOS
ENVIRONMENTAL
• COUNCIL •
OF SACRAMENTO

909 12th Street, Suite 100 • Sacramento, CA • 95814 • (916) 444-0022

June 1, 2009

Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

SUBJECT: CURTIS PARK VILLAGE DRAFT ENVIRONMENTAL IMPACT REPORT

Dear Ms. Hageman:

Several years ago, the ECOS Land Use Committee offered its conditional support of the "Curtis Park Village" development plan, as part of the Smart Growth Leadership Recognition Program (SGLRP). ECOS applauded the vision of mixed-use residential, retail, and commercial zoning within the project, as well as its focus on increasing the availability of mixed-income housing for Sacramento and encouraging public transportation for future residents.

ECOS is not currently prepared to endorse the most recent iteration of the project, despite our endorsement of the previous iteration.

7-1

Recent changes to the project – including site design and toxic substances cleanup provisions in the March 2009 Curtis Park Village Draft Environmental Impact Report (DEIR) – must be addressed before we can endorse the most recent iteration of the project. We urge the City of Sacramento to adequately address the following concerns before approving any Final Environmental Impact Report (EIR).

Design Issues within the DEIR

The ECOS Land Use Committee commends Petrovich Development Company for its collaboration with community members to help develop Curtis Park Village as mixed-use infill that is compatible with its community. The proposed land-use plan consists of approximately 166,000 square feet of commercial retail; 10,000 square feet of office space; entertainment and lodging uses; 178 single-family home sites; an 80-unit senior multi-family housing complex; a 212-unit multi-family residential housing complex and an 8.7 acre park on approximately 72 acres.

7-2

ECOS cannot, however, endorse this plan under the SGLRP without more specific information.

7-3

The Curtis Park Village project would be a Planned Unit Development (PUD), and a review of the PUD guidelines is necessary to adequately evaluate the project and its impacts. To allow the

Letter 7 Cont'd

EIR to serve its purpose of allowing the public to evaluate the project and its impacts, the PUD guidelines should be included in the Final EIR. Without access to these guidelines, the public, including ECOS, cannot adequately evaluate this project.

7-3 cont. ECOS has not yet had the opportunity to work with Petrovich Development to review the PUD guidelines. Initial review of project plans without more specific information, however, yields two points of potential project improvement.

7-4 First, the overall densities and intensities of use for the most recent iteration are less than the previous iteration of the project. The most recent iteration contains substantially fewer residential units and less commercial square footage. The site's prime location near Sacramento's urban core, and on major transit lines, justifies urban, transit-supportive densities and intensities, with strong connections to adjacent transit stops. We commend the project's use of existing urban infrastructure; and we support using its infill location to best advantage by developing it with appropriate urban densities and intensities of use.

7-5 Second, the DEIR indicates that a strip of commercial development with copious parking would be located at the southern end of the site. The shared parking study in Appendix D of the DEIR bases its analysis on uses including a grocery store of over an acre in size, and over three acres of total retail space not including parking. Neighborhood retail appropriate to urban environments, including grocery stores, is typically smaller in size than the proposed retail. The proposed commercial development has the potential to be "big box" retail – depending on its physical design – and to pose associated impacts on non-motorized circulation and adjacent transit lines.

7-6 We commend the shared parking study for the proposed commercial development, and suggest further measures to mitigate the potential effects of parking on the surrounding community. Possible measures include performance parking pricing, a parking benefit district and unbundling parking from commercial rents. These measures are appropriate to the site's urban environment; and they are demonstrated to be cost-effective and efficient in mitigating the negative impacts of copious parking, as well as alleviating perceived need for copious parking. More information on these measures is available in *The High Cost of Free Parking*, by Donald Shoup.[1]

Toxic Substances Cleanup

7-7 The original plan endorsed by ECOS promised a full cleanup of all hazardous materials. Understandably, the discovery of three-times the amount of hazardous substances onsite than originally thought will require a redrafting of the Remedial Action Plan (RAP) and a restructured cleanup. ECOS is concerned because the current DEIR does not make clear where the remaining hazardous soil is located or how any new cleanup will occur. The DEIR indicates only that the areas of the project zoned for single-family housing will be "cleaned to an unrestricted use standard," while other areas may be subject to "restricted deeds."[2] **ECOS urges the City to**

[1] Shoup, Donald. *The High Cost of Free Parking.* American Planning Association, 2005.
[2] *See* DEIR §5.8-2.

Letter 7
Cont'd

7-7 cont. **require adequate cleanup in non-single family home areas to ensure protection for the health and safety of families living in multi-family and senior housing.**

7-8 Furthermore, prior to approving any government action which may affect the environment, the California Environmental Quality Act (CEQA) requires adequate public participation in all aspects of a proposed action.[3] For instance, the public is entitled to be made aware of the mitigation measures within the plan designed to address potential environmental impacts.[4] In projects involving hazardous materials, a Remedial Action Plan (RAP) for cleanup is one such mitigation measure. When measures are proposed to mitigate environmental effects under CEQA, project plans **must** be revised to incorporate these mitigation measures "before the proposed negative declaration is released for public review."[5] As such, the public must be afforded the opportunity to review any proposed mitigation measure prior to project approval.[6]

7-9 In the March 2009 DEIR, the City of Sacramento makes repeated reference to the "updated RAP," and claims that "the remediation of the site, pursuant to the updated RAP, will be completed prior to development of the Curtis Park Village project."[7] However, the updated RAP is not included in the DEIR. ECOS understands that an update to the RAP will likely proceed pursuant to a Department of Toxic Substances Control (DTSC) public notice and comment process. As such, ECOS reserves its right to add further comments during the likely DTSC revised RAP process.

7-10 ECOS reminds the City of Sacramento that Senate Bill 120 (1999 Ortiz & Steinberg) prohibits the Department of Toxic Substances Control (DTSC) from "making any determination that a response action at the [project site] is complete, until after the City of Sacramento has completed its land use planning process **and** all response actions necessary to conform to the approved land use plan are complete." Therefore, the cleanup must be fully completed to conform to the land use designations prior to any determination of completion by DTSC.

7-11 Finally, the ECOS Land Use Committee has been informed that Petrovich Development Company has included in its discussions with the City of Sacramento and the Sierra Curtis Neighborhood Association a Planned Unit Development (PUD) Site Remediation Commitment, which includes a map of where the remaining toxic soil is located and where it would be stored. According to Petrovich Development Company, this "commitment is provided by the Project Applicant to ensure that all housing areas, single-family or multi-family, are remediated to unrestricted standards." We commend this laudable commitment and would fully support the City's actions to implement and enforce this cleanup.

7-12 The ECOS Land Use Committee continues to support and applaud efforts by local government to promote and implement mixed-use development, and strongly supports Sacramento's Mixed-Income Housing Ordinance. ECOS respectfully requests that the City carefully review the

[3] *See* Public Resources Code § 21000 *et seq.*
[4] *See* id. at § 21092.
[5] Sundstrom v. County of Mendocino (1988) 202 Cal.App.3d 296, 306-308. (emphasis added).
[6] *See* Gentry v. City of Murrieta (1995) 36 Cal.App.4th 1359, 1397.
[7] *See* DEIR § 2.1.

Letter 7
Cont'd

7-12 cont.

proposed DEIR in light of the above concerns. Please feel free to contact us should you have any questions.

Sincerely,

Paul Menard, Co-Chair, Land Use Committee
Environmental Council of Sacramento

Molly Wright, Co-Chair, Land Use Committee
Environmental Council of Sacramento

Jason Gray, Land Use Committee
Environmental Council of Sacramento

cc: Graham Brownstein, Environmental Council of Sacramento
Rosanna Herber, Sierra Curtis Neighborhood Association
Alex Kelter, Environmental Council of Sacramento
Paul Petrovich, Petrovich Development

LETTER 7: PAUL MENARD, ENVIRONMENTAL COUNCIL OF SACRAMENTO

Response to Comment 7-1

The comment is an introductory statement and does not address the adequacy of the DEIR.

Response to Comment 7-2

The comment does not address the adequacy of the EIR.

Response to Comment 7-3

The PUD Guidelines have been available at the City of Sacramento in the planning application file. For informational purposes, they are included as Appendix E of this FEIR

Response to Comment 7-4

The comment discusses the proposed project's density and does not address the adequacy of the DEIR.

Response to Comment 7-5

The comment discusses commercial development and parking in relation to the proposed project and does not address the adequacy of the DEIR.

Response to Comment 7-6

The comment suggests further measures to reduce parking impacts. The DEIR concludes that impacts related to parking are less-than-significant and mitigation is not required. The additional measures will be forwarded to the decision-makers for their consideration.

Response to Comment 7-7

See Responses to Comments 5-12, 5-14, and 5-37.

Response to Comment 7-8

See Response to Comment 5-37. The RAP is not a mitigation measure included in the DEIR for cleanup of the proposed project site. The CEQA analysis performed for the cleanup of the project site was analyzed in an initial study that was prepared for the original RAP. The project includes environmental analysis of alternative remediation methods for the updated RAP. As stated previously, following approval of the EIR, the draft updated RAP would be circulated for public review for a minimum of 30 days. Following the RAP public review, the Final RAP would be prepared. The DTSC-approved Final RAP would include detailed descriptions of the remedial actions that would be undertaken, and would incorporate public comments received during the review of the draft updated RAP.

Response to Comment 7-9

See Response to Comment 5-37.

Response to Comment 7-10

See Response to Comment 5-37.

Response to Comment 7-11

This comment does not address the adequacy of the DEIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 7-12

The comment does not address the adequacy of the EIR.

Letter 8

LPCA

LAND PARK COMMUNITY ASSOCIATION

June 1, 2009

Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento CA95811

RE: Sierra Curtis Village DEIR Comments

Dear Ms. Hageman;

8-1

Recently, the Land Park Community Association underwent a fairly dramatic change in leadership and direction at the hands of the members who overwhelmingly adopted a set of reforms. It wasn't until just last month that the newly elected board of directors was seated and we are still in the process of getting organized. Because of this it has been impossible for us to consider the Sierra Curtis Village Draft Environmental Impact Report in any detail until now.

In order that we may undertake a meaningful review of the report we request that we be granted a thirty (30) day extension of time to July 1st in which to file our comments. We believe it would be truly unfortunate for the residents of Land Park to be denied a chance to comment on this important document that will undoubtedly affect our neighborhood for decades to come as a result of the timing of these recent organizational changes.

Very truly yours,

Jon Jensen, Chair
LPCA Land Use Committee

Cc: Mr. Robert King Fong
Ms. Lauren Hammond
Mr. Ray Kerridge
Mr. William Thomas

P.O. Box 188285 • Sacramento, California 95818-8285

LETTER 8: JOHN JENSEN, LAND PARK COMMUNITY ASSOCIATION

Response to Comment 8-1

The comment period on the Draft EIR was extended for a total review period of 75 days (April 1 to June 15, 2009).

Letter 9

WRITTEN COMMENTS

To: Jennifer Hageman, Senior Planner
Development Services Department
City of Sacramento
300 Richards Blvd.
Sacramento, CA 95811

From: Caroline Peck, Coordinator,
SAFFE, Safely Along Freeport For Everyone
2201 6th Ave
Sacramento, CA 95818
Received public notice of availability in the mail regarding this project
www.saffesacramento.org

Date: June 1, 2009

Re: Draft EIR – Curtis Park Village (CPV) Project

SAFFE, a neighborhood coalition, has an interest in the impacts from the Curtis Park Village Project due to the expected increase in the traffic, including high speed traffic, on Freeport Blvd and its impact on cyclists.

9-1 Due to the current conditions, SAFFE was formed and is working towards achieving bike lanes and complete streets along this stretch of Freeport Blvd. The Curtis Park Village Project development will increase traffic along Freeport Blvd and make it more unsafe for bicyclists and pedestrians.

9-2 In addition, increased ADT will make it harder in the future to implement bike lanes or complete streets along Freeport Blvd. between Sutterville and Vallejo.
Bike lanes on Freeport are listed in the Bike Master Plan that goes through 2010, the CPV EIR does not address that issue; instead they say it will not impact bicycles at all. The EIR fails to justify this assumption and needs further evaluation. More traffic on Freeport will make it even more dangerous for cyclists. As cyclists who are fearful ride on the sidewalk, it is not only illegal but also dangerous for pedestrians.

9-3 In addition, bike lanes on Freeport between Sutterville and Vallejo is recommended by the SACOG Safe Routes to Transit 2006 and the Los Rios Transportation Connections Plan 2008. This bike project will achieve continuity of bike lanes by linking the bike lanes on Freeport south of Sutterville and those north of Vallejo on Freeport and 21st Street. There are two light rail stations along this 1 mile stretch of Freeport Boulevard, as well as McClatchy High School, Sacramento City College and Eskaton Monroe Lodge (elderly residential center). Due to the proximity of the two light rail stations, the schools, the elderly center, houses with driveways directly on Freeport and local

Letter 9
Cont'd

9-3 cont.

businesses, the 2030 Sacramento City Plan defined this section of Freeport Boulevard a 'mixed-use corridor'. Mixed-use corridors are ideal for complete streets that include bike lanes.

Bikes lanes on Freeport is a known project and is also listed as a project in the City Transportation Programming Guide.

9-4

I, as a neighbor directly impacted by this development and SAFFE Coordinator, request further studies and appropriate mitigation for the impact of the Curtis Park Village Project to the bike lane project and our neighborhood's quality of life. This could be achieved by addition of north/south bike lanes on Freeport Blvd between Sutterville and Vallejo by reducing from four lanes on Freeport to two lanes with left turn lane. This is also known as 'Complete Streets' where the needs of cyclists, pedestrians, transit users, the disabled and vehicle drivers are all taken into account.

9-5

We also believe the increase in the number of square feet of commercial and retail properties over the original 160,000 square feet will result in even more traffic than was originally proposed by the project proponent.

9-6

And, as stated by the project proponent , most of the traffic will be generated by the commercial/retail businesses at the southern end of the project and will use Sutterville and Freeport Blvd.

9-7

In addition, the types of commercial/retail uses now being proposed for the project are different from that used to develop the traffic study. This results in different traffic assumptions and results identified in the Draft EIR. This should be corrected so that the traffic study actually reflects the most accurate study of the project's most recent commercial/retail uses.

9-8

Thank you for allowing this opportunity to make our concerns known. If you have any questions, please do not hesitate to contact me at cpeck99@gmail.com or (916) 444-3389.

LETTER 9: CAROLINE PECK, SAFFE

Response to Comment 9-1

The comment discusses bicycle and pedestrian safety along Freeport Boulevard. Bicycle and pedestrian impacts are addressed in the DEIR in Chapter 5.2, Transportation and Circulation, on page 5.2-41.

Response to Comment 9-2

The commenter is correct that the Bike Maser Plan lists bike lanes along Freeport Boulevard between Sutterville Road and Vallejo Way. However, as noted on page 5.2-41 of the DEIR, the proposed project is not anticipated to hinder or eliminate the existing bikeways or interfere with the implementation of the planned bikeways in the study area. In addition, all proposed streets would be designed to the City of Sacramento "Pedestrian Friendly Street Standards" with separated sidewalks, vertical curbs, and the appropriate class of bicycle lane to provide enhanced pedestrian and bicycle connections.

Response to Comment 9-3

See Response to Comment 9-2. The conversion of Freeport Boulevard and 21st Street from one-way to two-way streets is part of the City's plan to implement complete street strategies.

Response to Comment 9-4

Impacts to bicycle facilities or safety were not identified for the project; therefore, mitigation measures for bicycle facilities cannot be required. The proposed improvements at Freeport Boulevard per the comment letter are outside the scope of the project and shall be forwarded to the decision-makers for their consideration.

Response to Comment 9-5

The proposed project would generate fewer vehicular trips than the land uses as analyzed in the Transportation and Circulation chapter of the DEIR. Please refer to the Trip Generation Comparison Memorandum (See Appendix D) and Response to Comment 5-28 for additional information.

Response to Comment 9-6

See Response to Comment 9-5.

Response to Comment 9-7

See Response to Comment 9-5.

Response to Comment 9-8

The comment is a concluding statement that does not address the adequacy of the EIR.

Letter 10

Sally Lyn Zeff, AICP
2680 9th Avenue
Sacramento, CA 95818

April 5, 2009

Jennifer Hageman, Senior Planner
Development Services Department
City of Sacramento
300 Richards Boulevard
Sacramento, CA 95811

Dear Ms. Hageman:

10-1 This letter presents my comments on the Draft EIR for the Curtis Park Village Project, circulated for public review beginning in March, 2009 (SCH 2004082020). I am a long-time resident and homeowner in the Curtis Park neighborhood adjacent to the proposed project, and I make my comments as a nearby resident and property owner.

10-2 As a nearby resident, my primary concerns are that the EIR adequately disclose the entirety of the proposed project and that the impacts of the project are adequately assessed. My comments focus on the most problematic areas of the EIR, and do not address minor text errors or non-substantive inconsistencies.

10-3 My comments are based on my review of the DEIR text as presented in a hard copy and a pdf copy found on a disk in the back of the hard copy, and my review of the Appendices to the DEIR, found on the City's website (not found on the disk in the back of the hard copy as described in the Table of Contents of the DEIR). Additionally, I searched the City's website, in an attempt to locate pieces of the project description referred to in the DEIR but not presented in the document or in the Appendices to the document, in hard copy, on disk, or on the City's website where the DEIR is located.

The Draft EIR is inadequate and should be recirculated after revisions are made.
The Draft EIR is inadequate in a number of areas and should be recirculated following revisions to address these inadequacies. Recirculation will be required, as the changes to the DEIR will require the addition of significant new information as defined in CEQA Guidelines Section 15088.5.

10-4 It concerns me as a neighbor and a citizen that, although this EIR has been in preparation for five years, and the schedule for release of the EIR has been delayed more than once for reasons related to the traffic study, the Draft EIR nevertheless appears to have been thrown together in a hurry, without time to ensure that it is internally consistent and that all analysis was performed using the current project description. This flies in the face of the commitment made to the neighborhood that the EIR would be thorough and complete, and include a thorough and complete traffic study.

The Draft EIR Project Description is incomplete and not stable throughout the document.

10-5 **Presentation of Project Description information in the EIR is incomplete.**
The Project Description does not provide adequate information to allow the reader to understand the potential impacts of the project. Additionally, in several areas, elements of the project are described as limiting the impacts of the project to a less than significant level, but those elements of the project are not presented in the DEIR and are not available for public review.

Letter 10 Cont'd

Design Guidelines

The Design Guidelines were not presented in the Appendices to the EIR. I was able to locate the "Pattern Book" under the title "Design Guidelines on the City's website at the address below, but it

10-6 is not clear if this 2004 document submitted with the original application is what is intended to be adopted as the Design Guidelines referenced in the EIR if the project is approved. The Pattern Book does not appear to be a complete Design Guidelines document.
http://www.cityofsacramento.org/webtech/curtis_park_village/pdfs/DesignGuidelines.pdf

Schematic Plan

Also located on the City's website, at the address below, was a document entitled "Plans", also submitted at the time of the 2004 application. This document states that it is in fulfillment of the

10-7 PUD requirement for schematic plans. However, the illustrative plans in this document are not consistent with the Project Description in the EIR. The EIR project description and analysis refers to a Schematic Plan, but there is no such document presented in the DEIR or its appendices, and a current version is not available on the City's website.
http://www.cityofsacramento.org/webtech/curtis_park_village/pdfs/Plans.pdf

That the Design Guidelines and Schematic Plan are not presented in the DEIR is important both in order to present a full description of the project analyzed in the EIR and because for several impacts, including Impact 5.1-2 – Aesthetics, and Impact 5.6-3 – Cultural Resources, the EIR states that the Design Guidelines will serve to reduce the impacts to a less than significant level. If the Design Guidelines are a part of the Project Description then they should be presented with

10-8 the EIR.

The Design Guidelines also apparently provide critical project description information not presented in the EIR. On page 3-13 of the Draft EIR, the EIR states: "The Design Guidelines for the project provide further design requirements for each lot type and definition for access options."

Master Plan

In several places in the DEIR, a Master Plan is referenced. For example, in several places in the Project Description, starting on page 3-10, the Curtis Park Village Master Plan is referenced. No Master Plan is found in any place on the City's website or in the DEIR. Approval of a Master Plan is not listed on page 3-19 as one of the actions required for the project. For these reasons, it

10-9 appears that no element of the Master Plan would be approved by the City, and the project could differ considerably from that described in the Project Description. It does not appear that the project as described in the Project Description of the DEIR consists of maximum buildout of the zoning proposed, and for this reason, the Project Description does not describe the full potential development that could occur if the project were to be approved.

10-10 On page 3-12, the Project Description notes that the park as described is shown on the "current master plan". At what point would the master plan, whatever it is, stop changing? The DEIR should describe the project as proposed. What is the proposal?

Project Approvals

10-11 The Project Description contains a full list of required project approvals on page 3-19 of the Draft EIR. Not all of these are described in the Project Description. Three that are not are the RAP, a Subdivision Modification, and ROW abandonment.

10-12 RAP
The proposed revisions to the RAP are not described in the EIR, although the DEIR specifically states that they are part of the project and covered by the analysis in the EIR: "Therefore, the EIR will analyze potential environmental impacts that may be associated with proposed remedies

Letter 10 Cont'd

that will be contained in the update to the previously approved RAP. All potential remedies that could be used to address the additional volume of contaminants on-site will be examined in this EIR for use by DTSC in their approval process." *(DEIR page 1-2)*

10-12 cont. The impacts of the revisions to the RAP are presented in the DEIR, but since the revisions are not described, it is not clear on what the impact assessment is based. Additionally, it is not clear what the difference is between the approved and the revised RAP.

For example, in the analysis of visual impacts, Impact 5.1-3 states that the removal of trees is a part of the approved RAP and therefore there is no impact of the project related to removal of trees, however, the statement just after this muddies the waters:

"in particular, the cleanup of the site under the approved RAP or the revised RAP would require removal of many of the trees on site, and this cleanup must occur regardless of whether the City approved the proposed project."

10-13 If the revisions to the RAP are a part of the project, and removal of trees will be required by the revisions to the RAP, then removal of the trees is an impact of the project that must be presented in Impact 5.1-3. The impact discussion indicates removal of trees would result in a significant impact.

Subdivision Modification for Streets

10-14 This is not described in the Project Description, although it can be inferred from other sections of the DEIR that this is for the traffic circle. This must be described in the Project Description, and the impacts of the modification from standard requirements addressed in the EIR.

ROW Abandonment

10-15 This is not described in the Project Description. There is no assessment of the potential impacts resulting from this discretionary action of the City.

Project Schedule

The project description does not present the project schedule. The schedule for implementation and construction of the project affects the assessment of a variety of impacts, especially those related to construction. Project schedule is mentioned in only two places in the Draft EIR document, neither in the Project Description chapter.

First, the following statement is made in the Air Quality section of the DEIR, but no project schedule is presented in the Project Description, and it is clear from the language of the Air Quality section that this is only an assumption for the purposes of air quality modeling.

10-16 "The first phase of construction, consisting of fine grading of the site, importation of 10,000 cubic yards of fill to the site, and construction of the north-south roadway was assumed to be completed in six months. As a worst-case assumption, buildout of the commercial and residential portions of the project was assumed to take an additional two years. The construction emission analysis was based on a compressed schedule of 2.5 years for completion of all construction activities." *(DEIR, Page 5.3-9)*

The only other mention of a construction schedule is in the Traffic section of the DEIR:
"The project would be constructed over a multi-year period." *(DEIR, Page 5.2-46)*

For how many years will the neighborhood be subject to construction traffic, noise, dust, and other air pollution? Impact 5.3-2 states that health risks from TACs during construction would be temporary, and so there would be no significant impact. However, it is not clear how long construction would actually take, so it is not clear how this determination was made.

Letter 10 Cont'd

10-16 cont. The Project Description must clearly present the project schedule for construction and implementation.

The Project Description is not stable and consistent throughout the EIR document.

10-17 The project description used for the traffic analysis is not the same as that presented in the EIR, leading to a fundamentally flawed traffic analysis, and by extension, noise and air quality analyses. In addition, the project description chapter itself is internally inconsistent. The project

10-18 layout figure, Figure 3-3, is not consistent with the layout shown in Figures 3-4 and Figures 3-5. Which layout is proposed? Also, the alternative street alignment shown on Figure 3-3 is said to

10-19 show a project with no connection to Fifth Avenue, but it appears that the project would still connect to Fifth Avenue, but the northernmost project roadway would not directly connect. The figure is not consistent with the description in the text.

The project description found in the Traffic section of the Draft EIR describes a different project than that described in Chapter 3 of the Draft EIR. This is acknowledged in the Air Quality section of the Draft EIR, on page 5.3-13.

Traffic is one of the most important and contentious issues surrounding this project and it is important that the impacts of the project on traffic and roadways be accurately presented in the EIR. If the analysis in the EIR is not based on the proposed project, the EIR does not accurately assess and present the impacts of the project. This is a fundamental flaw.

A quick comparison of the project description information found in the Project Description chapter and the traffic section of the DEIR is shown in the table below. The differences are considerable both in amounts of development and specificity of land uses.

10-20

Land Use	Project Description	Traffic Section
Area 1		
Retail	160,000 sf	53,000 sf grocery
Area 2		
Retail/Commercial	16,000 sf	
Retail		15,800 sf
SFD	5	
Parking spaces	63	
Senior MFD	80	
Area 3		
Dinner Theater	38,000 sf	42,435 sf
Other Entertainment	38,000 sf	
Restaurant pads	26,500 sf	2 X 6,500 sf
SFD		10
MFD	212	
Health Spa		85,000 sf
Hotel		150 rooms
Area 4	Not described	
SFD		146
Area 5	Not described	
SFD		60
Area 6	Not described	
Park	8.7 gross/ 6.8 net acres	7.2 acres (Park/OS)
SFD lots	178	*(total 206 in "Areas 4 & 5))*

Letter 10 Cont'd

Traffic Impacts are not adequately analyzed.
The traffic impacts of the project are not adequately analyzed in this EIR.

10-21 The traffic study presented in the DEIR analyzes a previous iteration of the project, as noted on page 5.3-13 of the Draft EIR. There is no discussion in the Draft EIR, or in the Appendices to the Draft EIR, of how the traffic study for the previous version of the project adequately addresses the traffic impacts, and by extension the noise and air quality impacts, of the proposed project.

10-22 Additionally, while in other portions of the DEIR the recent adoption of the City General Plan is addressed, in the Traffic section it is stated that the General Plan has not yet been adopted, and the old plan policies are used in the analysis and even in the Thresholds of Significance. The traffic chapter must be made current and consistent with the rest of the DEIR. The Thresholds of Significance must be made current.

10-23 Are there impacts that are identified as significant that would not be significant using the City's new LOS standard? Are unnecessary roadway improvements required as mitigation as a result?

10-24 Even if the total number of trips generated by the proposed project would not be more than those generated by the project analyzed by the traffic, noise and air quality analyses, and this is not stated in the Draft EIR document, the impacts on intersections will be affected by the arrangement of the land uses on the site, and so the question would not just be whether the overall amount of trips generated by the project is the same or less than presented in the EIR, but also where those trips specifically leave the site and at what times, which could be affected by differences in types of land uses.

10-25 Since there are significant unavoidable impacts on intersections and roadways, the traffic analysis is critical.

10-26 Transit adjustments were made to the analysis as described on page 5.2-28 based on a 2000 survey. Explain how this survey is applicable to the project.

10-27 The land uses described on page 5.2-28 are very specific (e.g. bookstore). Are these uses specifically required, or could other uses consistent with the proposed zoning be developed? If the traffic analysis is based on an assumption about specific uses that will not necessarily constitute the adopted project, then the analysis is wrong.

10-28 Several significant unavoidable impacts of the project as described in the DEIR could result in severe traffic hazards that are not described in the DEIR. For example, a significant and unavoidable impact is identified on Sutterville Road between East and West Curtis Drive, where the LOS for that roadway segment would go from LOS C to E at project plus baseline, and from LOS C to LOS F at project plus cumulative traffic. This roadway segment currently can be very dangerous. I personally have witnessed several terrible accidents at this location, which includes a "suicide lane" left turn lane in the middle of the road and congestion at the lights at Sutterville/Franklin and Sutterville/24th Street. Adding a large amount of traffic to this roadway with no mitigation will create a significant traffic hazard.

10-29 Additionally, the DEIR identifies a significant unavoidable impact at the intersection of Sutterville/ West Curtis Drive, which would go from LOS C to LOS F at Cumulative plus project. Mitigation Measure 5.2-10(f) states that adding a southbound right turn lane to the intersection would "mitigate the impact but is not considered to be feasible". Even if it were feasible to demolish houses to build such a lane, how would adding a right turn lane on West Curtis Drive reduce this impact to a less than significant level? Would this even be safe, with the amount of traffic projected to be going down Sutterville Road?

10-30 If there are no feasible mitigation measures to address these impacts, then an alternative should be identified to reduce the impact to a less than significant level. This is true for other traffic impacts.

Letter 10 Cont'd

Alternatives

10-31 The alternatives section of the EIR does not address reducing specific traffic impacts of the project. Additionally, the range of alternatives seems limited.

10-32 The Village Green alternative, which was the alternative that was developed in consultation with the community, is rejected in alternatives screening and not considered as one of the alternatives to the project in the EIR. It is not clear why this alternative was rejected rather than analyzed in the alternatives chapter of the Draft EIR. An alternative is generally rejected for infeasibility or because it would not meet the project objectives. On page 7-6, the Draft EIR states that the Village Green Alternative was rejected because it would increase some environmental impacts and not reduce any impacts. Without specific analysis, it is not clear how the Draft EIR can come to this conclusion, which appears to be based on a comparison of traffic generation of the alternative to other alternatives, or perhaps the project, but is not based on a traffic study. The Village Green Alternative should be analyzed in the EIR.

10-33 The summary of the alternatives in the Executive Summary and in Chapter 7 do not seem to match. The alternatives are numbered 1-5 in the Executive Summary, and this numbering appears nowhere else. The description of Alternative 5 in the Executive Summary states that it would reduce the amount of commercial from the Project's 314,000 square feet to 194,400 square feet. While there is no table or summary in the Project Description that provides a total of the proposed square feet of commercial, the text describes two areas of 160,000 square feet, in addition to the "Dinner Theater", "other entertainment" and "restaurant pads", totaling much more than 314,0000 square feet. If the analysis of the impacts is based on a comparison to an older or inaccurate project description, it is not valid.

Conclusion

10-34 In conclusion, the Draft EIR is fundamentally flawed due to its incomplete, inconsistent, and unstable project description. That some topical areas of the EIR analyze a different project than others means that the Draft EIR cannot adequately disclose the impact of the proposed project, and that the public has been precluded from a meaningful review of the impacts of the project.

Please add me to the list to receive any notices or documents related to this project. My address is at the top of this letter.

Thank you very much for your consideration of my comments,

Sally Lyn Zeff, AICP

LETTER 10: SALLY LYN ZEFF, AICP, RESIDENT

Response to Comment 10-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 10-2

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 10-3

All project description information has been available for review at the City of Sacramento Community Development Department offices.

Response to Comment 10-4

The comment does not provide specifics that can be addressed in a response.

Response to Comment 10-5

The comment does not provide specifics that can be addressed in a response. All components of the project are described in Chapter 3, Project Description, of the DEIR (as well as revisions in Chapter 1.0 of this Final EIR). All project application materials have been available at the City of Sacramento Community Development Department offices.

Response to Comment 10-6

See Response to Comment 10-3. For informational purposes, the PUD Guidelines are included as Appendix E of this FEIR. In addition, the City has updated their webpage at the following URL to include the new Curtis Park Village project information:

http://www.cityofsacramento.org/dsd/projects/curtispark_village.cfm

Response to Comment 10-7

See Response to Comment 10-3. For informational purposes, the Schematic Plan is included as Appendix F of this FEIR. In addition, the City has updated their webpage at the following URL to include the new Curtis Park Village project information:

http://www.cityofsacramento.org/dsd/projects/curtispark_village.cfm

Response to Comment 10-8

See Response to Comment 10-3. The DEIR analyzes the impacts of the project components included in the project description.

Response to Comment 10-9

The term "Master Plan" in the DEIR refers to the proposed land uses on the project site and not a separate land use entitlement. For clarification purposes, all references to "Master Plan" are changed to "proposed land uses" throughout the DEIR. The DEIR analyzes full buildout of the proposed project, not maximum buildout of zoning. The PUD Schematic Plan identifies the maximum buildout potential. Any future projects must be consistent with the PUD or additional entitlements and CEQA review will be required.

Response to Comment 10-10

See Response to Comment 10-9.

Response to Comment 10-11

The revisions to the RAP include modifications to the proposed remedies. The impacts of the potential remedies are analyzed throughout the DEIR. The Subdivision Modifications and right-of-way abandonment are in conjunction with the Tentative Map and are shown on Figure 3-3. For clarification purposes, the Tentative Map Summary on page 3-17 is hereby revised as follows

> A Tentative Map is proposed in order to subdivide the site to facilitate development consistent with the PUD. The Tentative Map would include ~~178~~189 single-family lots, one senior housing lot with ~~80~~90 dwelling units, ~~one~~two multi-family lots with ~~212~~248 dwelling units, 13 commercial lots, two park/parkway lots, four open space lots, one guest parking lot, seven alley/common driveway lots, and one entry median lot (See Figure 3-3). In addition, the proposed project includes subdivision modifications and right-of-way abandonment of the West Pacific Avenue ramp.

The change does not modify any of the analysis in the DEIR.

Response to Comment 10-12

See Response to Comment 5-13.

Response to Comment 10-13

The third paragraph on page 5.1-11 of the DEIR is hereby revised as follows, in order to clarify the intent:

> ~~The removal of trees was covered in the approved RAP; in particular, the cleanup of the site under the approved RAP or the revised RAP would require removal of many of the trees on site, and this cleanup must occur regardless of whether the City approves the proposed project.~~

> The remediation of the site in accordance with the 1995 RAP assumed that trees, in particular, Heritage trees would be removed. Because the site must be cleaned to the standards set in the 1995 RAP, and a much larger portion of the site is contaminated than anticipated in the 1995 RAP, any tree that prevents the remediation of the contamination must be removed. The loss of these trees would occur regardless of whether the proposed Curtis Park Village project is approved.

The impact discussion does not indicate that the removal of trees associated with the development of the Curtis Park Village project would result in a significant impact. As stated on page 5.1-11 of the DEIR, the impacts to view and the visual character of the site would be less than significant.

Response to Comment 10-14

See Response to Comment 10-15. The impacts related to subdivision modification for streets are studied on page 5.2-42, Impact 5.2-7, Impacts to on-site traffic circulation and safety under baseline plus project conditions.

Response to Comment 10-15

See Response to Comment 10-11. As stated on page 5.2-32 of the DEIR, the impacts related to right-of-way abandonment were addressed in the DEIR.

Response to Comment 10-16

For clarification purposes, the following text is added after the first paragraph on page 3-7 of the DEIR.

> The project schedule for construction and implementation is not known. Prior to construction, the project site would be required to be remediated to DTSC standards. The DEIR studied a worst-case scenario of 2.5 years for completion of all construction activities for the proposed project. However, a specific construction and implementation schedule, which is based on market conditions, cannot be determined at this time.

The text addition does not alter the conclusions of the DEIR.

Response to Comment 10-17

See Response to Comment 5-28.

Response to Comment 10-18

Figure 3-3, Tentative Subdivision Map, on page 3-6 of the DEIR depicts access Option 1 and includes the alternative street alignment for Option 2 in Detail A. Figures 3-4 and 3-5 of the DEIR are illustrative examples of access Options 1 and 2, respectively.

Response to Comment 10-19

See Response to Comment 10-18.

Response to Comment 10-20

See Response to Comment 5-28.

Response to Comment 10-21

See Response to Comment 5-28. As discussed in the Trip Generation Comparison Memorandum provided in Appendix D of the DEIR, the proposed project would generate fewer vehicular trips than the land uses as analyzed in the Chapter 5.2. Therefore, the impacts resulting from the proposed project's traffic, including air and noise are anticipated to be correspondingly less. A reduction of trips generated would reduce noise and emissions generated by operation of the proposed project.

Response to Comment 10-22

The City of Sacramento 2030 General Plan was not yet adopted at the time the traffic study was prepared. The threshold of significance has changed with the adoption of the General Plan. However, the DEIR acknowledged the adoption of the 2030 General Plan on March 3, 2009 (page 5.2-30) and concluded that evaluation of project impacts using the LOS C threshold would be conservative approach for the evaluation of transportation impacts.

To correct text, page 5.2-12 of the DEIR, is revised as follows:

> While the 1988 General Plan was in place at the time this study was initiated, the City ~~is currently working on updating the General Plan, with adoption expected in early~~ adopted the 2030 General Plan in March 2009. In general, the *Draft 2030 General Plan* (City of Sacramento, May 2008) update includes similar goals with respect to the transportation system that were described in the 1988 General Plan. However, the goal related to roadway LOS is significantly different under the Draft 2030 General Plan update:

The text correction does not alter the conclusion in the DEIR.

Response to Comment 10-23

Some significant impacts identified in the DEIR would be eliminated as a result in changes to significance thresholds. Please refer to Chapter 2.0, Revisions to the DEIR, of this Final EIR, for additional information including removal of unnecessary improvements and mitigation.

Response to Comment 10-24

See Response to Comment 5-28.

Response to Comment 10-25

The impacts of the project are disclosed in the Transportation and Circulation chapter of the DEIR and accompanying memoranda.

Response to Comment 10-26

The Pre-Census Travel Behavior Report compiled the results of a survey conducted for the greater Sacramento region in 2000. It summarized the results in a number of ways, such as by work trips and non-work trips, by employment area and "attraction" area type, by time of travel, trip purpose, and mode. Due to the high level of transit services provided by the Regional Transit light rail line with two nearby transit stations, adjustments were made to the number of trips estimated to be made by automobile.

Response to Comment 10-27

The land use assumption was based on the best available information at the time the analysis was performed. Deviation from the presented use could require approval from the City, which could entail additional analysis.

Response to Comment 10-28

As stated on page 5.2-54 of the DEIR, Mitigation Measure 5.2-10(f), no feasible mitigation measure was identified for the Sutterville Road / Curtis Drive West intersection and the cumulative impact for the proposed project and all access scenarios would remain significant and unavoidable. The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 10-29

The addition of an exclusive right-turn lane would reduce the average vehicle delay at the intersection to an acceptable level, and thereby reducing the project's impact to less than significant level. The additional right-turn lane would operate safely under stop-sign control. However, as stated in the DEIR, this mitigation measure is not considered feasible. The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 10-30

CEQA Guidelines Section 15126.2 (b) states that a significant environmental effect which cannot be avoided if the proposed project is implemented includes impacts "[…] which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design […]"

In addition, CEQA Guidelines Section 15126.6 (b) states, "[…] the discussion of alternatives shall focus on alternatives to the project of its location which are capable of avoiding or substantially lessening any significant effect of the project […]"

Under CEQA, an EIR is not required to mitigate all impacts to a less-than-significant level if mitigation is not feasible. In addition, as stated in CEQA Guidelines Section 15156.6(a) an EIR is not required to consider every conceivable alternative or identify an alternative design to reduce each specific significant and unavoidable impact.

Response to Comment 10-31

See Response to Comment 5-17.

Response to Comment 10-32

See Response to Comment 5-22.

Response to Comment 10-33

See Response to Comment 5-30.

Response to Comment 10-34

The comment is a summary. See Responses to Comments 10-1 through 10-33.

Letter 11

Bob & Carolyn Ralston
2418 7th Avenue
Sacramento, CA 95818

Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

Dear Ms. Hageman:

11-1 We're writing to comment on the DEIR or Curtis Park Village. The following items summarize our concerns:

11-2 1. We're extremely upset by the increased traffic the developer's proposed 259,000 square feet of commercial space will generate. We would like to see only 100,000 square feet of neighborhood businesses rather than a regional shopping center.

11-3 2. We think the DEIR lacks comprehensive coverage of the Remedial Action Plan to clean up the site's hazardous waste. We attended the May 7th meeting at Sierra 2 where we learned about the developer's proposed "containment" silos; however, he has not submitted the details of this proposal, nor have we seen any revised map of the toxics.

11-4 3. We support a transit oriented development that would reflect the nation's new emphasis on reducing car emissions and mitigating global warming.

We have lived in this neighborhood for 22 years, and have been attending meetings on the rail yard for almost as many years. We deeply regret the city's lack of vision in failing to obtain title to this property and forging the way for it to become the site of an expanded Sacramento City College.

11-5 Having lost that opportunity, we hope the city will be inspired to follow other progressive cities in using this parcel of land to create a development that is transit oriented, has varied housing architecture, and limited retail development that uses human scale architecture for retail shops. Such an approach will create a vibrant addition to the existing Curtis Park neighborhood. We who live here deserve no less.

Yours truly,

Bob & Carolyn Ralston

Bob and Carolyn Ralston

LETTER 11: BOB AND CAROLYN RALSTON, RESIDENTS

Response to Comment 11-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 11-2

The comment does not address the adequacy of the DEIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 11-3

See Responses to Comments 5-12 through 5-14.

Response to Comment 11-4

The comment does not address the adequacy of the DEIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 11-5

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Letter 12

May 5, 2009

Jennifer Hageman, Senior Planner
Cit of Sacramento, Development Services Department
300 Richards Blvd.
Sacramento, CA 95811

Re: Curtis Park Village Project P04-109

12-1 I wanted to take the opportunity to comment in SUPPORT of the Curtis Park Village Project.

I realize that many of the comments you receive will likely be in opposition to the feared impact of the project on the surrounding neighborhoods, traffic patterns, services, etc. However, given the fact of population growth, I can think of no better way to accommodate it than an urban infill project such as this.

I bought my home on 7th Avenue in 2005 and plan to be there for some time. My home is near the end of 7th Avenue, which backs up to the railyard property. The proposed Curtis Park Village is literally "in my back yard" and I say: Yes!

Right now, that space is a desolate, toxic, unattractive, unusable piece of land. It offers no benefit to anyone. Seen from a Google aerial map, it is a large, blank scar in the midst of the Curtis Park and Lank Park neighborhoods.

12-2 I have attended several meetings of neighborhood associations in which the Curtis Park Village project was discussed and opposed on many grounds. It confuses me to hear people argue against this infill project, when their strong opposition could drive away Mr. Petrovich and his willingness to spend massive amounts of money to revitalize the area. Would my neighbors really be better served by killing this project and living next to the bare, toxic remnants of the railyards??

I believe the project represents a realistic, well-thought-out infill project. No project will be perfect. No use of the land could be made that would have NO impact on the neighborhood or the environment. I, for one, am grateful to Mr. Petrovich for his willingness to take on this project and see it through the long and laborious path to completion.

12-3 Please feel free to share my comments with the developer and let him know they can be used in any manner he wishes.

Judy Stokes
2185 7th Avenue
Sacramento, CA 95818
916-730-6611
stokesj@sutterhealth.org

LETTER 12: JUDY STOKES, RESIDENT

Response to Comment 12-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 12-2

The comment expresses support for the project and does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 12-3

The comment is a concluding statement and does not address the adequacy of the DEIR.

Letter 13

May 20, 2009

Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

COMMENTS ON: CURTIS PARK VILLAGE PROJECT

As a resident on Portola Way, I have the following suggestions:

13-1 1. If the project for any reason cannot be done well and safely, it should be scrapped. Leaving it as the fenced open space that it is would be better to look at and live around than to concrete it over with commerce.

13-2 **2. Use the existing natural trees that already partially surround the property (particularly on the North side) to create a green belt that could include a few park-like facilities.**

13-3 3. Adding so many people to the area in the form of multi-family dwellings will severely affect the nature and feel of our beloved neighorhood. As the project stands, I do not look forward to this development. **A green belt might give it a buffer of serenity.**

Sincerely,

Sharon Hansen

Sharon Hansen
2167 Portola Way
Sacramento, CA 95818

916-451-5523
sacsh@aol.com

LETTER 13: SHARON HANSEN, RESIDENT

Response to Comment 13-1

The comment does not address specifics in the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 13-2

The comment does not address specifics in the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 13-3

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Letter 14

James O. Moses
2926 24th Street
Sacramento, CA 95818

May 29, 2009

JAMES O. MOSES

Ms. Jennifer Hageman
Senior Planner
City of Sacramento
300 Richards Blvd.
Sacramento, California, 95811

Dear Ms. Hageman:

14-1 This letter is to urge you to withdraw the Draft Environmental Impact Report (EIR) for Curtis Park Village (P4-109) from California Environmental Act (CEQA) circulation, repair its critical and fundamental flaws, and then re-circulate it again pursuant to law. The traffic element is inadequate and incomplete.

14-2 Curtis Park Village ("CPV") is adjacent to two arterials, Sutterville Road at the south, and 21st Street at its northwesterly tip. It has no access to the west (blocked by the train tracks), and it has no access to the east that does not involve 24th Street. For the reasons stated below, it is essential that the developer and or the City improve the connections and access to CPV to a level at which these arterials can handle ***all*** the traffic generated by CPV.

The DEIR Does Not Adequately Address Northbound Traffic from CPV

14-3 Although there is plan for traffic leaving CPV to exit by way of 21st Street and 24th Street, it is probable that virtually all traffic will go onto 24th Street. 21st Street below Broadway is presently single-lane (northbound) for many blocks, resulting in stop and go traffic for many hours of the day. Therefore, people will prefer 24th Street if they are going from CPV into the downtown area.

The DEIR Does Not Adequately Address Traffic Patterns Into CPV

14-4 Because of the over-burdened condition of Highway 99 and inadequacy of the 12th Avenue "interchange," 24th Street will become the route of choice for people traveling to or from CPV under the following circumstances:

14-5 1. Anyone leaving the down-town area on surface streets (to go to CPV) will have three choices: (1) Take Freeport Blvd. to Sutterville Road, then go East on Sutterville to enter CPV from the South; (2) Get on the freeway and take Highway 99, and use the inadequate 12th Avenue exit to go West on

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Letter 14 Cont'd

14-5 cont. Sutterville Road and enter CPV from the South; or (3) Connect on a surface street to 24th Street, and drive into CPV from the North. Using 24th Street is the shortest and most attractive alternative.

14-6 2. 24th Street (below Broadway) will be the preferred access route to and from Highway 50 east of Highway 99. It is far easier to go up 24th Street from CPV to the on- ramp at "X" and 27th Streets than to make a left turn onto Sutterville, and suffer through three lights in order to get to the north-bound on-ramp at Highway 99. No one coming back to CPV from Highway 50 (from the East) would rationally choose to go south on Highway 99 (which is often very congested, especially during commute hours) and get off at the 12th Avenue exit, in order to access CPV from Sutterville Road; anyone would choose to take the 26th Street exit, go two blocks, and then go south on 24th Street.

14-7 3. A person headed north on Interstate 5 has three choices to get to CPV: (a) Get off at and go East on Sutterville; (b) Go East on Business 80 and South on 99 to the 12th Avenue Exit, then West on Sutterville; or (c) Go East on Business 80, get off at 15th Street go up to 24th Street, and down to CVP. Of these choices, (c) is the most attractive, because it will generally be the quickest.

14-8 4. A person headed south on Interstate 5 will have choices 3(b) and 3(c) immediately above, and again 3(c) is the most attractive.

14-9 5. A person headed south on "Business 80/Capital City Freeway" to CPV has the choice of taking the "P" Street exit and proceeding to 24th Street to get to CPV or going south on Highway 99 to the 12th Avenue exit, and going west on Sutterville. As Highway 99 is frequently congested, taking the P Street exit will be a frequent choice.

14-10 In short, only people coming to CPV from points south of Sutterville Road have access to CPV that will reliably be preferable to 24th Street. The traffic burden is currently estimated at 20,000-30,000 trips to and from CVP per day. Most of this traffic will be from points West, North, and East. (This is an in-fill project for Sacramento, not for Galt.) It is therefore reasonable to assume that if there is any vehicular access from CPV to Curtis Park, traffic on 24th Street north of the point(s) of access will increase by at least 15,000 trips per day, ***based on driver choice and drive times.*** The traffic component of the DEIR does not adequately address this issue.

Requests

14-11 1. Defer the Project. The lack of access to the project requires that it be deferred until the "interchange" at Highway 99 and 12th Avenue is upgraded, and access to the West (across the UP tracks), to Freeport Blvd. is established.

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Letter 14
Cont'd

14-12 2. Restrict vehicular access between CPV and Curtis Park, to the North on 24th Street below Broadway, except for electronically operated on-demand gate access for *residents of* CPV, and for buses, para-transit and the like. Existing "Fast-Pass" technology currently used on to collect tolls on bridges, toll-roads, and the like, will support such a system. This will afford residents unfettered access to and from CPV, while keeping all commercial traffic on the arterials that should properly support more intensive use of the site.

14-13 3. Significantly reduce the commercial component of the Project such that the overall densities of the Project are equivalent to the densities of the neighborhood it is supposed to "infill."

Very truly yours,

JAMES O. MOSES

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LETTER 14: JAMES O. MOSES, RESIDENT

Response to Comment 14-1

The comment is an introductory statement and does not address specifics of the EIR. See responses to comments below for detailed responses.

Response to Comment 14-2

The comment does not address the adequacy of the DEIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 14-3

The distribution of project traffic to the various streets in the transportation network was performed using the standard practice for EIRs in Sacramento (See Response to Comment 5-145). The travel demand model showed that two to four percent of the project trips would use 24th Street to access the downtown area. Figure 5.2-6 on page 5.2-29 of the DEIR shows the anticipated distribution of project traffic. Table 5.2-7 on page 5.2-19 shows that the existing daily traffic volume on 24th Street between Portola Way and Marshall Way is 3,685 and the roadway operates at LOS A. Table 5.2-17 on page 5.2-27 shows that traffic on the same section of 24th Street would increase to 6,085 vehicles daily (LOS B) for cumulative conditions without the project and the project would further increase daily traffic on this section to 7,687 (LOS D). The impacts of the proposed project on 24th Street were disclosed in the DEIR and mitigation measures were proposed, where feasible.

Response to Comment 14-4

See Response to Comment 14-3.

Response to Comment 14-5

See Response to Comment 14-3.

Response to Comment 14-6

See Response to Comment 14-3.

Response to Comment 14-7

See Response to Comment 14-3.

Response to Comment 14-8

See Response to Comment 14-3.

Response to Comment 14-9

See Response to Comment 14-3.

Response to Comment 14-10

See Response to Comment 14-3.

Response to Comment 14-11

The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 14-12

The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 14-13

The comment will be forwarded to the decision-makers for their consideration.

Letter 15

May 30, 2009

Jennifer Hageman, Senior Planner
City of Sacramento Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

Dear Ms. Hageman:

As a resident of Curtis Park, I would like to offer comments on the City of Sacramento's Draft Environmental Impact Report (DEIR) of the Curtis Park Village (CPV) project. Because I followed the progress of the City's 2030 General Plan, most of my comments concern the
15-1 project's consistency with the new General Plan. In particular, the proposed suburban shopping center is a flagrant violation of the General Plan's designated land use (Traditional Center) for the project's commercial area.

The greatest flaw in the DEIR, however, is its lack of an analysis of the impacts of the toxic contamination and cleanup required at the site. How can one publish an environmental report without full characterization of the existing conditions and their impacts? Because the toxic
15-2 contamination discovered after the publication of the 1995 Remedial Action Plan (RAP) is significant and will require an updated RAP, the DEIR should have characterized and mapped the location, type and concentration of the contaminated soil and analyzed the impacts of various remediation alternatives.

The developer made this contaminated soil data available in May 2009 public meetings. It generated serious concerns that should have been addressed in the DEIR but could not be because the data was missing. This is particularly alarming since the State Department of Toxic and Substance Control (DTSC) intends to rely on the environmental analysis in the DEIR for use in
15-3 its updated RAP.

Since the developer had the required information available, it should have been included in the DEIR, even if it would have created a delay in publication. Lacking this critical data on existing conditions, the document should be revised and recirculated.

1. The Shopping Center (commercial) zone in the proposed project is NOT compatible with the General Plan's designation of Traditional Center.

The DEIR claims that the project has three separate and distinct Commercial Areas then proceeds to analyze General Plan compatibility using these three separate commercial areas (pages 3-10, 3-
15-4 12. 4-13 and 4-14). There is only one commercial area (see especially Table 3-1: Curtis Park Village Proposed Land Uses). The artifact of three commercial areas leads to many false conclusions including most importantly, that the proposed project is compatible with the Traditional Center zone set forth in the 2030 Sacramento General Plan.

Specifically, Chapter 4, page 4-11, misstates the General Plan's designation for Traditional Center. It claims the Traditional Center encompasses three Commercial Areas that include single-family housing, multifamily housing, and senior apartments. These are <u>not</u> in the GP designation
15-5 of Traditional Center for those respective areas. The area located in the General Plan's Traditional Center designation is exclusively a shopping center. For single family housing and brownstones, the land use is Traditional Neighborhood Low Density; the senior apartments on the GP map are located in Traditional Neighborhood Low Density, and the GP zoning for

Letter 15 Cont'd

15-5 cont. multifamily is Traditional Neighborhood High Density. It is incorrect and misleading to artificially combine these separate zoning uses under the heading of Traditional Center to try to claim that the proposed suburban shopping center contains mixed uses.

15-6 The CEQA analysis incorrectly concludes that the CPV shopping center is a Traditional Center, and the proposed project is consistent with the 2030 General Plan.

15-7 The Traditional Center designated in the General Plan's land use map, the tentative map, and the zoning map comprise 20.7 acres; this area is also designated as "shopping center" (Table 3, page 3-11). The three artificial Commercial Areas, capturing residentially designated land in the General Plan, are therefore also not consistent with the tentative map (page 3-6) or zoning map (page 3-7) in the DEIR, since they grab land uses and acreages designated in the General Plan as Traditional Neighborhood Low and High Density residential.

LU 5 on p. 2-68-69 describes the Urban Form Guidelines and Allowed Uses for the Traditional Center zone. The proposed project's Shopping Center's site layout and scale fail to meet most of these Urban Form Guidelines and Allowed Uses

15-8

Small Rectangular Blocks allowing for convenient pedestrian access from adjacent areas	Does not meet
Relatively small and narrow lots, a fine-grained development pattern	Does not meet.
Building Heights ranging from 1-4 stories	Single story commercial with no variation
Buildings sited at or near the sidewalk	Does not meet
Rear alleys and secondary access to reduce the need for curb cuts on the primary street	Does not meet except for rear service road provided for trucks servicing shopping center.
Parking provided on-street as well as in individual or shared lots at the side or rear of structures, or in screened parking structure.	Large open parking lot with no wrap around parking, typical of suburban shopping center.
Transparent building frontages with pedestrian-scaled articulation and detailing.	Storefronts face parking lot, not the street. Grocery store not likely to have transparent building front.
Moderately wide sidewalks furnished with street trees, outdoor seating areas, etc.	Some planned; unclear how much will be included.
Public streetscapes serving as center's primary open space, complemented by outdoor seating, plazas, courtyards and sidewalk dining areas	No plazas or courtyards generated from public streetscapes

Mitigation Measures for Shopping Center's Inconsistency with General Plan's Traditional Center

15-9 The most important and feasible mitigation measure is a street bisecting the 20.7-acre shopping zone, connecting Road A to Road C. The road is already shown on the Tentative Map as a 30-foot roadway/utility easement. If built to city standards, this street would accommodate two-way vehicular traffic, provide moderately wide sidewalks for pedestrian use, and increase modes of accessibility. The creation of the new street begins to replicate a bit of the traditional street grid called for in the Traditional Center Urban Form Guidelines. The new street would create a rear access to the shopping center for pedestrians and vehicles. The new street would increase options to relocate buildings to permit wrap-around parking and eliminate the unsightly sea of parking now planned.

CEQA Analysis Fails to Consider the Shopping Center's Incompatibility with Design Guidelines as a Significant Impact to Aesthetic Resources (page 5.1-8 and 9).

15-10 The DEIR lists the City's goals, policies, and urban design elements applicable to aesthetics. The proposed shopping center is incompatible with all the guidelines and requirements in the following list (page 5.1.6 and 7), but no adverse impacts are identified nor mitigation measures proposed.

LU 2.7.6 – "Walkable Blocks. The City shall require new development and redevelopment projects to create walkable, pedestrian-scaled blocks, publicly accessible mid-block pedestrian routes, where appropriate, and sidewalks appropriately scaled for the anticipated pedestrian use."

15-11 LU 2.7.7 – "Buildings that Engage the Street. The City shall require buildings to be oriented to and actively engage and complete the public realm through such features as building orientation, build-to and setback lines, façade articulation, ground-floor transparency, and location of parking."

LU 5.1.5 (Traditional Centers) – Vertical and Horizontal Mixed-Use: "The City shall encourage the vertical and horizontal integration of uses within commercial centers and mixed-use centers, *particularly residential and office uses over ground floor retail.*" (Emphasis added.)

15-12 Most alarming, in LU 5.4.2, the City describes the type of suburban shopping center that it wants to abolish by complete reconstruction – but this is the same type of shopping center that the CPV developer is proposing! LU 5.4.2 (page 5.1-9) would replace surface parking with structured parking, replace parking area drive aisles with pedestrian-friendly shopping streets, infill parking areas with multi-story mixed-use buildings, and create attractive, well-appointed streetscapes and plazas. The proposed suburban shopping center for CPV has all the elements that the City wants to abolish and none of those it claims it wants.

15-13 To be compatible with the City's new guidelines and requirements, the proposed shopping center would have to be completely redesigned. The DEIR does not even consider this incompatibility, although it states (page 5.1.8) "for the purposes of this EIR, an impact to aesthetic resources would be considered significant if the proposed project would…conflict with design guidelines applicable to the project site."

2. The four-story proposed senior development's location is inconsistent with the General Plan's land use designation.

The proposed four-story senior development is adjacent to one-story single-family homes (located on 24th Street). This area is designated in the General Plan as Traditional Neighborhood Low Density (pages 4-2 and 4-3) although the project proposes a high-density use (R-5 zoning).

15-14 There are no other four-story buildings in the proposed project. This building represents the highest density in the project, although located adjacent to the lowest density existing housing. The DEIR admits that the building's location is an "exception" to the General Plan's requirement of compatibility, but nevertheless concludes that the project is compatible with surrounding land uses (p.4-14).

The CEQA analysis does not identify the senior housing as having adverse impacts although it is visually inconsistent and incompatible with adjacent existing uses.

In its section on Impacts and Mitigation Measures, the DEIR states "for the purposes of this EIR, a impact to aesthetic resources would be considered significant if the proposed project would substantially alter or degrade the existing visual character or quality of the project site and its surroundings…" (pages 5.1-8 and 9). The DEIR lists those City policies and guidelines that are
15-15 applicable to aesthetics on pages 5.1-4 to 1–7.

Specifically, the location of the four-story senior development is inconsistent with GP Land Use Policy LU 2.7.3: "The city shall require that the scale and massing of new development in higher-density centers and corridors provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods that have lower development intensities and building heights."

There are feasible mitigations that should be required. The first, and preferred, is to relocate the senior housing to the west side of Road A and restore the brownstone houses (map of May 2007) on Road A to close the gap that would exist if the senior project were relocated. (The
15-16 addition of brownstones would slightly increase the number of units, which is a movement in the right direction. Chapter 5.10 Population, Employment and Housing indicates that the proposed project would have 192 fewer persons than the 2030 General Plan expected.)

The second mitigation measure would be to contribute more land to the senior development so
15-17 that its height would meet the compatibility requirements of the General Plan's land use policies wherever it is located. Such affordable senior housing is an appropriate transition use between lower density single-family and the retail and transit corridors accessible for the seniors' use.

The DEIR uses three different site acreages for the senior development. This makes it impossible to determine whether its density is compliant with the proposed designation of Traditional Neighborhood High Density land use. A full disclosure of the impacts is impossible to assess if the project description is inconsistent throughout the EIR document.

15-18 The senior site is 1.7 acres in the tentative map, 1.4 and 1.7 acres in the text, and 1.32 acres in the Mixed Income Housing Plan – all for the same 80-unit development.

If the senior housing is 1.7 acres (tentative map, page 3-6), the density is 47 du/A, above the permitted range but allowable with the application of the city's density bonus law (page 4-11). If

Letter 15 Cont'd

15-18 cont. the site were 1.32 acres, as pledged in the Mixed Income Housing Plan (pages 3-17 and 4-12), the density would be 60 du/A.

3. The CEQA analysis omits a finding that all areas zoned Traditional Neighborhood High and Low Density should be cleaned up to an unrestricted use. The misleading and incorrect definition of "commercial areas" as comprising the Traditional Center creates conflicting interpretations of whether residential areas will be cleaned up to unrestricted uses.

15-19

15-20 The DEIR must state the level of clean up the City requires for the three land uses specified in the General Plan: Traditional Neighborhood Low Density (single family); Traditional Neighborhood High Density (multifamily); and Traditional Center (shopping center). These clean-up designations are important because the DTSC will rely on them when updating the RAP. The DEIR only states that the single-family areas will be cleaned up to unrestricted uses (no encapsulation – page 5.8-11).

15-21 The CEQA analysis omits a finding that all areas zoned Traditional Neighborhood High and Low Density should be cleaned up to an unrestricted use.

15-22 The DEIR states that it may not be feasible to remove all the newly discovered contaminated soil from the project site, and presents encapsulation as one remedy. Because encapsulation involves restricted uses, and is usually reserved for commercial and industrial sites, the definition of "commercial" in this DEIR has particular relevance. If it includes "multifamily residential," as the DEIR claims as part of the project's three artificial "commercial areas" in the Traditional Center, then it should be clearly articulated in the Public Health and Hazards chapter (p. 5.8-11 and 5.8 –13 that encapsulation of contaminated soil may not be permitted under the senior housing and multifamily residential property.

4. The DEIR's Alternatives Analysis does not consider the Alternatives' consistency with the 2030 General Plan's land uses. This is a serious omission.

15-23 The DEIR states that evaluating the Alternatives for compatibility with the General Plan land uses complies with CEQA Guidelines (page 7-2) that "factors such as site suitability,…general plan consistency, other plans or regulatory limitations,…should also be considered and evaluated in the assessment of the feasibility of alternatives." The DEIR excludes this analysis. It is particularly relevant because the proposed project's Traditional Center (shopping center) is inconsistent with the General Plan's designation and definition of that land use.

15-24 The Village Green Alternative, which was dismissed in the DEIR, appears from its description to have been designed specifically with the General Plan's land uses and policies in mind. The specificity of its design and its land uses makes it qualitatively different from the other Alternatives. (p. 7-4 – 7-6)

Thank you for considering these concerns.

Sincerely,

Beverly Fretz-Brown

Beverly Fretz-Brown
2241 4th Avenue
Sacramento, CA 95818

LETTER 15: BEVERLY FRETZ-BROWN, RESIDENT

Response to Comment 15-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 15-2

See Response to Comment 5-14.

Response to Comment 15-3

See Response to Comment 5-14.

Response to Comment 15-4

See Response to Comment 5-160.

Response to Comment 15-5

See Response to Comment 5-162.

Response to Comment 15-6

See Response to Comment 5-163.

Response to Comment 15-7

See Response to Comment 5-165.

Response to Comment 15-8

The DEIR does not contain a layout of the proposed commercial area. Therefore, the comment does not address the adequacy of the DEIR. The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 15-9

As noted in the Responses to Comments and the DEIR, upon approval of the project, which includes a General Plan Amendment, the proposed project would be consistent with the General Plan designation of Traditional Center; therefore, mitigation is not required.

Response to Comment 15-10

See Response to Comment 5-170.

Response to Comment 15-11

The comment lists Land Use policies from the General Plan and does not address the adequacy of the EIR.

Response to Comment 15-12

See Response to Comment 15-8.

Response to Comment 15-13

See Response to Comment 15-8.

Response to Comment 15-14

See Response to Comment 5-153.

Response to Comment 15-15

See Responses to Comments 5-174 and 5-175.

Response to Comment 15-16

See Response to Comment 5-176.

Response to Comment 15-17

See Response to Comment 5-179.

Response to Comment 15-18

See Response to Comment 5-180.

Response to Comment 15-19

See Response to Comment 5-181.

Response to Comment 15-20

See Response to Comment 5-181.

Response to Comment 15-21

See Response to Comment 5-182.

Response to Comment 15-22

See Response to Comment 5-183.

Response to Comment 15-23

See Response to Comment 5-184.

Response to Comment 15-24

See Response to Comment 5-185.

Letter 16

John Mathews
2520 5th Avenue
Sacramento, CA 95818
(916) 455-9565

5-30-09

Comments on Curtis Park Village DEIR

As a resident of Curtis Park, I have great concerns about the proposed Curtis Park Village project and its impact on my neighborhood and the surrounding community.

16-1

Unfortunately, the DEIR is so flawed that it should be withdrawn, examined for inconsistencies and missing information and then recirculated with an accurate project description, traffic study and toxic remediation plan.

Wrong Project Description in Traffic Study

The DEIR traffic analysis in Section 5.2 uses the wrong project description. An analysis of the new project was conducted, but none of the Trip Generation Tables or project descriptions in Section 5.2 were updated. The Dowling Associates Memorandum dated December 9, 2008 on page 415 in Appendix D states "to determine if the revised land uses would generate significantly different amounts of trips from those fully analyzed by the DEIR, a trip generation analysis was performed for the revised land uses using the same methodologies described in the transportation section of the DEIR." Only 2 Traffic Circulation Tables in Appendix D were updated with the new traffic numbers. Since a new analysis has already been conducted by Dowling Associates, that information should be used in Section 5.2 and all Tables should reflect the new project description and traffic counts.

16-2

The traffic counts used to determine Existing Traffic Volumes are too old to be meaningful (Chapter 5.2, pages 5.2-8 and 5.2-9). Most of the traffic counts were taken from March to September 2005, making them 3-1/2 to 4 years old. Even the current traffic counts are at least 1-1/2 years old and do not include the impact of the recent 21st Street conversion from one-way to two-way traffic. The 21st Street chances have resulted in major traffic impacts in the immediate Curtis Park Village area and any traffic count analysis needs to reflect the real, current conditions. Previously, the 2005 study included: 30 Intersections, 17 Street Segments, 2 Freeway Ramps and 2 Freeway Merge/Diverges. In 2007, only 12 Intersections were retested, only 4 Street Segments were

16-3

Letter 16
Cont'd

retested and no Freeway Ramps or Freeway Merge/Diverge locations were retested. Out of 51 study areas tested in 2005, only 16 were retested in 2007 (32%).
16-3 cont. An accurate traffic study is needed on a final project description before the DEIR moves forward.

Toxic Remediation

There is no consistency or coordination between the Developer's toxic remediation plan, DTSC statements and the DEIR. The DEIR should contain an accurate description of remediation plans that are consistent with the Developers public statements. At various times the public was
16-4 told that the whole site would be cleaned up to residential standards and all the toxic dirt shipped off-site. After more toxins were found, we were told at one point that only the single family home area would be cleaned up. Now we are being told that the toxic dirt will be buried beneath the park and the commercial area. This is an important infill project on a superfund site. The public deserves an accurate and consistent explanation of what will happen with the toxic dirt before the DEIR moves forward.

Traffic Impacts

For a project this size, there are too few entrances and exits for the scale of commercial building. At 260,000 square feet, the commercial area will have to draw traffic from far outside the surrounding neighborhoods to be economically viable. The traffic impact will immediately drop the Northern
16-5 half of 24th Street to a Level Of Service "E" and cumulatively will leave that section of 24th Street with a LOS "F". The quiet neighborhood streets of Donner Way and 5th Avenue will be heavily impacted with a resulting loss of quality of life for residents. The problem is again, the traffic study in the DEIR uses the wrong project description, making it impossible to know what the real traffic impacts will be. And this is not a "neighborhood
16-6 serving" level of commercial development, it is a "regional" shopping center. The only way to mitigate the enormous traffic impacts is too reduce the commercial area to 100,000 square feet as proposed in
16-7 Alternative 3: Reduced Commercial Alternative B. Is an extra 160,000 square feet of commercial development so important to the City that we

[Comments from John Mathews, page 2]

Letter 16
Cont'd

shouldn't care about doing irreparable harm to our neighborhood streets? Also, the Village Green Alternative should be reexamined as a serious alternative and used in the next traffic study.

16-7 cont.

Neighborhood-Serving Retail

We've been told that one of the main rationales for the level of commercial buildings in this design is that somehow Curtis Park is "underserved" and the only solution is for us to be served by an additional 260,000 square feet of new commercial development.

Curtis Park is already well served by the hundreds of existing businesses surrounding us on the business corridors of Broadway, Freeport and Franklin Blvd. If we need groceries, for example, there is a neighborhood market at 24th Street and 2nd Avenue that I can reach by car in 90 seconds. There is the Mercado supermarket at Franklin and Sutterville that I can reach in less than 2 minutes. Taylor's Market on Freeport is only 4 minutes away. The Safeway at 19th and R is only a 4.5 minute drive. Am I underserved if it takes me more than 180 seconds to get to a Safeway? The Raley's store on Freeport is only 5-6 minutes away, and if I need a really big package of toilet paper, there is a Smart and Final store 2 ½ minutes away at Broadway and Franklin. If we don't want to cook, there are already a great number of fast food chains surrounding us, like McDonald's, Subway, Taco Bell, and Round Table. There are already 2 Starbucks within 1 1/2 miles of my front door. We are lucky to have quick access to all kinds of restaurants nearby; there are Chinese, Japanese, Mexican, Himalayan, Thai, Vietnamese, Jamaican, and the list goes on. And of course we are already being served by an incredible variety of surrounding businesses. Within 4- 7 minutes of our front doors there are banks, gas stations, video stores, dry cleaners, launder mats, nurseries, hair stylists, auto parts stores, and hundreds of other mom and pop businesses. We are already served by realtors, insurances agents, doctors and veterinarians. And all of these businesses are within walking and biking distance if we want to get out of our cars. An influx of more families and less retail in the Village will support these existing businesses and can help revitalize the Broadway, Freeport and Franklin business corridors.

16-8

[Comments form John Mathews, page 3]

Letter 16
Cont'd

The Legacy of Empty Retail

The Curtis Park Village is being described by the developer as a "Legacy Project" and hopefully it will end up as a project everyone can be proud of. But by overbuilding, there is a great potential that many of the retail spaces in the Village will never be filled. From Elk Grove to North Natomas, there are already hundreds of thousands of square feet of empty commercial, retail and office spaces that, even with an economic upturn, will never be rented or leased. Even in the developer's very nice Safeway market complex at 19th and R Street, there are commercial spaces that have never been rented since the project was completed years ago.

16-9

The Curtis Park Village commercial and retail area needs to be build to a sustainable scale and not just add to the blight of empty retail in the Sacramento Valley.

Was the DEIR Even Proofread?

Finally, was this even proofread for the most obvious mistakes? Concerning Population, Employment and Housing, paragraph 2 on 5.10-6 states:

"The 2030 General Plan projected buildout for Curtis Park Village Project would result in 475,000 employees. However, implementation of the proposed project would result in the addition of 520 employee; 474,480 less employees expected from the 2030 General Plan EIR."

16-10

Honestly, did someone read that and think it makes sense and should remain in the DEIR? This is a important project that will have a major impact on the surrounding community. The DEIR should be redone with an accurate project description, traffic analysis and toxic remediation plan.

Thank you,

John Mathews

[Comments from John Mathews, page 4]

LETTER 16: JOHN MATHEWS, RESIDENT

Response to Comment 16-1

The comment is an introductory statement. See Responses to Comments 16-2 through 16-10 for detailed responses.

Response to Comment 16-2

An assessment of trip generation for the revised land uses was performed and described in the memorandum dated December 9, 2008; however, no new impact assessment was performed for the revised land uses. See Response to Comment 5-28 for additional information.

Response to Comment 16-3

See Responses to Comments 5-28 and 5-109.

Response to Comment 16-4

The potential remedies for the disposal of the additional contaminated soils are listed on pages 3-4 and 3-5 in Chapter 3, Project Description, of the DEIR. As noted, potential locations for encapsulation of contaminated soils include the proposed commercial areas and the park. The final remedy will be selected during the preparation of the update to the RAP. The public will have a 30-day review period of the draft RAP to provide their input to DTSC, which is the agency with the responsibility to approve the update to the RAP.

Response to Comment 16-5

See Responses to Comments 5-29, 6-1, and 14-2.

Response to Comment 16-6

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 16-7

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 16-8

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 16-9

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 16-10

To correct text, the second paragraph on page 5.10-6 of Chapter 5.10, Population and Housing, of the DEIR is revised as follows:

> The 2030 General Plan EIR projected buildout for Curtis Park Village Project would result in ~~475,000~~2,400 employees. However, implementation of the proposed project would result in the addition of ~~520~~518 employees; ~~474,480~~ 1,882 less employees expected from the 2030 General Plan EIR. The proposed project would result in a ~~1.1~~0.94:1 employee-per-unit ratio.

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Letter 17

May 30. 2009

Jennifer Hageman, Senior Planner
City of Sacramento Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

Dear Ms. Hageman:

17-1 As a resident of Curtis Park, I would like to submit comments on the City of Sacramento's Draft Environmental Impact Report (DEIR) of the Curtis Park Village (CPV) project. Since my interest in this report is centered on the biological resources, and more specifically the trees in the urban woodland located on the project site, my comments will be restricted to the sections which regard these resources.

General Comments

17-2 Evaluation of the CPV DEIR was very difficult because of the lack of data presented in the report or specific references where pertinent data could be accessed. Without this data a reviewer has no way to properly assess the validity of any statements. Since CEQA guidelines direct that the determination of significance must be based on scientific or factual data, the evaluation of impacts is not substantiated, and so open to debate.

Specific Comments

1) Remedial Action Plan and The Sacramento Heritage Tree Ordinance.

Throughout the CPV DEIR, two sources of information are integral in the evaluation of impacts. These two sources are the Remedial Action Plan (RAP) and the City of Sacramento Heritage Tree Ordinance.

17-3 Remedial Action Plan: In the Executive Summary Project Description (Section 2.1) the third paragraph states the following: "Remediation of the site is occuring pursuant to a Remedial Action Plan (RAP) approved by the Department of Toxic Substances (DTSC) in 1995. However, additional volumes of contaminants were encountered in 2008 which requires an update of the approved 1995 RAP.....the analysis in this EIR focuses on potential impacts associated with additional proposed remedies that will be required to the update to the previously approved RAP." Sentences such as these, and decisions on significance using references to "the RAP", "the 1995 RAP", "the revised RAP", and the "updated RAP" make it very difficult for someone who is not familiar with the history of this project to know how many reports are actually involved in this report and where they can be found.

17-4 The only report listed in the CPV DEIR references is the Danes and Moore *Final Remedial Action Plan, Union Pacific Railroad Yard, Sacramento, CA. June, 1995.* When I was able to review this report on the DTSC web site, I could not find any references to approved measures for tree removal. This means I have no objective way to evaluate any decisions on significance based on the RAP.

Letter 17 Cont'd

City of Sacramento Heritage Tree Ordinance: Evaluation of impacts to heritage trees in the Biological Resources section states that " .....the proposed project would be required to comply with the City's Heritage Tree Ordinance (City Municipal Code Chapter 12.64); therefore, the project's impacts related to the violation of the Heritage Tree Ordinance would be less than significant."

17-5 The text of the Heritage Tree Ordinance has been under review and changes have been made to its wording in response to appeals on rulings made by the director. Without the date, and exact wording, of the Ordinance used to evaluate the impacts of the CPV project, a reviewer cannot properly evaluate determinations of significance.

The fact that the Ordinance has no stated guidelines for mitigation and that revisions, or interpretations, of the Ordinance can result in decertification of heritage trees, makes it difficult to assess how the ordinance will affect the significance of project impacts.

2. Tree Resources Assessment

17-6 The determination of which project trees are heritage trees is attributed to a report prepared by North Fork Associates. The aerial photo in Figure 5.5-1 is from this report and shows the locations of the trees they have designated as heritage. The problem is there is no list in the text, or appendices, that describes these trees and what standards were used for their evaluation as heritage trees.

17-7 The only list of trees on the site was prepared by Connor Arborist Services. Since there is no date as to when the data was collected, it is hard to assess the present relevance of the tree measurements and conditions stated for each tree. A visit to the site, aided by a map prepared for Petrovitch by Nolte in 2005, seemed to show that the

17-8 numbers assigned to the trees in the Connor report may be the same as those used by North Fork Associates in Figure 5.5-1. Since the trees could only be viewed through the fence that surrounds the property, it is difficult to truly verify the data. The fact that the Connor report lists very few trees that are considered in "good" condition,

17-9 leads one to wonder if the North Fork Associates heritage tree assessment was using a different set of data or the standard for heritage assessment was different in the Heritage Tree Ordinance they used to made their assessments.

3. Aesthetics

17-10 The Aesthetics section of the CPV DEIR refers to the "unique" character of the stands of large oaks along the northern and northeastern property lines, but does not evaluate the impact of the removal of the present mature native and non-native trees in this boundary woodland community. Though narrow, this woodland screens the neighboring houses from the rail yard and the extremes of summer and winter weather. It could be said that this woodland community provides the "Multi-functional 'green infrastructure' which the *City of Sacramento 2030 General Plan* City of Trees and Open Spaces Goal sees as an aesthetic value worthy of maintaining. The loss of all the heritage trees along the southeastern boundary indicated by Figure 5.5-1, could be considered a significant effect.

Letter 17 Cont'd

4) Toxics

17-11 In the CPV DEIR, toxics, and the associated determination that a tree must be removed, has become the overriding consideration in evaluating tree species on the project site. The fact that many of the trees will be removed because of toxic soils, should not obfuscate their significant aesthetic and conservation benefits to the property owners bordering the project site. The future removal of a tree due to soil toxics does not mean that their present, or past, benefits can be discounted. Plantings associated with project mitigation measures, or the establishment of new landscaping, will take several years to establish and provide the same aesthetic and conservation benefits conferred by the present mature tree community.

17-12 Toxic levels vary from the location to location and so can have different effects on individual trees in the community. The decision to remove an individual tree must be decided tree by tree and area by area.

5) Open Space

Guidelines for the Downtown Rail Yard Project state that "Open space should be well-designed and provide a range of different types.". It notes that these spaces should provide assets to the public and have a sense of place, such as a retreat from the public realm.

17-13 The four lots titled as Open Space on the Tentative Subdivision Map (Figure 3-3) do not have an associated description of why these particular locations were choisen. Their placement however, seems to indicate that they provide access to areas which might need to be available in the future (the western end of the Donner trunk Line, Lot P); provide signage or plantings at the entrance to the project (Lot Y); and shield areas immediately next to the rail yard(Lot Q) or between the rail yard and the commercial lots (Lot Z).

17-14 In my 2004 NOP comments, I depicted a natural area along the northern boundary of the project which could preserve some of the existing oak woodland. In the present set of comments I would like to propose another possibility based on the location of the very large Valley Oak which I believe is number 108 on the Connor Arborist Report. This oak is a prime example of the weeping form of oaks that are at least 100 years old. The canopy of this oak would span the width of two of the single-family lots shown on the tentative subdivison map.The structure and form of this tree would not fare well in a standard family backyard and might lead to the tree's early decline. Incorporation into a natural, open space where the area under its canopy, and just beyond the dripline, is left undeveloped could help to preserve this tree. The area nearer the street could be a demonstration garden for drought-tolerant plants, as well as a refuge for neighbors and visitors.

Thank you for considering these comments and concerns,

Sincerely,

Linda A. Bell
2239 4th Avenue
Sacramento, CA 95818

LETTER 17: LINDA A. BELL, RESIDENT

Response to Comment 17-1

The comment is an introductory paragraph and does not address the adequacy of the EIR.

Response to Comment 17-2

The comment is a general comment with specifics addressed in responses to comments below.

Response to Comment 17-3

An original Remedial Action Plan (RAP or 1995 RAP) was prepared for the project site in 1995. After approval of the EIR, a revised or updated RAP would be submitted to the DTSC for approval.

Response to Comment 17-4

The commenter is correct. The mitigation for the removal of Heritage Trees is not in the Final RAP but, rather, is in the Negative Declaration prepared by DTSC for the Final RAP (SCH 94042023). The Negative Declaration is available for review at City offices (916-808-5538) or through DTSC.

Response to Comment 17-5

Please see Chapter 1, Section 1.4 of this FEIR for a discussion of the removal of trees associated with the cleanup of the site.

Response to Comment 17-6

For clarification purposes, the Tree Resource Assessment prepared by North Fork Associates is included as Appendix G of this FEIR.

Response to Comment 17-7

As stated in the North Fork Associates Tree Resource Assessment, on February 1, 2008, North Fork Associates conducted a field site visit and verified the data present in the Connor Arborist report, located and inventoried four additional Heritage Trees, assessed habitat, and photo-documented the site.

Response to Comment 17-8

The commenter is correct that the number assigned to trees in the Connor report was utilized by North Fork Associates.

Response to Comment 17-9

The commenter is correct that the North Fork Associates Tree Resource Assessment utilized a different standard for Heritage Tree assessment. The Tree Resource Assessment used the following standards:

> "According to the Sacramento City Code (Chapter 12.64), which constitutes the City's tree ordinance, a heritage tree is defined as: 1) any tree species with a circumference of one hundred (100) inches (approximately 32 inches diameter at breast height) or greater, which is of good quality in terms of health and vigor, 2) any native *Quercus* species, *Aesculus californica*, or *Platanus racemosa* having either a single trunk circumference of thirty-six (36) inches (approximately 11.5 inches diameter at breast height) or greater, or a multi-trunk circumference totaling thirty-six (36) inches or greater, 3) any tree species with a circumference of thirty-six (36) inches or greater in a riparian zone, or 4) any tree, grove of trees or woodland trees designated by resolution of the city council to be of special historical or environmental value or significant community benefit."

Response to Comment 17-10

See Response to Comment 17-5.

Response to Comment 17-11

See Response to Comment 17-5.

Response to Comment 17-12

See Response to Comment 17-5.

Response to Comment 17-13

The comment does not address the adequacy of the EIR.

Response to Comment 17-14

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Letter 18

To Whom It May Concern at City Council/Planning Commission

Curtis Park

RE: Tenth Ave outlet/inlet to Village being changed from Pedestrian only access to Vehicular access

18-1 We are imploring you to realize the effect this change would render on Tenth Avenue and surrounding streets. These are quiet neighborhood streets. Auto access to the Village would encourage 2-way traffic on a narrow street that can barely accomodate the one way traffic from its residents.

18-2 Our driveways are built for one car, leaving at least one on the street- Creating more congestion. Add to the mix the activities at Curtis Park on the weekend and these little streets on the South side of the park have all they can handle. Undoubtedly, commercial vehicles delivering to the Village would use these streets as shortcuts.

18-3 We've heard talk of traffic bumps to slow down or discourage cars from speeding thru. NO MORE!! We've been bumped,

Letter 18
Cont'd

18-3 cont

humped, and tabled to death. The last thing we want is to drive out our driveway and encounter another bump. We are surrounded by them on 24th St and West Curtis.

18-4

A pedestrian access is the only idea that makes sense for a street the size of 10th Avenue. Curtis Park Village is supposed to be created to integrate into our neighborhood - NOT INTRUDE. Quiet serene streets are why we purchased homes here. We're not willing to give that up nor do we intend to without seeking alternative solutions to this proposal.

Concerned Residents
of 10th Ave and
Surrounding Streets

LETTER 18: CONCERNED RESIDENTS

Response to Comment 18-1

As indicated in Table 5.2-12 on page 5.2-38 of Chapter 5.2, Transportation and Circulation, of the DEIR, Road A north of Area 3 (10th Avenue connection to Curtis Park Village under Access Scenario #3) would operate at LOS A. In addition, see Response to Comment 5-119.

Response to Comment 18-2

Commercial vehicles are encouraged and are expected to access the project site from the south via Sutterville Road/Sutterville Road underpass and minimize impacts to surrounding residential neighborhoods. Truck routes are determined by the City Department of Transportation to protect residential streets from these types of trucks.

Response to Comment 18-3

A traffic bump is not proposed as a part of the project or as mitigation. As stated on page 5.2-20 of the DEIR, the City has four Neighborhood Traffic Management Programs (NTMP) near the Curtis Park Village project. These plans are to be implemented by the City and are not part of the Curtis Park Village project.

Response to Comment 18-4

Curtis Park Village will provide pedestrian and bicycle connections along the eastern edge of the project to the Curtis Park neighborhood at 10th Avenue, Donner Way, and 5th Avenue, and 21st Street extension and a pedestrian and bicycle connection only at the existing alley access at 22nd Street and Portola Way on the north side of the project. In addition, see Response to Comment 5-119.

Letter 19

COMMENTS ON
CURTIS PARK VILLAGE DRAFT ENVIRONMENTAL IMPACT REPORT

By: Kitty Wilson, 2604 – 27th. Street, Sacramento CA 95818-2617
916-456-6014

I have been a resident of Curtis Park since my marriage on June 6, 1990. My husband Richard has resided here since October of 1988.

I have been a member of the Board of Sierra Curtis Neighborhood Association (hereafter SCNA) since the Summer of 2008.

I am aware that other Board members and Curtis Park neighbors are addressing some of my issues in more depth but I wish to reinforce theirs and emphasize some of my own.

19-1 I cannot confine myself to commenting on just what is presented in the DEIR. Developer Paul Petrovich (hereafter referred to as "Petrovich") has made comments at several Board or Committee meetings of SCNA and at two Public Meetings, hosted by SCNA, on Thursday, May 7th., and Wednesday, May 27th. I feel these need to be put on Public Record; I am therefore mentioning them here.

Toxics and Traffic problems are my two major concerns. I will just mention several others.

Toxics & "the price of doing business".

19-2 1) Petrovich has requested that residents of Curtis Park, specifically Board members of SCNA, "sign off on" entombing remaining toxics on site because he cannot afford to haul any more of them away. He has suggested that they could be "consolidated and capped", that is, gathered together and buried, under the park, the roadways and/or hundreds of square feet more commercial area than originally proposed.

19-3 2) Petrovich has repeatedly cited the current bad economic market as a reason to rush this project through so he can recoup his expenses/losses. He has twice mentioned that his bank is pushing action on the project.

19-4 3) At Public Meetings on May 7th. and 27th. (both at Curtis Hall of Sierra 2 Center) he threatened that if the larger commercial area was not OK'd, he would have to "walk away from" the project, the land would revert to UP (Union Pacific Rail Road) and neighbors would be stuck with warehouses in the 72 acre parcel.

19-5 4) At the May 7th. Public Meeting Petrovich characterized the difference in the amount of toxics he was told were there by UP and the amount that has been found as "being screwed". So many different figures have been quoted that I cannot cite a specific number but the difference amounts to as much as 4 x the original quote.

19-6 I see NO reason why the residents of Curtis Park, Land Park, the neighborhoods South of Sutterville or the citizens of Sacramento should be stuck with a site which is STILL contaminated after more than four years work because Petrovich and/or Union Pacific made a bad business deal. If UP did, in fact, "screw" Petrovich by misrepresenting the volume of toxics on the site, then Petrovich has every right to sue Union Pacific!

When Union Pacific bought Western Pacific Rail Road ("WP"), they did not just buy the company's assets, they bought it's LIABILITIES as well. If those liabilities include

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Letter 19
Cont'd

COMMENTS ON CURTIS PARK VILLAGE DEIR by Kitty Wilson, Pg. 2

TONS of Toxics, so be it. It may have been "standard business practice" to just dump fuel, oil, solvents, etc. in the ground but WP made a LOT of money conducting business in that fashion so cleaning up the mess created/bought is the price of doing business. That price should be paid by Union Pacific, not the citizens of Sacramento or any of it's
19-6 cont. neighborhoods. Union Pacific continues to operate as many as 16 freight trains per day through this area (both theirs and rentals to Burlington Northern/Santa Fe Railroad), so they DO have current revenue to do the cleanup. And they do have the rail cars and tracks to haul it away.

This DEIR does NOT spell out how much contamination still exists at the site (May 27th. Public Meeting estimate is 170,000+ cubic yards) and despite several requests for a list of the chemicals, their concentrations and a map of their locations, concerned
19-7 residents of Curtis Park were not presented with a map until the second Public Meeting on May 27th. No copies of the map were provided to attendees. The original deadline for comments on this DEIR was May 15th.; a requested extension moved the deadline to just June 1. Which gave residents just FOUR DAYS to respond to this new information. I do not consider this proper notice and state here that I have been denied my rights to make FULLY informed Comments because of this lack of information.

At present the toxics are spread over 72 acres of land. I need only a rudimentary
19-8 knowledge of chemistry to ask:

1) What chemical reactions are possible when these toxics are concentrated by gathering them together?

2) One of the ways Petrovich has suggested to "encapsulate" them is to dig a large
19-9 hole (under the Commercial area/s) to bury them in. Does he have any idea where the water table in that area is and whether this big "pile" of toxics can adversely affect that water?

3) Petrovich has recently suggested this big "pile" of toxics can be buried with the proposed water detention basin that the City of Sacramento would like to place at this site. I can understand why the City considers this is an excellent site for such a structure: nothing is built on it at present and therefore no eminent domain proceedings will be needed. But I have to question whether it is wise to have that much water, the universal
19-10 solvent, anywhere near hundreds of thousands of cubic yards of toxic waste that includes arsenic and lead. Both arsenic and lead are "heavy metals". They are also additive poisons which makes life-time and fetal/infant exposure to both of them a major concern for residents of the existing neighborhoods. Although buried underground this detention basin still has outflow so if contaminated, the exposure could include more City residents than just the surrounding neighborhoods.

4) Petrovich's suggestion to bury the toxics under the park galls me for two reasons:
a) Because it will prevent planting trees in the park. Parks without trees in Sacramento
19-11 Summers are virtually unusable.
b) With potential life-time and fetal/infant exposure to arsenic and lead will anyone use the park/s or will they be too afraid to?

I believe our best current science can still NOT predict what toxics of these concentrations might/can do in the long run. I think the best thing is to remove them

Letter 19
Cont'd

COMMENTS ON CURTIS PARK VILLAGE DEIR by Kitty Wilson, Pg. 3

because no matter what use the rail yard land is put to in the future, it is surrounded by residential property.

To reiterate, no matter what has happened to the business relations between Petrovich and Union Pacific, UP is still running rail cars through the rail yard, at a tidy profit, on a daily basis. I therefore see no reason why Union Pacific should not be held responsible for hauling the rest of the toxics away from the site.

19-11 cont.

Traffic Concerns

1) Petrovich has stated that he needs to increase (more than double) the amount of commercial space on the site in order to recoup his investment (and also as a place to entomb toxics).

2) At the May 7th. Public Meeting he characterized Curtis Park Village as a "showcase development". I submit a) he wants HIS name on that "showcase" and b) if he retains ownership of the commercial space he can charge higher rent for "showcase" space.

19-12

That may be what any developer has to do in order to make a living. But Petrovich is saddling the residents of at least two older, established neighborhoods (Curtis Park and Land Park) with a suburban-style shopping mall that is not just out of character with these neighborhoods, but will severely exacerbate existing traffic problems as well as creating new ones.

This infill project is in a compromised space: 1) A line of homes on the East side of it prevents connection with all the East/West streets of Curtis Park. 2) The railroad tracks, Light Rail tracks and City College prevent connections to Freeport Blvd. on the West. 3) Portola to the North is a purely residential street. 4) The intersection of 21st. Street with Portola/Marshal/4th. Avenue is already severely overtaxed by having too many streets plus railroad and Light Rail crossings. 5) The Sutterville Road bridge over the rail and Light Rail tracks makes access to/from Sutterville Road and the site very difficult and limits the number of connections possible to streets South of the property.

19-13

Already over-taxed arterials. 1) Although these are all two-way streets, too many of the "arterial" streets around this land are either one lane (Franklin Blvd.) or two lanes (Freeport Blvd. and Sutterville Road). 2) Sacramento City College and Land Parklocations on Freeport Blvd./Sutterville Road has already over-taxed all of them. 3) I feel the Conversion of 19th. and 21st. Streets from one-way to two-way has made matters worse (my husband and I attended numerous Street Conversion Workshops to speak against these changes) 4) The timing of the stop light at the rail/Light Rail crossing at the 21st/Freeport/4th. Avenue intersection is ridiculous: Light Rail #1 + a freight train + Light Rail #2 stops drivers not JUST for the length of time it takes these 3 trains to go through, drivers then need to wait 5 to 10 minutes for the green light! 4) Even with the addition of some streets in the Village area, the surrounding streets were never designed to carry the volume of traffic that a suburban-style shopping center will bring.

19-14

Compromising Curtis Park entry. See Table 5.2-11, Footnotes # 3 & 4 (pp. 5.2-34 & 35)

19-15

Curtis Park/East has four major North/South streets: 24th. Street, West Curtis Drive, East Curtis Drive and Franklin Blvd. For those of us residing in East and Northeast

Letter 19
Cont'd

COMMENTS ON CURTIS PARK VILLAGE DEIR by Kitty Wilson, Pg. 4

19-15 cont. Curtis Park, it is easier to access Hwy. I-5 South and businesses South of Sutterville Road by using these North/South streets through OUR neighborhood, then Sutterville Road. I consider the use of these routes by us to be of great help in minimizing traffic on the West side of Curtis Park/Curtis Park Village.

19-16 At the May 7th. Public Meeting I overheard Petrovich explaining to another attendee that the Signal light at 24th. Street and Sutterville Road will be removed in favor of a Signal light at "Avenue A" in Curtis Park Village and that a concrete barrier will be constructed in the middle of Sutterville Road to prevent left turns onto 24th. Street and West Curtis Drive. The footnotes referenced above mention down-grading the 24th. Street signal to a stop sign and placing a Signal light at CPV's "Aveue A". But I find no mention in Section 5.2 of the concrete barriers. This is one of the reasons I suspect Petrovich will retain ownership of the commercial property in the Village: to favor HIS shopping center.

19-17 I bitterly resent that Petrovich plans to cheat the established Curtis Park neighborhood of Signal light access that has existed for decades. CURRENT traffic compromises left turns from Sutterville Road onto West Curtis Drive. I have to question how many Curtis Park residents will have to use East Curtis or Franklin Blvd. just to get into their OWN neighborhood because 24th. Street and West Curtis will be "barriered". Having served on the Kathleen Neighborhood Traffic Calming Committee I DO understand that having two stop lights within a block of each other may not be "warranted" but if the commercial space in Curtis Park Village is 200,000+ square feet, instead of just over 100,000 square feet originally "promised", I think there will be more than enough traffic to warrant two lights. Both 19th. and 21st. Streets through Midtown have them every block to slow rush hour traffic so why not on Sutterville Road that already bears City College traffic and will need to bear even more customers if this additional 100,000+ square feet of commercial properties is approved?

I think Curtis Park needs to retain ALL the access roads it currently has just to relieve pressure on the too few roads Petrovich has planned for the Village.

19-18 Failure to Address Impact on "Kathleen Neighborhood". See Section 5.2 and Figure 5.2-6: Trip Distribution (pg. 5.2-29)

19-19 Both my husband and I served on the Kathleen Neighborhood Traffic Calming Committee which met during 2003 and 2004. The Kathleen Tract Neighborhood for the NTMP project was bordered as follows: Broadway on the North, Franklin Blvd. on the East, 2nd. Avenue on the South and 26th. Street on the West. Residents in this area observed dramatic increases in traffic volumes and speeds when Midtown Traffic Calming was enacted: 1) Traffic on Broadway trying to access the onramp to Southbound Hwy. 99 backed up to 26th. Street during rush hour. 2) Drivers stuck in this traffic therefore used 26th., 27th., and 28th. Streets as well as San Fernando Way to drive South to 2nd. Avenue. 3) Residents on all of these streets then had to deal with speeding drivers with a callous disregard for open car doors, residents entering/leaving their parked cars, children playing and pets crossing the street. Committee members were successful in getting speed bumps on 27th. and 28th. Streets, San Fernando Way and 2nd. Avenue but were denied those requested on Franklin Blvd. and 26th. Street because they are safety vehicle routes. 26th. Street presents a special problem because CHP Headquarters

Letter 19
Cont'd

parking lot opens onto it and squad cars need to use it to get to Broadway (and Hwys. 99 and 50).

At one of the meetings of concerned Curtis Park residents it was mentioned that the 12th. Avenue/Sutterville Road onramp/offramps to Hwy. 99 are so compromised at present that Curtis Park neighbors already use the Broadway exit and then 24th. Street to get to/from home. That MAY be the preferred route for residents on the West side of Curtis Park but I have personal reason to suggest that 26th. Street, then 2nd. Avenue bear a lot of this traffic too: I live on the West side of 27th. Street.

19-19 cont.

Thanks to the fact that CHP Headquarters was built ON 26th. Street, the street had to be diverted around the building. In so doing all the properties on the West side of 27th.Street in the 2500 and 2600 blocks lost their alley: they therefore live between TWO BUSY STREETS. 26th. Street is by far the worst for the following reasons: 1) there is a traffic light at 26th. and Broadway in conjunction with 2) an onramp to Hwy. 50 from X Street just East of 27th. Street and 3) the"26th. Street" offramp exits Hwy 50 onto W Street just East of 26th. Street. Most houses on the West side of 27th. Street have their driveways exiting onto 27th. but my residence and several apartment complexes have our parking access to/from 26th. Street. Because of the location of CHP's building, traffic coming from both the 2nd. Avenue and Broadway ends of 26th. Street cannot see residents exiting or entering their parking lots until they come around the East side of the building. And most of these drivers speed. I find it amusing that drivers exiting the CHP parking lot watch what I am doing in MY driveway because they can't see traffic coming Southbound due to their own building blocking their view! I DO understand that speed bumps cannot be designed for both fire engines and squad cars but this speeding creates a dangerous problem for these residents.

19-20

If Petrovich builds even 100,000+ square feet of commercial property at Curtis Park Village I cannot see how the traffic impact in MY neighborhood will be "less than significant". If he builds 200,000+ AND includes a dinner theatre it will have to be worse than half that space. Even if traffic coming from Hwy. 50 uses W Street to go to 19th., 21st. and 24th. Streets, too many streets in Curtis Park will be impacted. But I shudder to think how many drivers will use Kathleen Neighborhood Streets to access 2nd. Avenue/24th. Street once they discover that the Sutterville offramp backs up quickly. And WHY get into the 50/80/99 Gordian Knot Interchange when you cancircumvent it entirely by using the 26th. and 27th. Street on/off ramps?

19-21

Petrovich has tried to sell a curving "Avenue A" through Curtis Park Village as a traffic calming measure. I will point out the double curve on 26th. Street as an example of why a curving street WILL NOT slow traffic and will, in fact, increase the danger for drivers entering/leaving parking spaces, especially if sightlines are blocked by buildings.

19-22

OTHER CONCERNS

Safety Protection. If Petrovich builds even 100,000+ square feet of commercial space I cannot understand why there will be a "less than significant" increase in need for law enforcement and fire service. People won't need ambulances in the stores or homes? "Build it and (crooks) WILL come!!!" Gangs LOVE hanging out at Arden Fair Mall; even with its own "mall cops", arrestees still need to be transported by sworn personnel.

19-23

Letter 19
Cont'd

COMMENTS ON CURTIS PARK VILLAGE DEIR by Kitty Wilson, Pg. 6

19-23 cont. And once they drive through Curtis Park, they may decide to break into cars, steal cars, do burglaries enroute home. My 3 years working in Police Records and 24.5 years working in Identification/Fingerprints/CSI prompts these questions.

19-24 Air Quality/Toxics. As an asthmatic I have to question how much toxic dust will be created by construction of Curtis Park Village. Even if the toxics are removed by rail on the West side of the property, I want more than sufficient protection from them once they are uncovered.

I cannot apologize for the need to use six pages to address my concerns. Having had to digest 400+ pages of DEIR PLUS 1,000+ pages of Appendices just to hit the highlights of my concerns, I feel I am entitled. Call it revenge for all the reading I've had to do and all the meetings I've had to attend these past two months.

19-25 This DEIR does NOT cover what it needs to and the plans for Curtis Park Village are seriously flawed. We STILL don't know the exact mix of housing and shops!

I look forward to having Curtis Park Village with it's new residents and shopping closer to my home. But these gains should not be at the expense of the quality of life in both the old and new neighborhoods.

Respectfully Submitted,

Kitty Wilson

June 1, 2009

LETTER 19: KITTY WILSON, RESIDENT

Response to Comment 19-1

The comment is an introductory paragraph and does not address the adequacy of the EIR.

Response to Comment 19-2

The comment is a statement and does not address the adequacy of the EIR.

Response to Comment 19-3

The comment is a statement and does not address the adequacy of the EIR.

Response to Comment 19-4

The comment is a statement and does not address the adequacy of the EIR.

Response to Comment 19-5

The comment is a statement and does not address the adequacy of the EIR.

Response to Comment 19-6

The comment is a statement and does not address the adequacy of the EIR.

Response to Comment 19-7

The commenter is correct that the DEIR does not quantify the amount of contaminated soils remaining on the proposed project site. This is because the amount is still not known. Additional amounts of contaminated soils are discovered as remediation takes place in accordance with the 1995 RAP. It is important to note that the remediation of the site, which includes the type, concentrations, and locations of the contaminants, is taking place with DTSC oversight of the 1995 RAP. The existing RAP allows the current remediation efforts.

As noted on page 3-4 of the DEIR, the 1995 RAP indicates that all contaminated soils would be removed from the site via rail or trucks. The DEIR examines only the potential environmental impacts associated with implementation of various potential remedies (see pages 3-4 and 3-5 of the DEIR). The only aspect of the remediation of the site that triggers the need for an update to the RAP, and thus environmental review, is the proposal to not haul all of the contaminated soils off-site.

As noted on page 5.8-7 of the DEIR, the draft update to the 1995 RAP would be circulated for public review for a minimum of 30 days.

Response to Comment 19-8

See Responses to Comments 15-2 and 19-7.

Response to Comment 19-9

As stated on page 5.8-11 of the DEIR, the encapsulated soils would be covered with an impervious membrane, which would prevent water percolation through the contaminated soils. Furthermore, the soil contaminants are heavy metals that are not water-soluble. In addition, DTSC would require, as part of the Operation and Maintenance Agreement for the updated RAP, ongoing monitoring and maintenance of the impervious membrane.

Response to Comment 19-10

See Responses to Comments 5-77 and 19-9.

Response to Comment 19-11

As part of the approval of the proposed project, a Resolution and/or Conditions of Approval will be included that will specify the City's Department of Parks and Recreation requirements for the development of the proposed neighborhood park, to include trees and the level of cleanup.

The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 19-12

The comment does not address the adequacy of the EIR.

Response to Comment 19-13

The comment does not address the adequacy of the EIR.

Response to Comment 19-14

As shown in Table 5.2-12 on pages 5.2-38 and 5.2-39 of Chapter 5.2, Transportation and Circulation, of the DEIR, none of the roadways segments referenced in the comment would operate at an unacceptable LOS with implementation of the project.

Response to Comment 19-15

The comment does not address the adequacy of the EIR.

Response to Comment 19-16

With the removal of the traffic signal at the 24th St/ Sutterville intersection, the southbound left-turning movement will be prohibited and all other movements will be permitted (i.e., the

southbound right turning movement, the westbound right-turning movement, and the eastbound left-turning movement). As the traffic analysis assumed the southbound left-turn movement would be allowed, the DEIR reports a more conservative evaluation of the operation of the intersection. The analysis projected a small number of vehicles (up to 10 during a peak hour) would make this movement. With the prohibition, these vehicles would be dispersed to alternative access points, but this dispersement would not change the conclusions of the analysis.

Response to Comment 19-17

Having traffic signals at the Sutterville Road intersections of Road A and 24th Street is not recommended because the two signals would only be about 200 feet apart. Such close placement is generally not recommended as it would result in queuing and operation issues. All access roads serving Curtis Park will be retained although the southbound left-turning movement on 24th Street will be prohibited. Please see Response to Comment 19-16.

Response to Comment 19-18

Figure 5.2-6 in Chapter 5.2 of the DEIR indicates that little project traffic is expected to pass through the Kathleen Neighborhood, with the exception of along Franklin Boulevard which borders the neighborhood. The conditions described for the Kathleen Neighborhood are not expected to be significantly impacted by the proposed project. Impacts to streets in the Curtis Park neighborhood were addressed in the DEIR's assessments of intersections and roadways.

Response to Comment 19-19

The comment does not address the adequacy of the DEIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 19-20

The comment does not address the adequacy of the DEIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 19-21

See Response to Comment 19-14.

Response to Comment 19-22

As noted in Chapter 1 of this FEIR, Introduction, List of Commenters, and Project Revisions, the project applicant has submitted revisions to the project description, including removal of the roundabout and curve along Road A.

Response to Comment 19-23

As stated on page 5.11-29 of the DEIR, the project applicant would be required to pay development fees for police protection facilities, and the project would not require the construction of new facilities or the expansion of existing facilities related to the provision of police protection. The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 19-24

As stated on page 5.3-12 of the DEIR, with implementation of Level Three SMQAMD Guide to Air Quality Assessment mitigation measures, the impact related to exhaust emissions and fugitive particulate matter emissions from project-associated construction activities would be less-than-significant.

Response to Comment 19-25

The comment is a concluding statement and does not address the adequacy of the EIR.

Letter 20

Curtis Park Village Project
Project # P04-109

5.2-7 Impacts to on-site traffic circulation and safety under baseline plus project conditions,

Although the Sierra Curtis Neighborhood Association (SCNA) made comments about the DEIR's analysis of traffic impacts from CPV at its northwest access point, I will add the following to the record. The analysis of Road J at Portola Way is woefully inadequate. The streets - Portola Way, Marshall Ave. and Fourth Ave. - that feed into 21st Street where (and just before) the Union Pacific Railroad and Regional Transit light rail cross 21st are part of a complex condition that poses significant danger for pedestrians and cyclists in particular, as well as, although to a lesser degree, motorists. As a consequence, this area deserves thorough attention.

I have considerable familiarity with this area, having been at this intersection thousands of times as a pedestrian, motorist and cyclist. Too, I spearheaded a review of the impacts of the two way conversion of traffic on 21st Street for SCNA, and in that process gained a better understanding of the problems and challenges in this area. I also worked for Caltrans for 26 years in its Rail Program. Some of this time I worked with Operation Lifesaver.

20-1 This is the major pedestrian and bike entry to and from Curtis Park to Land Park. There are major destinations in Land Park that attract many pedestrians and cyclists to this intersection. Students at McClatchy High School and Cal Middle School who reside in Oak Park and Curtis Park almost exclusively use this crossing to access their respective schools. Many Curtis Park residents also cross these tracks to get to the 4th Avenue/Wayne Hultgren Light Rail Station, and the popular Taylor's Market and Freeport Bakery, as well as other close by and heavily patronized businesses.

One of the most dangerous approaches occurs where pedestrians and cyclists enter the approach to this intersection from Portola Way. There is no sidewalk adjacent to the sound wall next to the railroad tracks at the light rail station (this street segment would be an extension of CPV's Road J). Pedestrians who come from Oak Park or the southeastern portion of Curtis Park and use Portola Way walk on the south side of the street. When they approach 21st Street next to the sound wall they generally walk in the street rather than cross over to the other side of the street where there is a sidewalk; similar behavior often occurs when people have crossed the tracks and are about to walk eastbound on Portola Way. This can be very dangerous if a car is on the street heading eastbound on Portola, especially if there is another vehicle coming in the

Letter 20
Cont'd

opposite direction.

Conditions for pedestrians and cyclists have worsened due to the construction of the sound wall and conversion to two way traffic. Prior to the sound wall people could walk along the railroad right of way where the wall now stands, thus avoiding the street. When 21st Street was one way the northbound traffic went from two lanes to three after the railroad crossing. Now it is down to one lane northbound. At this juncture, cars often race to squeeze into the single lane from the approaching two lanes. When there is also a cyclist present and cars are parked on the east side of the street, which usually is the case, cyclists are in a very precarious situation because there is a dearth of space for them to avoid the vehicles - parked as well as moving.

20-1 cont.

The only thing the DEIR concerns itself with in regard to this intersection is the following: "Northbound left-turn from Portola Way is currently prohibited at the intersection of Portola Way, Marshall Way and 4th Avenue (actually the reference to Portola Way at this junction is incorrect, as this sliver of street is 21st Street) because of potential safety issue (sic) due to its close proximity to the 21st Street intersection; however, illegal turns can still be made physically. The project would potentially add traffic to this intersection and increase the number of illegal movement (sic). This would be considered a **potentially significant impact.**

20-2

When 21st Street in January 2008 was converted from a one way to two way street, this move was made permissible. This is another example of the report using information which is no longer relevant. However, the important point is that the critical issue that was noted above about pedestrians using the street was ignored, as were all other matters pertaining to non motorists. On a personal level, I have encountered pedestrians in the street when I had little time and space to avoid them. This was very disconcerting and harrowing. I have also witnessed similar situations as a pedestrian, and the woman who planted and maintains the garden next to the sound wall has also noted these dangerous conditions and articulated them at a neighborhood meeting.

20-3

To say the extension of Road J from CPV "would potentially add traffic to this intersection" is flat wrong, because opening a road to CPV at this juncture has to add traffic, even if there are plans to seal off Portola Way. I would like to know if there are plans to block traffic from Portola Way at Road J.

20-4

With additional traffic from CPV on 21st St. at Portola Way, the danger to pedestrians and cyclists would increase substantially. The statement on 2-4 that "mitigation would not be required for the proposed project or any of the access scenarios for baseline plus project or cumulative impacts to bicycle or pedestrian circulation" is patently false, as conditions at the 21st Street railroad crossing and adjacent streets clearly indicate. By concentrating only on a no longer relevant motorist movement to the exclusion of everything else, the

20-5

Letter 20
Cont'd

20-5 cont. authors of the DEIR ignore their own statement on 5.2-31 regarding Pedestrian Circulation. "For the purposes of this EIR, impacts to pedestrian circulation are considered significant if the Proposed Project...would: Result in unsafe conditions *or create a hindrance for pedestrians*, including pedestrian/bicycle or pedestrian/ motor vehicle access."

20-6 This intersection at 21St Street is similar to SR 99 at 12th Avenue in that problems exist prior to CPV. However, the DEIR treated both situations differently. The report concluded that the busy highway intersection would become even busier and more problematic as a consequence of traffic generated by CPV. But when it came to 21st Street there were no impacts noted other than a motorist move which no longer is illegal.

20-7 I can think of only one way to mitigate this condition at 21St. Street, and that is to construct a grade separated crossing for pedestrians and cyclists. One could be built at or near the southern portion of the light rail station. This would provide students and other non motorists safe access to the light rail station and Land Park. It would also allow residents of CPV similar access to light rail and Land Park, and in effect would help to integrate the two neighborhoods of Curtis Park and Curtis Park Village.

The southern boundary of Curtis Park Village has a grade separated crossing for pedestrians and cyclists. It is the Sutterville Road overpass. The northern boundary of Curtis Park needs a grade separated crossing, too. This is a matter of safety and equity.

Sincerely,

Lynn A. Franks

Lynn A. Franks
2345 Portola Way
Sacramento, CA 95818

LETTER 20: LYNN FRANKS, RESIDENT

Response to Comment 20-1

See Response to Comment 5-126.

Response to Comment 20-2

See Response to Comment 5-91.

Response to Comment 20-3

See Response to Comment 5-126.

Response to Comment 20-4

The proposed project would not block traffic from Portola Way at Road J. See Response to Comment 5-91.

Response to Comment 20-5

Please see Response to Comment 5-122 for a discussion of the conclusion that no mitigation would be required for project impacts on pedestrian circulation. Please see Response to Comment 5-91 regarding a correction to the discussion of the "no longer relevant motorist movement."

Response to Comment 20-6

The impacts of the proposed project on the two intersections were performed using the same standards for determining significance according to the City's standard procedures. The conclusions were that the impacts would be different at the two different locations. Traffic operations impacts at the Sutterville Road / SR 99 Ramps intersections were identified as significant in the assessment of intersection impacts and in the assessment of impacts to freeway operations. No significant traffic operations impacts were identified at the 21st Street intersection. No significant impacts to pedestrian circulation were identified using the standards of significance.

Response to Comment 20-7

See Response to Comment 5-129.

Letter 21

June 1, 2009

Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Planner
300 Richards Blvd.
Sacramento, CA 95811

RE: COMMENTS ON THE DRAFT EIR FOR THE CURTIS PARK VILLAGE PROJECT (PO4-109)

1. The Land Use section fails to identify and analyze impacts based on the General Plan 2030 Zoning and the Rezone Requests Described in the Project Description.

21-1 The project description includes the following rezone requests: Shopping Center, R-5 Multi-family Residential, R-4 Multi-family and R-1 Single Family yet the DEIR fails to identify the impacts of the proposed location for each parcel that is proposed to be rezoned. This is a key fundamental error. By failing to properly identify the impacts of the proposed zones in the project, the DEIR omits the impacts of the proposed zoning.

21-2 Instead, the DEIR "creates" three commercial areas and incorrectly combines certain other proposed zones, such as single family and multi-family. Based on these three incorrectly identified "commercial areas" proceeds to incorrectly determine that the proposed locations of certain uses, such as the Senior Housing building, complies with the General Plan zoning, which it does not.

21-3 The DEIR should identify and analyze the impacts of the proposed zoning in the project description on a parcel by parcel basis, as proposed in the project's Tentative Map, to determine what impacts if any exist, and whether the proposed zoning, on a parcel by parcel basis, is consistent with the 2030 General Plan zones: Traditional Center, Traditional Neighborhood High and Traditional Neighborhood Low. If the project's actual rezone requests, as outlined in the Rezone Exhibit, are used to determine general plan consistency, the DEIR must conclude that the proposed Entertainment uses for Lot A and Lot C do not conform to the general plan and that the location of the Senior Housing building, at 62 dwelling units/ acre, does NOT conform to the General Plan designation of Traditional Neighborhood Low.

21-4 Traditional Neighborhood Low does not allow the density represented by the Senior Housing facility . Further, the DEIR fails to identify the significant visual impact of a 4 story building with 80 housing units placed immediately adjacent to the existing single family homes in the neighborhood. This negative visual impact should be identified and mitigated. The only reasonable mitigation is to require the relocation of a the only 4 story building proposed in the project to Lot A and Lot C adjacent to the multifamily R-5 zone on one side and the commercial zone on the other side.

Letter 21
Cont'd

21-5

2. **The Sacramento 2030 General Plan Designation of Traditional Center for the Project Area Is More Compatible with Adjacent Neighborhoods than the Suburban Center Reflected in the Proposed Project and a Traditional Center Would Potentially Avoid Significant Impacts of the Proposed Suburban Center Which Were Not Correctly Identified.**

The Land Use section of the DEIR incorrectly identifies the approximately 17 acres devoted to the Shopping Center and related retail as a Traditional Center. The DEIR should properly apply the Urban Form Guidelines in LU-5 of the General Plan and in so doing will discover that the proposed shopping center, with the huge flat parking lot directly in front of the store and without having stores fronting on streets with sidewalks, matches the General Plan's description of a Suburban Center.

The shopping center proposed in the project description as designed fails to meet the General Plan consistency requirement and this has not been indicated in the DEIR. This entire analysis needs to be revisited with the proper General Plan standards applied on a parcel by parcel basis.

Thank you.

Andrea Rosen
2226 Portola Way
Sacramento, CA 95818
andrearosen@sbcglobal.net

LETTER 21: ANDREA ROSEN, RESIDENT

Response to Comment 21-1

The proposed project requires a rezone from Heavy Industrial (M-2) to Shopping Center (SC-PUD), Single-Family Alternative (R-1A-PUD), Multi-Family (R-4-PUD and R-5-PUD), and Agriculture-Open Space (A-OS-PUD). As stated on page 2-16 of the Sacramento 2030 General Plan, Policy LU 2.1.4 of the Sacramento City General Plan, the applicable density range of the General Plan land use designation shall be applied to the net developable area for the entire project rather than individual parcels within the site. Land Use, including zoning, is discussed in Chapter 4, Land Use, of the DEIR. It should be noted that a General Plan Amendment has been added as part of the proposed project in order to ensure that the density of the project meets with the General Plan.

Response to Comment 21-2

See Response to Comment 21-1. In addition, Policy LU 2.1.4 states that some parcels may be zoned for densities/intensities that exceed the maximum allowed density/intensity of the project site's land use designation, provided that the net density of the project as a whole is within the allowed range. Therefore, consistent with conclusions in the DEIR, the proposed independent living units would be consistent with the project land uses and zoning.

Response to Comment 21-3

See Response to Comment 21-1. Policy LU 2.1.4 on page 2-16 and Policy LU 4.3.5 on page 2-60 of the Sacramento 2030 General Plan state, "Where a developer proposes a multi-parcel development project, with more than one residential density or FAR, the applicable density or FAR range of the General Plan Land Use Designation shall be applied to the net developable area of the entire project site rather than individual parcels within the site. Some parcels may be zoned for densities/intensities that exceed the maximum allowable density/intensity of the project's Land Use Designation, provided the net density of the project as a whole is within the allowed range." Upon approval of the project, which includes a General Plan Amendment, the overall project density would be consistent with the Sacramento 2030 General Plan.

Response to Comment 21-4

See Responses to Comments 5-173 and 5-174.

Response to Comment 21-5

See Responses to Comments 5-159 through 5-163.

Letter 22

Comments on the Draft Environmental Impact Report (DEIR) for the Curtis Park Village
Submitted by email on June 1, 2009.

To: Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

From: Cecilia & William Arzbaecher
2500 5th Avenue
Sacramento, CA 95818

22-1 We would like to provide some general comments on the Draft EIR for the Curtis Park Village, but also provide some shortcomings of Chapters 5.8 and 5.9 of the Draft EIR specifically. Our general concerns and the specific shortcomings of the Draft EIR are listed below.

Concerns about DTSC using the current version of EIR when updating the RAP:
We are greatly concern about the current version of EIR being used to update the RAP, as the Draft EIR do not accurately identify and describe the potential environmental impacts associated with encapsulation and storage of hazardous contaminants onsite.

According to the Draft EIR:

- The "California Department of Toxic Substances Control (DTSC) will use the EIR in its capacity as Responsible Agency to review the potential environmental impacts of the proposed update to the 1995 Remedial Action Plan (RAP)." (Page 1-2)
- An "EIR must identify possible means to minimize the significant effects and describe a reasonable range of feasible alternatives to the project." (Page 1-2)

22-2

- The EIR is supposed to "analyze potential environmental impacts that may be associated with proposed remedies that will be contained in the update to the previously approved RAP." (Page 1-2)
- "The City of Sacramento determined that the preparation of an EIR was appropriate due to potentially significant environmental impacts that could be caused by the proposed remedies contained in the update to the previously approved RAP (for use by the DTSC in their approval process) and/or implementation of the Curtis Park Village." (Page 1-5)

Because the Draft EIR neither identifies possible means to minimize environmental effects nor describes feasible alternatives, it inaccurately describes the potential environmental impacts of the Curtis Park Village development. In particular, the EIR fails in describing the mitigation measures and potential impacts associated with encapsulation of hazardous materials onsite. As a result, the EIR cannot be used in its current form by DTSC to develop an updated RAP.

Letter 22
Cont'd

Chapter 5.8: PUBLIC HEALTH AND HAZARDS

22-3 Chapter 5.8 insufficiently identifies and describes potential impacts and mitigation measures. As a result, it is inaccurate for the Draft EIR to state that the impacts related to public health and hazards resulting from encapsulation remedies *would be less than significant*. Therefore, the draft EIR cannot be used by DTSC to determine the environmental impacts that could be caused by the proposed remedies contained in an updated RAP.

22-4 **Containment "cell" that would encapsulate hazardous material onsite:** The Draft EIR insufficiently describes the containment "cell" (membrane) and what it would store. For example, where would the cell be located?, what types of contaminants and what volumes would be stored in the cell?, what would be the various concentrations of the contaminants?; and how would the cell operate? Additionally, the EIR does not describe how the cell operation could potentially affect the onsite groundwater treatment system, the proposed stormwater/detention/retention facility, and park uses. The EIR should, at a minimum, include a description of how the cell would operate and how its operation could potentially affect future activities at the Curtis Park Village site.

22-5 **Concentrations of contaminants encapsulated/stored onsite:** The Draft EIR insufficiently describes what contaminants and what volumes will be encapsulated and stored onsite. The EIR must describe what types of contaminants will be encapsulated/stored onsite as well as their specific concentrations. It is extremely critical to understand the concentration of encapsulated contaminants, as it can greatly affect the potential environmental impacts. We also believe the Draft EIR is weak in describing what contaminants currently remain onsite, their concentrations, and where the contaminants are located. Because it may be environmentally sounder to cap contaminants at their current location rather than move them to a central location, the EIR should describe the type, volume, concentrations, and locations of remaining contaminants at the Curtis Park Village site.

Chapter 5.9: HYDROLOGY, WATER QUALITY, AND DRAINAGE

22-6 Chapter 5.9 insufficiently identifies and describes potential impacts and mitigation measures. As a result, it is inaccurate for the Draft EIR to state that the impacts related to hydrology, water quality, and drainage resulting from encapsulation remedies *would be less than significant*. Therefore, the draft EIR cannot be used by DTSC to determine the environmental impacts that could be caused by the proposed remedies contained in an updated RAP.

22-7 **Groundwater Monitoring and Contingency Plan:** As required by the 1995 RAP, ongoing groundwater monitoring would be required after completion of remediation. We want to ensure that this would be a requirement by the updated RAP too. Furthermore, it is critical to understand the contingency plan if future monitoring of groundwater and runoff water show there is a leak of onsite contaminants. There is currently no description in the Draft EIR of a contingency plan for water pollution caused by leakage

Letter 22
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22-7 cont. of contaminants. In light of the additional volumes of contaminants discovered in 2008 at the site and now proposed to be encapsulated/stored onsite, the omission of a contingency plan for groundwater and surface water pollution in the Draft EIR is of major concern to us.

22-8 **Semivolatile Organic Compounds (SVOCs):** SVOCs are unstable under certain conditions and thus potentially mobile in the environment. As a result, onsite capsulation of SVOCs could potentially result in contamination of groundwater and stormwater/urban runoff water. The Draft EIR does not describe how the containment cell (membrane) will prevent SVOCs from contaminating surface water and groundwater; this should be included.

Yours Sincerely,

Cecilia Arzbaecher
2500 5th Avenue
Sacramento, CA 95818

William Arzbaecher
2500 5th Avenue
Sacramento, CA 95818

LETTER 22: CECILIA AND WILLIAM ARZBAECHER, RESIDENTS

Response to Comment 22-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 22-2

See Response to Comment 5-77.

Response to Comment 22-3

See Response to Comment 5-77.

Response to Comment 22-4

See Responses to Comments 5-14, 5-77, and 5-78.

Response to Comment 22-5

See Responses to Comments 5-14, 5-77, and 5-78.

Response to Comment 22-6

See Responses to Comments 5-14, 5-77, and 5-78.

Response to Comment 22-7

See Responses to Comments 5-14, 5-77, and 5-78.

Response to Comment 22-8

See Responses to Comments 5-14, 5-77, and 5-78.

Letter 23

June 1, 2009

Ms. Jennifer Hageman
Senior Planner
City of Sacramento
300 Richards Blvd.
Sacramento, California, 95811

Dear Ms. Hageman:

23-1 This letter is to urge you to withdraw the Draft Environmental Impact Report (EIR) for Curtis Park Village (P4-109) from California Environmental Act (CEQA) circulation, repair its critical and fundamental flaws, and then re-circulate it again pursuant to law.

23-2 The Draft EIR fails to analyze the public health impacts of leaving tens of thousands of tons of hazardous waste on site for each of the proposed land uses, and it illegally "piecemeals" those environmental impacts to a future revised cleanup plan, which has never been made public. The Draft EIR fails to disclose that approval of the land use plan in the absence of a clearly defined cleanup plan for each of the land uses proposed relieves Union Pacific from its agreed to obligations under the Department of Toxic Substances Control (DTSC) 1995 cleanup plan (Remedial Action Plan (RAP).[1] Further, any city approval of the "toxic cleanup free" land use plan described in the Draft EIR will trigger the expiration of the city's protections and safeguards under SB 120 enacted in 1999 a fact completely left out of the Draft EIR.

23-3

23-4 ***In short, the Draft EIR proposes residential and commercial development on a state superfund site without any analysis of the cleanup proposed for each land use, and it fails to disclose the applicant's plans for addressing the mountains of hazardous waste that currently line the 72-acre site.***

23-5

23-6 Finally, the Petrovich Development-city Draft EIR constitutes a de facto decision to deny the public its right to participate in these critical issues. The 60-day comment period – which is barely more than the minimum comment period required by law – is insufficient given the complexity of the project, the five years it took the developer to produce this Draft EIR, and the importance of this document to the public's ability to participate in the development of a project that will have a profound impact on the surrounding neighborhood.

23-7 **The Draft EIR Denies Public's "Privileged Position" in CEQA Process[2]**

[1] Final Remedial Action Plan Union Pacific Railroad Yard, Sacramento, California, Submitted by Union Pacific, Prepared by Dames & Moore, June 1995; http://www.envirostor.dtsc.ca.gov/public/final_documents2.asp?global_id=34400003&doc_id=5005806

[2] Michael Remy, Tina Thomas, James Moose, and Whitman Manley, Guide to CEQA, Solano Press, 2007, p. 34-36

**Letter 23
Cont'd**

23-7 cont.

"***The courts have described EIRs as environmental 'alarm bell[s]' whose purpose is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.*** *County of Inyo v. Yorty* (3d Dist 1973) 32 Cal. App. 3s 795, 810 [108 Cal. Reptr. 377]; *Santiago Water District v. County of Orange*, (4th Dist. 1981) 118 Cal. App. 3d 818, 822 [173 Cal. Rptr. 602]; *laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal. 3d 376, 392, [253 Cal. Rptr. 426] (*Laurel Heights* I); *San Joaquin Raptor/wildlife Rescue Center v. County of Stanislaus* (5th Dist. 1994) 27 Cal. App. 4th 713, 721 [32 Cal. Rptr. 2d 704] (*San Joaquin Raptor* I) [Emphasis added.]

"The requirement of a detailed statement helps insure the integrity of the process of decision by precluding stubborn problems or serious criticism from being swept under the rug." *Sutter Sensible Planning, Inc. v. Board of Supervisors* (3d Dist 1981) 122 Cal. App. 3d 813, 820 [176 Cal. Reptr. 342] [Emphasis added.]

23-8 The Legislature set special stringent notice and participation requirements for construction projects involved with superfund sites.[3] However, the preparers of the Draft EIR have circumvented the intent of these statutes. The notification process indispensable to the public's ability to exercise its right to public participation was fatally flawed. Property owners throughout the neighborhood failed to receive notices that the toxic cleanup assurances provided in the existing DTSC cleanup plan and codified by SB 120 would be invalidated if the land use proposed by the developer were approved. Neither the various Notices of Preparation for this project nor Notices of Availability for the Draft EIR ever "alerted" the public or the decision makers that approval of the proposed land use plan in the absence of a toxic cleanup plan for each of the proposed uses will trigger the expiration of the city's protections under SB 120 (Ortiz & Steinberg 1999)[4] and a reduced level of cleanup. Nor did this mandatory disclosure inform the public that that decades of promised cleanup of the site[5] would be lost if the proposed land use plan was approved without a toxic cleanup plan for the site. The lead agency's decision to set a mere 60-day comment period on a superfund land use plan without a specific plan for cleanup involving at least two state agencies (DTSC and the Regional Water Quality Control Board) represents a de facto decision to reduce public participation in this environmental decision-making. The various public notices failed as "environmental alarm bells" and actually participated in an effort to conceal and

23-9

23-10

23-11

23-12

[3] **Ibid** p. 341-343
[4] See Public Comment on the Revised Notice of Preparation: Don Fields, 2644 Donner Way, Sacramento, California, 95818 letter to Ms. Jennifer Hageman, Development Services Department, City of Sacramento, , December 12, 2008
[5] See Don Fields, "Gov. Davis signs Sen. Ortiz's UP toxic cleanup legislation," Viewpoint a Publication of the Sierra Curtis Neighborhood Association, October 1999

**Letter 23
Cont'd**

23-12 sweep "under the rug" the very real public health and environmental impacts of building on top of a superfund site without any consideration of the specific levels of cleanup required.

Illegal "Piecemealling"---A Toxic Shell Game

> "… In performing its analysis the lead agency must fully analyze each "project" in a single environmental review document. Thus in performing its analysis, the agency should not "piecemeal" or "segment" a project by splitting it into two or more segments. This approach ensures 'that environmental considerations not be submerged by chopping the a large project into many little ones, each with a potential impact on the environment, which cumulatively may have **disastrous consequences**.' *Burbank-Glendale-Pasadena Airport Authority vs. Hensler* (2nd Dist. 1991) 233 Cal. App. 3d 577-592 [284 Cal. Rptr. 498]." [6][Emphasis added.]

23-13

23-14 No case of "piecemealling" could be more blatant or potentially "disastrous" than for a City Council to approve a land use plan for a housing development on top of a superfund site without proper consideration of the levels of cleanup required for each of the proposed land uses. We would detail the specific cancer-causing chemicals that lace the tens of thousands of tons of hazardous on site and may affect the future neighbors who choose to live in the proposed multifamily units, however the Draft EIR omits any inventory of the current levels of contamination. (That report is expected to be submitted by Petrovich Development **after** the close of comments on this Draft EIR.) In addition, this Draft EIR totally disregards the Department of Toxic Substances Control's clear warning to city staff and Petrovich Development five years ago that it would have to conduct such an analysis of each of the land uses proposed.

23-15

> "The approved RAP, at a minimum proposed to cleanup the northern portion of the property to residential unrestricted land use standards and the remaining property to commercial restricted land use standards. The RAP states that a deed restriction would be required for all areas that do not attain residential unrestricted land use standards. Therefore, the proposed project (I.e. single family home) must also be consistent with the actual cleanup at the site. **Potential land use restriction should be discussed in this [land use] section of the EIR.**" [Emphasis added.][7]

23-16 Not only does the Draft EIR fail to follow DTSC's admonitions, it "assumes" full compliance with an approved 1995 cleanup plan (Remedial Action Plan (RAP).[8]

[6] Op. Cit. Michael Remy, Tina Thomas, James Moose p. 89-90, 419-422, and 589
[7] Correspondence, Thomas Tse, Project Manager, DTSC to Ms. Susanne Cook, City of Sacramento, cc: Philip Harvey, Director of Development, Petrovich Development Company, September 2, 2004; This correspondence can be found on p. 74-75 of the Appendices CD.
[8] Draft Environmental Impact Report, Curtis Park Village (P4-109), p. 5.8-1 (p. 295 on the CD) http://www.cityofsacramento.org/dsd/planning/environmental-review/eirs/

Letter 23 Cont'd

23-16 cont. Yet in the next sentence, the Draft EIR states that the 1995 cleanup plan is being re-written to reduce Union Pacific's cleanup requirements.

23-17 And then, just days before the close of comments on this inadequate Draft EIR and without notice, the city in essence approved the proposed development by impermissibly authorizing[9] a $1.8 million dollar loan to Petrovich Development for his Curtis Park superfund development.[10] This decision to secretly authorize a loan to the developer without public notice in the middle of a comment period on a Draft EIR for the superfund development is another example of how the city has chosen to piecemeal this project into many separate public decisions without proper environmental review.

23-18 On numerous occasions Mr. Petrovich has publicly stated that his development is on the verge of "going under" and has threatened the neighborhood with the project's bankruptcy "you will be left with an industrial zoning" unless we remove our request for re-writing and re-circulation of the Draft EIR. (As previously requested, all financial materials that document his arguments should be disclosed in EIR.) If the neighborhood had received proper notice of the city's decision to authorize a loan to the development, we could have requested that conditions be placed on the loan, which would have required toxic cleanup under the multi-family housing units and safeguarded any loan from insolvency.

23-19 The city's decision to in essence approve the development prior to any final environmental review reduces public participation of this project and threatens the future of any reasonable cleanup of key portions of the site slated for multi-family housing.

23-20 What we hve here is a "piecemealling" Superfund Shell Game. The little white pea is the toxic cleanup. The various Draft EIR "assumptions" and deferred decisions are the shells. But there's no little white pea (toxic cleanup) under any of these shells. The "little white pea" of toxic cleanup is promised for some future toxic shell game.

23-21 However, the law on dividing the approvals on a large land use project on top of a superfund site could not be clearer:

> "'***The purpose of the Guidelines section 15378, subdivision (c) is to ensure that a project proponent does not file separate environmental reports for the same project to different agencies thereby preventing***

[9] "'Project' Definition---Public Resources Code Section 21065. As amended in 1994, CEQA defines 'project' to mean 'an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and which is any one of the following:

a) An activity which is directly undertaken by any public agency.
b) **An activity by a person which is supported, in whole or n part through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies...**" [Emphasis added.] Op. Cit. Michael Remy, Tina Thomas, James Moose p. 75

[10] Supplemental Material for City of Sacramento Agenda Packet, Submitted May 19, 2009 at 4:23 PM and approved shortly thereafter.

Letter 23 Cont'd

23-21 cont.

consideration of the cumulative impact on the environment... *Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster* (2d Dist. 1997) 52 Cal. App. 4th 1165, 1190, fn. 5 [61 Cal. Rptr. 2d 447] (quoting *City of Santee v. County of San Diego* (4th Dist. 1989) 214 Cal. App. 3d 1438, 1452 [263 Cal. Rptr. 340]" [Emphasis added.][11]

Yet the Draft EIR's details of the proposed future revised cleanup plan are being "piecemealed" or "segmented" to some other future environmental review to be conducted by DTSC. In the event the city council approves a land use plan without a cleanup plan, the protections of SB 120 (Ortiz & Steinberg) expire and the final decision on cleanup will be kicked to DTSC to impose deed restrictions on 2/3 of the 72-acre site. If this is the "official" policy of the city and DTSC, then

23-22

the public is at least entitled to disclosure of that fact. The City Council members and Mayor who are being asked to vote on this Draft EIR are entitled to know that its approval would inadvertently invalidate the city's unique safeguards under SB 120 (Ortiz & Steinberg).

23-23

If ever there were a textbook case of "piecemealling" this is it. DTSC has informed us that Petrovich's Development's long awaited proposed revision of the toxic cleanup plan is expected to be submitted **a day or two before the close of the public comment period on June 1, 2009.**[12]

State Mandated "Special Consultation" Gone Wrong: Petrovich Refused to Submit A Revised Cleanup Plan

23-24

Lead agencies involved with land use planning on superfund sites are mandated by the Legislature to carry out "special consultation requirements" [13] when considering the approval of construction on or very near a superfund site. However, inexplicably, the Draft EIR and provides little evidence of any "special consultation" with DTSC. The details on the proposed cleanup for each of the proposed land uses DTSC had requested five years before were left out of the Draft EIR.[14]

23-25

At our meeting with DTSC officials on May 5, 2009, Armando Amador, DTSC acknowledged that the Department had participated in "special consultation" meetings with the lead agency prior to the release of the Draft EIR. However, he

[11] Op. Cit. Michael Remy, Tina Thomas, James Moose p, 77
[12] Tuesday night, May 5, 2009 DTSC officials Armando Amador, Nathan Schumacher and Thomas Tse were kind enough to brief a subcommittee of members of the board of directors of the Sierra Curtis Neighborhood Association (SCNA) on DTSC's participation in the preparation of the Draft Environmental Impact Report (EIR) for Curtis Park Village (P4-109). A few nights later on May 8, 2009 at a SCNA meeting with City officials and Paul Petrovich, Petrovich Development, it was acknowledged that a revised cleanup plan for the site would be available to the public "at the end of this month."
[13] Op. Cit. Michael Remy, Tina Thomas, James Moose p. 335 Resources Code Section 21080.4 and 21092.6 sub. (a)
[14] Op. Cit Correspondence, Thomas Tse, Project Manager, DTSC

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**Letter 23
Cont'd**

23-25 cont. could not remember whether any of the Department's pre-Draft EIR comments had been submitted in writing. Nor could Mr. Amador explain why there is only one DTSC letter to document the department's legal role in implementing its "special consultation" responsibilities in the over 1400 pages of Draft EIR Appendices.[15]

23-26 The Legislature in 1993 "...required that agencies to make available for public review all documents on which agency staff or consultants expressly rely in preparing a draft EIR..."[16] When DTSC was pressed on why the Draft EIR failed to follow the Department's advice to provide cleanup alternatives for each of the proposed land uses, he stated that the applicant, Petrovich Development had refused to provide any revised cleanup plan **"so we told them [the city] to just analyze the extreme possibilities of no cleanup and full cleanup to get a kind of range of possibilities."** So months later, the Draft EIR was released without a cleanup plan for each of the proposed land uses.

23-27 Petrovich Development's desire to be relieved of the responsibilities of DTSC's 1995 cleanup plan did not occur late in the environmental review process as the Draft EIR suggest. Petrovich Development first requested a revision of DTSC 1995 Remedial Action Plan (RAP) (a portion of which was codified by SB 120 (Ortiz & Steinberg)) in April 2008.[17] Petrovich Development formalized the request in July 2008 citing newly discovered contamination. DTSC has set deadlines (the last was January 1, 2009) and requested that Petrovich

23-28 Development submit a revised cleanup plan for the site. DTSC now says it expects Petrovich Development to submit the new revised cleanup plan at the end of this month---a day or two before the close of comments on Draft EIR. None of these documents are included in the Appendices to the Draft EIR as required by law. The list of documents left out of the Draft EIR and its Appendices is too numerous to cite. However, since one of the central issues of this project is the decision to revise DTSC's 1995 cleanup plan for the site, one might expect that the 1995 cleanup plan was at least examined during the

23-29 preparation of the Draft EIR. Nevertheless, there is no copy of the document is to be found in the Appendices leading to the inescapable conclusion that the preparers never even read the requirements of the DTSC-approved cleanup plan much less analyzed it.

23-30 Paul Petrovich now says it is his intention to complete a R-1 full toxic cleanup beneath the multi-family housing units in his proposed land use plan.[18] Hopefully, that information will be included in the new revised and re-circulated Draft EIR.

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[15] **Ibid**
[16] Op. Cit Michael Remy, Tina Thomas, James Moose, p. 342
[17] Correspondence, Benjanin Leslie-Bole\, partner and Lawrence Smith, Project Director, Environmental Resources Management (ERM) to Thomas Tse, DTSC, April 30, 2008;
[18] Public SCNA meeting, May 7, 2009

Letter 23 Cont'd

This omission of a cleanup proposal reflects more than a mere "technical error." As a result of these omissions, decision makers and the public have no informed basis upon which to make a decision on the proposed land use plan if the specifics of the cleanup (or lack of it) are withheld from public disclosure to some undetermined time in the future. In one of the state's most respected CEQA reference documents, Petrovich Development's attorneys argue:

23-31 "CEQA includes a number of statutes that **expressly require**, or arguably require, lead agencies to seek scoping input from specific state or other agencies before completing their Draft EIRs. **Readers are cautioned to examine these statutes before concluding that the normal, limited scoping process will suffice for particular projects."**[Emphasis added.][19]

23-32 Based on the record provided by this Draft EIR, its Appendices and the three NOPs, there appears to have been no required DTSC consultation, no DTSC
23-33 scoping input, and a near complete lack of detailed information in the NOP that would enable DTSC and the Regional Water Quality Control Board to make
23-34 meaningful responses as required by law.[20]

City of Sacramento Requested the Protections in SB 120 (Ortiz & Steinberg 1999)

SB 120 in effect gives the city the authority to require higher levels of hazardous waste cleanup to match the city's final land plan for the site during a second or final phase of cleanup. It seems more than unusual that the city's Draft EIR failed to mention, much less analyze SB 120, as an additional mitigation tool.

The Legislature enacted SB 120 (Ortiz & Steinberg) in 1999 at the request of Sierra Curtis Neighborhood Association (SCNA) and the City of Sacramento, yet
23-35 there is almost no mention of this unique piece of legislation anywhere in the Draft EIR.

Therefore, leaving SB 120 out of any discussion in the Draft EIR automatically pre-determines the decision on mitigation alternatives in the total absence of any data on environmental impacts or public participation in the decision. The city's statutory authority under SB 120 to set higher cleanup standards in a second phase of cleanup to match the city's land use plan is simply ignored in the Draft EIR and the applicant's request to DTSC for a "deed restricted" lower level of cleanup on 2/3 of the site is left as the only mitigation alternative.

23-36 **History of DTSC's Unique 1995 Cleanup Plan Omitted From the Draft EIR**

[19] Op. Cit. Michael Remy, Tina Thomas, James Moose p. 335
[20] **Ibid** p. 331

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Letter 23
Cont'd

23-36 cont. The history of DTSC's 1995 cleanup plan explains the origins of its unique provisions and should be analyzed in the Draft EIR.

The City originally opposed DTSC's "railroad-friendly" 1995 Remedial Action Plan (RAP) when it contained only "deed restrictions" and little cleanup.[21] The City objected to DTSC's cleanup plan because it would have left 2/3 of the property contaminated and "deed restricted" and "inconsistent with the Council-approved UPLUC [Union Pacific Land Use Committee] goals"[22]in 1992.[23] To address the City's opposition, DTSC and Union Pacific agreed to add an unprecedented provision to the cleanup plan:

> "After finalization of the land use plan by the City and prior to development construction, **UPRR will perform, at its cost, a second phase of remediation in a manner consistent with RAP to allow the specific land uses defined and scheduled in the land use plan.**"[Emphasis added.][24]

23-37

DTSC's final 1995 couldn't have been clearer: "The final land use plan may require additional portions of the site to be remediated to unrestricted use levels beyond the area indicated in the RAP [cleanup plan]"[25] Genevieve Shiroma, Co-Chair of UPLUC explained this "concession" by the railroad: "This is in recognition that both the City and the neighborhood have gone on record that **the one third is not enough, and recommended as a starting point a one half designation**. This position is in keeping with the UPLUC goals, which do not give a specific amount, but do emphasize housing given the surrounding neighborhoods."[26][Emphasis added.][27]

The Draft EIR refers to DTSC's 1995 cleanup plan, but provides few details as to neither the cleanup's requirements nor the history of its approval. In doing so, the Draft EIR seems unaware of the City Council-approved UPLUC [Union

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[21] Op. Cit Sacramento City Council Resolution 98-517.
[22] **Ibid** The city also objected to DTSC's original plan to simply "monitor" on site groundwater pollution. Instead, the city pressured DTSC to require groundwater cleanup not just monitoring. 14 years later substantial progress has been made to cleanup the original groundwater pollution.
[23] Op. Cit. Final Remedial Action Plan Union Pacific Railroad Yard p. 56
[24] **Ibid** p. 51; Also see correspondence: James L. Tjosvold, Acting Chief, Central California Site Mitigation Branch, Department of Toxic Substances Control to Ms. Deborah Ortiz, Councilmember, District Five, May 3, 1995;
[25] Op. Cit. Final Remedial Action Plan Union Pacific p. 56
[26] Correspondence, Genevieve Shiroma Co-Chair, Ron Baker, President Sierra Curtis Neighborhood Association, to Ms. Deborah Ortiz, Councilmember, District 5 and Mr. Robert Thomas, Deputy City Manager, City of Sacramento, July 25, 1995
[27] Sacramento City Council Resolution 98-517, Adopted October 13, 1998; **"The Council reaffirms its policy that the cleanup requirements for the property must be adequate to allow the City Council to exercise its discretion to make land use decisions based on local land uses needs, and not based on existing levels of contamination;"** Oddly, the Draft EIR leaves out all mention of the provisions of SB 120 and previous council resolutions.

Letter 23 Cont'd

23-37 cont. Pacific Land Use Committee] goals approved for the site that were used by DTSC to plan the first phase of its approved cleanup.

23-38 Except in the case of the Union Pacific Curtis Park site, DTSC essentially predetermines future land uses by the cleanup standards it chooses for each site. At most superfund sites, local land use planners can only plan for land uses compatible with the DTSC cleanup plan. Controversial "deed restrictions" are probably the most common, least expensive mitigation tool for addressing the entombment of hazardous waste on site. In citing the possible on site entombment of the hazardous waste, the Draft EIR should analyze the problems DTSC has encountered in allowing housing to be placed on contaminated soil.

23-39 This analysis should include, but not be limited to the alleged genetic defects and chromosomal aberrations found among Daly City residents living on an old contaminated PG&E site.[28]

SB 120 Codified a Key Provision of DTSC's 1995 Cleanup Plan

Legislative Counsel in 1998 warned that the second phase of cleanup in the DTSC cleanup plan was unenforceable. SB 120 (Ortiz & Steinberg) in 1999 was introduced in part to make Union Pacific's promise of a second phase of cleanup enforceable.[29] In addition to allowing for a possible higher level of cleanup, that

23-40 1995 cleanup plan required Union Pacific to ship the contaminated waste to its landfill in Utah.

SB 120 (Ortiz & Steinberg) had a second provision. To prevent Union Pacific from selling the property and bailing out of its legal obligations under the 1995 cleanup plan SB 120 provided:

[28] To understand the potential public health problems associated with approving housing development on top of contaminated soil see: Angelica Pence, "Gene Defects for Neighbors of Toxic Site Study finds aberrations in chromosomes among Daly City project residents," San Francisco Chronicle, January 19, 2000; http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2000/01/19/MN20109.DTL&hw=pg+toxic+cleanup&sn=005&sc=777
Angelica Pence, Toxic Takeout: Ridding Midway Village of tainted soil—again," San Francisco Chronicle, August 25, 2001; http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2001/08/25/MNL121153.DTL&hw=pg+toxic+cleanup&sn=007&sc=688
Jane Kay, "Daly City residents living atop toxic hot spot," San Francisco Examiner, April 27, 1997 http://www.sfgate.com/cgibin/article.cgi?f=/e/a/1997/04/27/NEWS6384.dtl&hw=pg+toxic+cleanup&sn=001&sc=1000

[29] SB 120 of 1999 states in part:
"The Legislature finds and declares that the final remedial action plan prepared and approved in 1995 pursuant to the enforceable agreement for the site expressly recognizes that the city is processing a change in the land use for the site, including a general plan amendment and rezoning, and ***that the city's final land use plan for the site may require that additional portions of the site be remediated to unrestricted use levels beyond the area indicated in the 1995 final remedial action plan***." [Emphasis added.] http://info.sen.ca.gov/cgi-bin/pagequery?type=sen_billinfo&site=sen&title=Bill+Information

Letter 23 Cont'd

> "Notwithstanding any other provision of law, ***the Department of Toxic Substances Control shall not make a determination that the response action at the site is complete, including, but not limited to,*** issuing a certification, a no further action letter, or a closure letter, or ***entering into a*** settlement or ***release of liability***, until after the city has completed its land use planning process and all response actions necessary to conform to the approved land use plan are complete." [Emphasis added.]

23-40 cont. Union Pacific withdrew its initial opposition to SB 120. Te bill was signed into law unopposed September 15, 1999. Petrovich Development purchased the property from Union Pacific in 2003. However, as you can see from the above-cited language of state law, Union Pacific, not Petrovich Development, is the legally responsible party for the present or future cleanup under law. That is, until the city approves the proposed land use plan contained in the Draft EIR. If the land use planned is approved, the railroad is free and clear of more than a decade of promises codified in SB 120. None of this is mentioned, much less analyzed, in the Draft EIR.

UP's Toxic Bailout: Draft EIR Creates UP Bailout Loophole

The Draft EIR tries to make it appear that delaying the final approval of the DTSC revised cleanup plan until after the approval of the final land use plan is "consistent with the requirements of SB 120":

> "Consistent with the requirements of SB 120, DTSC cannot approve the updates to the RAP until the City has approved a land use plan for the project site (i.e. Curtis Park Village)."[30]

23-41 SB 120 prevents DTSC from unilaterally reducing Union Pacific's cleanup responsibilities or allowing them a "conditional release" from liability as part of a sale. However, nothing prevents the preparers of the Draft EIR, DTSC and the Regional Water Quality Control Board exercising their responsibilities under law to identify the environmental impacts associated with reduced cleanup levels for each of the proposed land uses. Nothing in SB 120 relieves DTSC from its responsible agency duties and "special consultation" responsibilities to follow CEQA and identify environmental impacts and recommend mitigation. Incredibly,

23-42 the Draft EIR ignores the history and clear intent of SB 120. The Petrovich Draft EIR "interprets" SB 120 to justify DTSC's failure to require Petrovich

23-43 Development to submit an alternative cleanup plan to revise DTSC's 1995 cleanup plan. DTSC maintains that it was Petrovich Development---the provisions of SB 120-- that is responsible for withholding the details of that

23-44 revised cleanup plan until "the end of this month" [May]---just a day or two before the comment period on this Draft EIR closes.

[30] Op. Cit. Draft EIR, p. 5.8-11

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Here's what's left out of this "analysis": As DTSC advised the city five years ago, the final land use plan must have a cleanup plan for each of its proposed land uses. If a land use plan, such as proposed in the Draft EIR is approved, then SB 120 ceases to exist at that point. The Draft EIR appears unaware that approval of the land use plan the absence of any concurrent analysis of the land uses and the levels of hazardous waste left on site, inadvertently creates a toxic loophole large enough to drive a Union Pacific freight train through. In short, approval of the land use plan in the absence of a clearly defined cleanup plan for each of the land uses proposed, relieves Union Pacific from its agreed to obligations under the 1995 cleanup plan (Remedial Action Plan (RAP)) and leaves in place whatever agreement exists between Petrovich Development and Union Pacific. Further, any city approval of the "toxic cleanup free" land use plan described in the Draft EIR will trigger the expiration of the city's protections and safeguards under SB 120.

23-45

A decade ago the City and the neighborhood rejected as too little cleanup the railroads pledge that 22 acres or about 1/3 of the site most of which was already cleaned would be used without land use restrictions. Today, this Draft EIR fails to disclose the percentage of the site to be left unrestricted, but it appears to be less than 1/3. In short, by making an assumption that the 1995 cleanup plan will be fully implemented, while "piecemealing' the actual decision on the revised final cleanup to some future time after the approval of this inadequate proposed land use plan, Union Pacific and Petrovich Development will be able to leave mountains of contaminated waste on the site for future generations to address without any of the current protections of law.

23-46

Draft EIR Fails to Disclose A Plan for the Mountains of Toxic Waste

Not only does this Draft EIR fail to provide a cleanup plan to match its proposed land uses, but this document gives no clear idea how or where Petrovich Development intends to store the tens of thousands of tons of already excavated hazardous waste they claim they can no longer afford to ship off-site. Any reasonable interpretation of CEQA would require disclosure of exactly <u>how</u> and <u>where</u> those mountains of waste that presently line the 72 acre site would be stored in the future under the proposed land use plan. Once again, the Draft EIR's false assumption that the 1995 cleanup would be fully implemented, "piecemeals" that decision into some future environmental review after the protections in SB 120 expire and Union Pacific is no longer required to fulfill its cleanup promises. The Draft EIR explains:

23-47

> "... Additional volumes of contaminated soil were discovered during supplemental investigations, completed in December 2008. The additional volumes of the remaining on-site chemicals would require an update to the existing RAP to reflect the additional volume and proposed remediation remedies. However, because specific remediation methods would not be

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**Letter 23
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determined in the updated RAP by DTSC until after approval of the DEIR, this section analyzes the impacts of all potential remediation methods."[31] [Emphasis added.]

23-47 cont. The Draft EIR conveys the misleading impression that the reason the Draft EIR is going forward devoid of any significant information about the final toxic cleanup comes as a result of discovering "...contaminated soil ...during supplemental investigations, completed in December 2008."[32]

However, the Draft EIR leaves out a few pertinent facts: Petrovich Development first informed DTSC last April that it wanted to make changes in the 1995 cleanup plan.[33] DTSC skirted the request for a re-write of the 1995 cleanup plan and approved the requested changes as "supplements" to the plan not revisions that would trigger a full CEQA review. However, by July, Petrovich Development had prepared a formal appeal to DTSC requesting to be relieved of Union Pacific's obligations under the 1995 cleanup.[34] In that appeal Petrovich Development petitioned DTSC to allow it to bury the tens of thousands of tons of hazardous waste beneath the commercial-retail portions of the site. Last August, DTSC flatly rejected the Petrovich Development request to bury toxic waste beneath the commercial retail buildings:

23-48

> ""DTSC believes that placing a building structure over contaminated soil that should be capped should be avoided. Such a concept would make it difficult and expensive to inspect the facility or mitigate any potential future problem with the cap or hazardous substance soil remains in place (sic). DTSC also has concerns with the incompatibilities of office building activities occurring above capped hazardous substance soil along with activities associated with managing, repairing and maintaining a regulated cap. DTSC would be more amenable to a traditional capped facility that is located in an area of open space that is accessible for inspection, monitoring and maintenance."[35]

Under any reasonable interpretation of CEQA, the Draft EIR disclosure requirements of law would require documents pertaining to a request to reduce cleanup requirements, and would require an analysis for each of the proposed land uses. Under the "special consultation" requirements pertaining to superfund sites, the lead agency is required to include DTSC and the Regional Water Quality Control Board in its "special consultation." However, by leaving out of the Draft EIR DTSC's denial of Petrovich Development's request to build commercial

23-49

[31] Op. Cit. Draft EIR, p. 5.8-8 (or 305)
[32] Ibid
[33] Correspondence, Benjanin Leslie-Bole\, partner and Lawrence Smith, Project Director, Environmental Resources Management (ERM) to Thomas Tse, DTSC, April 30, 2008;
[34] Correspondence, Benjamin Leslie-Bole, principle, ERM Construction and Management to Fernando Amador, Chief, DTSC July 28, 2008
[35] Corresponce, Thomas Tse, Brownfields and Environmetal Restoration Program, DTSC, to Phil Harvey, Curtis Park Village, LLC, August 13, 2008

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Letter 23 Cont'd

23-49 cont. structures on top of mountains of contaminated soil, it makes it impossible for the Regional Water Quality Control to exercise its statutory responsibility to comment on the Draft EIR. If the lack of environmental disclosure in this Draft EIR is allowed to prevail the Regional Water Quality Control will never know about DTSC's concerns about possible new groundwater contamination from this new on site disposal facility. The applicant's proposal to reduce its legal and financial obligations for the cleanup and re-write the DTSC cleanup plan should trigger a new and complete environmental review of the potential for new groundwater pollution if the hazardous waste is to be left on site.

23-50 At an SCNA meeting with Paul Petrovich, Petrovich Development, on May 7, 2009, Mr. Petrovich revealed that he intended to store the mountains of waste currently on site at a 8 acre proposed park mentioned in the Draft EIR. Mr. Petrovich stated that he intended to "cap" the hazardous waste facility with a synthetic liner and two feet of clean soil.[36] However, trees and landscaping for this proposed park would have to be "restricted."

23-51 The Draft EIR released just a few weeks ago fails to mention such plans. If the public is going to be able to exercise its constitutional rights to participate in these decisions such details must be in the Draft EIR. Just before the public comment period closes, Petrovich Development promised the neighborhood that it will be able to comment on and participate in "the next environmental review" when DTSC is expected to conduct its environmental review of the revised cleanup plan. "The land use plan," Mr. Petrovich admitted, "has gotten a little ahead of the revised cleanup plan."

23-52 To repeat, after five years of "study" this Draft EIR impermissibly conceals the minimum environmental impact information required by law. It illegally

23-53 "piecemeals" or segments the toxic cleanup standards from the approval of the entitlements necessary to rezone the property for future land uses on top of a state superfund site. Mr. Petrovich has stated, "I was taken by the railroad.

23-54 There's more contamination out there than we ever thought."[37] He says his bank will call his $19.5 million unless the entitlements contained in the Draft EIR and promised revised cleanup are approved without re-circulation.[38] Because Mr.

[36] Mr. Petrovich's environmental expert compared this cap to the synthetic liners used at landfills and hazardous waste facilities. Should Mr. Petrovich go forward with this approach, a new re-recirculated Draft EIR should analyze the need for a leachate collection system such as is used at licensed landfills and hazardous waste facilities to protect groundwater at the site from further contamination. The newer state standards for arsenic and other on site toxins should be analyzed in that revised re-circulated Draft EIR. Any consideration of revising the 1995 DTSC cleanup plan should require a re-opening of the adequacy of groundwater protections and the full participation of the Regional Water Quality Control Board.

[37] Public SCNA meeting May 7, 2009

[38] **Ibid**. Once again, Mr. Petrovich has based his demand for expedited approval of his land use plan on his private contract with the actual responsible party, Union Pacific Railroad and his contractual obligations with his bank. If these factors remain the central drivers of the Draft EIR, these documents should be included in the Draft EIR and Appendices.

**Letter 23
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23-54 cont. Petrovich has signed some private agreement with Union Pacific to assume the railroad's financial responsibilities for the cleanup he now says the neighborhood and the city should to relinquish its rights under CEQA and SB 120 based on his promise that he will cleanup up the property and "do the right thing" for the neighborhood. The public, the neighborhood, and the city council are entitled to full disclosure of the environmental impacts of his superfund land use plan and an enforceable agreement on toxic cleanup **before** the application goes forward.

23-55 Withdrawal and recirculation of the Draft EIR is required when "critical parts of an EIR are significantly and fundamentally flawed'. *Cadiz Land Co. v. Rail Cycle* (4th Dist. 2000) 83 Cal. App. 4th 74 [99 CalReptr. 2d 378] and CEQA Guidelines 15088.5, subdivision (a) (4). No element of a Draft EIR for building homes and structures on a superfund site could be more "critical" or "fundamental" than the absence of an analysis of the public health impacts of leaving tens of thousands of tons of cancer-causing hazardous waste on site destined for housing.

23-56 The cumulative failures of minimum notice requirements, the near minimum comment period, and the fundamentally inadequate environmental disclosures contained in the Draft EIR are "…insufficient to satisfy *constitutional* mandates.[39] Simply patching up this document and proceeding to the Final EIR stage would in effect be a denial of neighbors rights to a legitimate Draft EIR and the ability to participate fully in every stage of the environmental decision making process.

Should you choose to reject this request for withdrawal and recirculation, we request additional time to conduct at least two more public meetings to try and salvage the public participation denied by this near totally inadequate document. Petrovich Development has taken nearly five years to prepare this document. The public and the city council deserve an informed document with adequate public participation.

Sincerely,

Don Fields
2644 Donner Way
Sacramento 95818

Mark Martin
2616 Donner Way
Sacramento, California, 95618

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[39] Op. Cit. Michael Remy, Tina Thomas, James Moose "For example, although the notice provisions described above are adequate to foster 'generalized public participation' in environmental decision-making, they may be inadequate in instances in which a proposed project may 'substantially affect' the 'fundamental' interests of some person or persons. Where such interests are at stake, constitutional due process standards require that notice must be 'reasonably calculated to afford affected persons the realistic opportunity to protect their interests." p. 344

LETTER 23: DON FIELDS AND MARK MARTIN, RESIDENTS

Response to Comment 23-1

The comment in an introductory statement and does not address specific concerns in the EIR.

Response to Comment 23-2

Page 5.8-11 of the DEIR, discusses the impact of on-site encapsulation and in-situ stabilization remedies. In addition, as stated in the DEIR, the treatment of soils and encapsulation would be required to meet DTSC standards. On page 5.8-13, the DEIR determined that, with compliance with DTSC regulations and standards, the impact related to exposure of future residents and construction workers from contaminated soils would be less-than-significant.

Response to Comment 23-3

As stated in page 5.8-11 of the DEIR, consistent with SB 120 requirements, the DTSC cannot approve an update to the RAP until the City has approved land uses for the project site. In addition, SB 120 Section 1(d) states that "[…] the Department of Toxic Substances Control shall not make a determination[…] until after the city has completed its land use planning process and all response actions necessary to conform to the approved land use plan are complete." As the level of remediation is dependent on the proposed land uses, approval of land uses must occur prior to the approval of an updated RAP and DTSC determination. Approval of the proposed DEIR land uses would be consistent with and would not circumvent SB 120. Therefore, consistent with the conclusions in the DEIR, approval of the proposed land use would occur prior to approval of an updated RAP. See Response to Comment 5-12. If additional information, data, and remediation activities become available after certification of the FEIR, the DTSC will review the EIR for consistency and determine if further CEQA analysis is required.

Response to Comment 23-4

See Response to Comment 23-3. As stated on page 5.8-2 of the DEIR, the 1995 RAP regulates the cleanup of the Superfund site. In 2008, subsequent sampling indicated that volumes of contaminants were greater but the nature of the contaminants was similar. The volume of contaminants has made the applicant request alternate remedies to only hauling off by rail. The DEIR discusses impacts related to the update of the RAP by considering additional remediation methods.

Response to Comment 23-5

The applicant stockpiled contaminated soils on the site until a land use plan is approved (for the ultimate locations of contaminated soils on the site) and, subsequently, an update to the 1995 RAP (for the methods of remediation). See Responses to Comments 23-3 and 23-4.

Response to Comment 23-6

The DEIR comment period for the proposed project was 75 days. Section 21091 (a) of the CEQA Guidelines states that the review period shall be at least 45 days. Therefore, the DEIR comment period was 30 days greater than the minimum comment period required by law. It should be noted that the updated RAP would undergo a 30-day public comment period after submittal of the RAP to DTSC. Page 5.8-7 of the DEIR, under Method of Analysis, describes the DTSC RAP approval process.

Response to Comment 23-7

The comment quotes CEQA court cases.

Response to Comment 23-8

See Responses to Comments 23-3 and 23-4. As noted above, approval of the DEIR would not circumvent SB 120.

As stated on page 1-4 of the DEIR, an NOP for the Curtis Park Village Draft EIR was previously released for a 30-day review on August 4, 2004; a revised NOP was released for a 30-day review on May 12, 2008, due to changes in the project description; a second revised NOP was released on November 13, 2008 due to additional project description changes NOP scoping meetings were held following the release of each NOP. Comments provided by the public and public agencies in response to both the original NOP and the two revised NOPs were received by the City of Sacramento. In addition, an Initial Study was prepared to focus the scope of the Curtis Park Village DEIR. The Notice of Availability of the DEIR was distributed by the City in accordance with CEQA.

Response to Comment 23-9

See Response to Comment 23-8.

Response to Comment 23-10

See Responses to Comments 23-3 and 23-8.

Response to Comment 23-11

See Responses to Comments 5-12, 23-3, 23-4, and 23-6.

Response to Comment 23-12

See Responses to Comments 5-12, 23-3, 23-4, and 23-6.

Response to Comment 23-13

See Responses to Comments 5-12, 23-3, 23-4, and 23-6.

Response to Comment 23-14

The 1995 RAP, which has been available for public review since 1995, details the levels of contamination on-site. The 1995 RAP is also available as Appendix H of the FEIR. The site still contains the same contaminants that were present during preparation of the 1995 RAP, and the updated RAP does not contemplate the presence of additional contaminants. It should be noted that the Curtis Park Village DEIR analyzes the potential remedies that would be used during implementation of the updated RAP and the physical environmental effects of those remedies, not the effects of on-site contaminants.

Response to Comment 23-15

See below for the *entire* paragraph from the letter cited by the commenter. The letter was sent in September 2004, in response to the NOP for the project. The first sentence states that the project intended to attain residential unrestricted land use standards across the property. Subsequent to this letter from DTSC, the applicant decided to remediate some of the contaminated soils on site. Also, the letter assumes that the proposed project would include single-family homes only. Again, subsequent to this letter, the applicant proposed a mixed-use development.

> ***Land Use*** - It is the intention of Curtis Park Village, LLC to attain residential unrestricted land use standards across the property. The approved RAP, at a minimum proposed to cleanup the northern portion of the property to residential unrestricted land use standards and the remaining property to commercial restricted land use standards. The RAP states that a deed restriction would be required for all areas that do not attain residential unrestricted land use standards. Therefore, the proposed project (i.e., single family home) must also be consistent with the actual cleanup at the Site. Potential land use restrictions should be discussed in this section of the EIR

See Response to Comment 4-4 to address the DTSC land use discussion. The City and DTSC have been coordinating during the preparation of the DEIR.

Response to Comment 23-16

The statement cited by the commenter (page 5.8-1 of the DEIR) that the analysis assumes the full implementation of the existing RAP is correct.

The City is unable to find the statement related to the 1995 RAP referenced by the commenter.

See Response to Comment 5-12.

Response to Comment 23-17

The item that went to the City Council was approval of a preliminary Brownfield Revolving Loan Fund loan to the applicant for the continued remediation of the site, under the 1995 RAP.

The City Council item was noticed in accordance with applicable law.

Response to Comment 23-18

See Response to Comment 23-17.

Response to Comment 23-19

See Response to Comment 23-17.

Response to Comment 23-20

The commenter's references are unclear and, therefore, cannot be responded to.

Response to Comment 23-21

See Response to Comment 23-3.

The commenter's reference to *(City of Santee v. County of San Diego (1989) 214 Cal.App.3d 1438, 1452, 263 Cal.Rptr. 340.)* includes a reference to (*Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo (1985) 172 Cal.App.3d 151, 166, 217 Cal.Rptr. 893.*), in which the County of Inyo filed two separate environmental studies for the same project. However, the Curtis Park Village project includes submittal of one environmental study for the proposed project. As noted above, the level of remediation required is determined by approved land uses for the site. CEQA Guidelines section 15378 (d) states that "Where the Lead Agency could describe the project as either the adoption of a particular regulation under subdivision (a)(1) or as a development proposal which will be subject to several governmental approvals under subdivisions (a)(2) or (a)(3), the lead agency shall describe the project as the development proposal for the purpose of environmental review." Submittal, review, and approval of an updated RAP is an independent governmental approval process. However, the DEIR includes environmental analysis of the potential remediation methods to be utilized in the updated RAP. Therefore, the project has not been filed under separate environmental reports and the consideration of cumulative impacts was properly analyzed. As stated in Response to Comment 5-13, the DTSC will review the Curtis Park EIR to ensure that all of the environmental impacts have been adequately addressed, as they pertain to the remediation remedies proposed in the updated RAP. In addition, Response to Comment 5-13 states that if additional information, data, and remediation activities becomes available after certification of the FEIR, the DTSC will review the EIR for consistency and determine if further CEQA analysis is required.

Response to Comment 23-22

See Response to Comment 23-3.

Response to Comment 23-23

See Responses to Comments 23-3 and 23-21.

Response to Comment 23-24

As noted in Comment 4-2, the DTSC has been coordinating with the City to ensure that the DEIR contains an analysis of potential impacts associated with activities to be contained in the updated RAP, subject to DTSC approval.

See Response to Comment 23-15.

Response to Comment 23-25

See Response to Comment 23-24. The City and DTSC met on several occasions and the DTSC participated in the City's review of the Administrative DEIR.

Response to Comment 23-26

See Responses to Comments 23-3 and 23-24. As noted above, the DEIR analysis studied the potential remediation methods to be utilized in the updated RAP and the level of remediation required is dependent on the approved land uses.

Response to Comment 23-27

The comment does not address the adequacy of the EIR.

Response to Comment 23-28

See Response to Comment 23-3. The updated RAP level of remediation is dependent on the approved land uses. As stated on page 5.8-1 of the DEIR, the EIR analysis assumed full implementation of the existing RAP. The impacts related to implementation of the existing RAP were previous analyzed. The proposed project analysis is not required to and did not analyze impacts related to remediation of the site related to 1995 RAP. However, the DEIR analyzes potential remedies that could be utilized in the updated RAP.

Response to Comment 23-29

See Response to Comment 23-28. All referenced documents are not required to be appendices to the DEIR; however, they have been available for review at the City of Sacramento.

Response to Comment 23-30

See Response to Comment 5-37. DTSC, through the RAP process, will ensure that the cleanup levels are appropriate for the approved land use, consistent with State law.

Response to Comment 23-31

See Responses to Comments 15-13 and 23-3.

Response to Comment 23-32

See Response to Comment 23-24.

Response to Comment 23-33

All of the NOPs were sent to the DTSC and Regional Water Quality Control Board. The comment letter submitted by the DTSC on the original NOP is included in Appendix B of the DEIR.

Response to Comment 23-34

See Response to Comment 23-33.

Response to Comment 23-35

See Response to Comment 23-3.

Response to Comment 23-36

As stated on page 8.5-1 of the DEIR, the analysis assumes full implementation of the 1995 RAP. The 1995 RAP underwent CEQA review and is not required to be analyzed.

Response to Comment 23-37

As noted in commenter's reference 27, "The Council reaffirms its policy that the cleanup requirements for the property must be adequate to allow the City Council to exercise its discretion to make land use decisions based on local land uses needs, and not based on existing levels of contamination." Consistent with the conclusion of the DEIR and as previously stated above, the level of remediation required is dependent on the land uses. Therefore, approval of land uses in the DEIR would be required prior to approval of the RAP and determination of specific remediation.

Response to Comment 23-38

See Response to Comment 23-3. As noted above, the project site would be remediated to DTSC standards, as determined by approved land uses.

Response to Comment 23-39

The commenter's referenced project was not tested or treated for contaminated soils prior to construction of residential uses. The Curtis Park Village project would be constructed after the project site has been remediated to DTSC standards.

Response to Comment 23-40

See Response to Comment 23-3 regarding compliance with SB 120.

Response to Comment 23-41

See Responses to Comments 15-13 and 23-3. As stated in Response to Comment 23-3 and in Comment 23-40 "[…] the Department of Toxic Substances Control shall not make a determination […], until after the city has completed its land use planning process and all response actions necessary to conform to the approved land use plan are complete." The DEIR includes analysis of potential remedies to be utilized in the revised RAP.

Response to Comment 23-42

As stated, on page 5.8-6 of the DEIR, SB 120 prohibits DTSC from making an official determination that the response action for the project site (referred to as the site at 3675 Western Pacific Avenue in SB 120) is complete, including, but not limited to, issuing a certification, a no further action letter, or a closure letter, or entering into a settlement or release of liability, until the City of Sacramento has completed the land use planning process and all response action necessary to conform to the approved land use plan are complete.

Response to Comment 23-43

The City of Sacramento is the lead agency for the Curtis Park Village EIR. As stated on page 5.8-1 of the DEIR, the project analysis assumes full implementation of the existing RAP. In addition, as stated on page 5.8-2 of the DEIR, in 2008, subsequent sampling indicated that additional remediation would be required, which would result in a substantially larger amount of contaminated soils on the site being as opposed to what was precious anticipated. However, as stated in SB 120, prior to issuance of a determination by DTSC the City shall complete the land use planning process. Therefore, the DEIR for the proposed project includes land uses and analysis of potential remediation methods to be utilized in an updated RAP. As stated in Response to Comment 5-13, the DTSC would review the Curtis Park EIR to ensure that all of the environmental impacts have been adequately addressed, as they pertain to the remediation remedies proposed in the updated RAP. In addition, Response to Comment 5-13 states that if additional information, data, and remediation activities becomes available after certification of the FEIR, the DTSC will review the EIR for consistency and determine if further CEQA analysis is required.

Response to Comment 23-44

See Response to Comments 5-13 and 23-43.

Response to Comment 23-45

See Response to Comment 23-3.

Response to Comment 23-46

The proposed update to the RAP does not negate the 1995 RAP, nor does it relieve the applicant of his obligations to remediate a contaminated site. The DTSC is the authority to oversee the remediation of the site. All remediation activities, including the temporary stockpiling of contaminated soils on the site, are under the authority and control of the DTSC.

See Response to Comment 23-5.

Response to Comment 23-47

See Responses to Comments 5-12 and 19-7.

Response to Comment 23-48

The project as proposed and analyzed in the DEIR does not propose to bury contaminated soils under structures.

Response to Comment 23-49

See Response to Comment 23-48.

See also the analysis of impacts to water quality associated with the update to the RAP beginning on page 5.9-10 of the DEIR.

Response to Comment 23-50

The comment does not address the adequacy of the EIR.

Response to Comment 23-51

The revised potential remedies are described on pages 3-4 and 3-5 of the DEIR including stating that one of the potential remedies is encapsulation in the park or commercial areas. The impacts of all potential remedies are addressed throughout the DEIR.

Response to Comment 23-52

See Response to Comment 5-14.

Response to Comment 23-53

See Responses to Comments 23-3, 23-4, and 23-6.

Response to Comment 23-54

See Response to Comment 23-3.

Response to Comment 23-55

See Responses to Comments 5-12, 5-13, and 5-79.

Response to Comment 23-56

Public notices related to the DEIR met, and in some cases exceeded the requirements of CEQA. The review of the project EIR will undergo additional public meetings. In addition, the approval of the revised RAP will undergo a public review process through DTSC.

Letter 24

Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

RE: Comments on the DEIR for Curtis Park Village Project# P04-109

Dear Ms. Hageman:

24-1 I live in the Curtis Park neighborhood on the west side of 24th Street. My backyard backs up to the former railyard that is now the Curtis Park Village in-fill development. I wish to comment on the DEIR.

24-2 I strongly urge that more of the existing trees on the site be preserved, particularly the trees that are growing on the east boundary area of the site. There are many older large Oaks and Sycamores in this area, as well as smaller trees, that provide much needed shade for us who live along this boundary. These trees also provide habitat for many species of birds, including raptors, and contribute to what makes our neighborhood so aesthetically pleasing.

24-3 The DEIR states that the authors, Raney Planning & Management, used the findings and recommendations from the Tree Resources Assessment prepared by North Fork Associates. It states that, according to the Tree Resources Assessment, this project contains 147 Heritage Trees primarily located along the northern and eastern boundaries. Of the 147 Heritage Trees, 88 would be removed to accommodate the proposed project. Most of these slated for removal are along the eastern boundary of the project, meaning the trees in back of the residences along the west side of 24th Street.

24-4 I cannot find included in the DEIR, a copy of the Tree Resources Assessment that was prepared by North Fork Associates. There are two tree maps of the site showing locations of the 147 trees that are said to be Heritage Trees and the 88 that are slated for removal. In Appendix G there is an Arborists Report by Connor Arborist Services. This has no date as to when this report was made or when the information was gathered (very important since trees grow and change shape and condition over time) or whether this is part of the Tree Resources Assessment. It is apparently a list of all the trees on the site, but it does not indicate which are Heritage Trees and/or which would be slated for removal and why.

24-5 How can the overall environmental impact of the removal of 88 Heritage trees plus untold numbers of other smaller trees be accurately assessed without up to date tree survey information being included in the DEIR? I realize that removal of Heritage Trees requires compliance with the City of Sacramento's Heritage Tree Ordinance, but that does not address the overall environmental impact of loss of these and other trees.

Sincerely,

Dorene Connelly email: funktion@comcast.net
3084 24th Street
Sacramento, CA 95818

LETTER 24: DORENE DONNELLY, RESIDENT

Response to Comment 24-1

The comment is an introductory comment and does not address the adequacy of the EIR.

Response to Comment 24-2

See Response to Comment 10-13.

Response to Comment 24-3

The comment reiterates language in the DEIR and does not address the adequacy of the EIR.

Response to Comment 24-4

See Responses to Comments 17-4 through 17-9.

Response to Comment 24-5

See Responses to Comments 17-4 through 17-9.

Letter 25

Earl Withycombe, P.E.
2226 Portola Way
Sacramento, CA 95818
June 1, 2009

Ms. Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

Re: Draft Environmental Impact Report for the Curtis Park Village Project (P04-109)

Dear Ms. Hageman:

25-1 This letter is being submitted to comment on the Draft Environmental Impact Report (DEIR) for the Curtis Park Village Project (P04-109). The following comments are limited to the air quality impacts of the proposed project as that is my field of expertise. For the past 35 years, I have worked as an air pollution engineer and consultant, evaluating and designing mitigation controls for air quality impacts from a spectrum of new or modified emissions sources, including industrial facilities, transportation systems, area sources, land use projects, and environmental remediation projects, among others. A copy of my resume is attached (see Attachment 1).

1. The DEIR fails to include information on all significant air pollutants in the evaluation of the project setting.

25-2 The DEIR does not include any information on particulate matter smaller than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Federal ambient air quality standards for this pollutant were adopted in 1997, and measurements of $PM_{2.5}$ in the Sacramento region report concentrations in excess of both federal and state standards. More specifically:

25-3 (p. 5.3-2, Table 5.3-1) The table of federal and state ambient air quality standards should be expanded to include standards for $PM_{2.5}$, an air pollutant for which the federal and state standards are being exceeded in the Sacramento area. These standards are presented on the California Air Resources Board's (CARB) website at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

25-4 (p. 5.3-3, Particulate Matter) This section should be rewritten to clearly identify the sources contributing to each of PM_{10} and $PM_{2.5}$. The Sacramento area monitoring data shows that the federal PM_{10} standard has not been exceeded for a number of years, but that the federal and state $PM_{2.5}$ standards have been exceeded frequently. Ambient measurement data for $PM_{2.5}$ is found on the CARB website at: http://www.arb.ca.gov/aqd/aqdpage.htm.

25-5 (p. 5.3-4, Table 5.3-2) This table should be expanded to include statistics for ambient concentrations of $PM_{2.5}$, a federally- and state-designated air pollutant for which standards are frequently exceeded.

25-6 (p. 5.3-7, Attainment Status) Please add the appropriate information for $PM_{2.5}$, a pollutant for which federal and state ambient air quality standard are frequently exceeded in the Sacramento area.

**Letter 25
Cont'd**

Upon completion of these corrections, the DEIR should be expanded to:

25-7
- quantify the construction and operational emissions of $PM_{2.5}$ from the proposed project,
- quantify maximum downwind concentrations of $PM_{2.5}$ downwind of the project, and
- if additional exceedances of state or federal ambient air quality standards for $PM_{2.5}$ are forecast, evaluate and include feasible mitigation measures in the DEIR.

2. The DEIR contains a number of erroneous statements with respect to the responsibilities and activities of local, state, and federal air quality management agencies that obscure public understanding of the air quality regulatory setting.

(p. 5.3-4, Current Air Quality, 2nd paragraph) This paragraph refers to the "1986 Sacramento Air Quality Plan" as a source of information on sources of air pollutants. This plan is woefully outdated as the regional coalition of air quality management districts with jurisdiction in the Sacramento area have subsequently published:

25-8
- the 1994 Sacramento Area Regional Ozone Attainment Plan,
- the Sacramento Area Regional 1999 Milestone Report,
- the Sacramento Area Regional 2002 Milestone Report,
- the 2006 Sacramento Regional Nonattainment Area 8-Hour Ozone Rate-of-Progress Plan, and
- the 2008 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan.

All of these subsequent reports more current data on the sources of air pollutant emissions in the Sacramento area than the document referenced in the DEIR. This portion of the air quality chapter should be rewritten to incorporate and reflect the more recent data contained in these other plans, including the lists of major emission sources contributing to regional ozone problems.

25-9 (p. 5.3-4, Current Air Quality, 3rd paragraph) This paragraph states that "... CARB has seven air pollution monitoring sites within Sacramento County...". This statement is incorrect as the California Air Resources Board (CARB) owns and operates only one station in Sacramento County at 13th and T Streets. All other monitoring stations are owned and operated by the Sacramento Metropolitan Air Quality Management District.

25-10 (p. 5.3-5, Environmental Protection Agency) The last sentence of this paragraph is circular and conveys no useful information to the reader: "The USEPA regulates emission sources that are under the exclusive authority of the federal government". This paragraph should be expanded to explicitly identify the categories of emission sources exclusively regulated by USEPA.

25-11 (p. 5.3-5, California Air Resources Board) The first sentence of this paragraph reads: "The California Air Resources Board (CARB), a part of the USEPA, is responsible for the coordination and administration of both federal and State air pollution control programs within California." Either (1) cite the specific legal authority under which USEPA governs CARB as a subsidiary agency, or (2) if this statement is incorrect, and if the statement that CARB is responsible for the administration of federal air pollution control programs in California is also incorrect, please correct these statements and identify what other corrections of statements in the DEIR that necessarily flow from these corrections and the implications of these corrections with respect to environmental impacts and regulatory mitigation.

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(p. 5.3-7, Sacramento Metropolitan Air Quality Management District) The first sentence of this paragraph reads: "The SMAQMD is the agency primarily responsible for ensuring that National and State Ambient Air Quality Standards are not exceeded and that air quality conditions are maintained in the SVAB." Please define the acronym SVAB and also identify the specific legal authority by which the SMAQMD exercises jurisdiction over the eight county region beyond its borders. If the cited statement is incorrect, please correct the statement and identify all other corrections of statements in the DEIR that necessarily from this correction and the implications of these corrections with respect to regulatory mitigation.

25-12

3. The analysis of toxic pollutant emissions, downwind concentrations, and resulting adverse health effects is woefully inadequate.

(p. 2-4, Air Quality, 2st paragraph) A statement is made that "The proposed project would result in less than significant impacts related to ..... placement of new sensitive receptors in proximity to sources of toxic air contaminants." This statement may be in error as the analysis of exposures to toxic air contaminants referenced in Section 5-3 is inadequate and based on assumptions that are not substantiated. The deficiencies in the toxic air contaminant exposure analysis are detailed below. When the deficiencies are corrected, this conclusion must be reconsidered. If health risks from exposure to toxic air contaminants are found to be significant to new residents, then mitigation measures such as the planting of vegetative capture barriers and the requirement for high efficiency particulate air (HEPA) filters in residential and commercial heating, ventilating, and air conditions (HVAC) systems should be evaluated and included in the FEIR.

25-13

(p. 5.3-4, Sensitive Receptors, 2nd paragraph) This paragraph states that "(s)ensitive receptors in the area include local residences and C.K. McClatchy High School". The analysis that led to this statement is inadequate in that it fails to identify the Sacramento Children's Home, the Eskaton Monroe Lodge senior citizen complex, and several child day care facilities within the same proximity to the proposed project. The DEIR should identify all infant, child, and senior service facilities within 0.5 miles of the proposed project which will be impacted by project air pollutant emissions.

25-14

(p. 5.3-9, Remedial Action Plan (RAP) Activities) This paragraph indicates that the emission analysis of remedial action plan (RAP) activities was limited to the import of fill related to remediation of site soil contamination. The 1995 RAP recommended the excavation and off-site disposal of contaminated soils in Operable Units S-1, S-2, and S-3. To date, excavation in OU S-1 and S-2 has been conducted, but no evidence of excavation in OU S-3 is reflected in the documents placed on the Department of Toxic Substances Control's (DTSC) Union Pacific Railroad, Curtis Park remediation project website (http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=34400003). In a letter to DTSC dated July 28, 2008, ERM Remediation and Construction Management, on behalf of Curtis Park Village, informed DTSC that the volume of contaminated soil found during continuing investigations exceeded the volume anticipated in the 1995 RAP by a factor of 4, and that full excavation and offsite disposal was no longer economically feasible. In the same letter, ERM proposes to remove contaminated soil from the proposed residential areas and bury and cap it in the proposed commercial areas (http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/2022794425/DTSC_07.28.2008%20Intent%20to%20change%20Remedy.pdf). The analysis of RAP activity equipment exhaust and fugitive dust emissions must include this proposed activity and all other actions contemplated under an amended RAP. Printouts of URBEMIS-2007 model runs must be included in the FEIR to provide full disclosure to the public of the assumptions and data underlying the analysis of increased emissions associated with these activities. A screening risk assessment of diesel PM emissions from onsite construction and remediation

25-15

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25-15 cont. equipment must be performed and included in the air quality assessment of project environmental impacts. The risk assessment must evaluate increased cancer risk and increased acute and chronic health hazard impacts at the most impacted residences downwind of onsite emission sources.

(p. 5.3-9, last paragraph) This paragraph states that "A screening health risk assessment of diesel PM emissions from diesel locomotives traveling on the tracks adjacent to the Curtis Park Village site was conducted ……". The screening health risk assessment evaluated only diesel PM emissions from diesel locomotives traveling on the tracks adjacent to the Curtis Park Villiage site, and did not include the diesel PM emissions from diesel switch engine locomotives that idle for periods of time on the sidings immediately adjacent to the Curtis Park Village site that will also increase the cancer risk of future project residents. The screening health risk assessment must be revised and expanded to include these emissions and related cancer risks.

25-16 Switch Engine in Curtis Park Railyard, 7:14 am, May 1, 2009

The screening health risk assessment that is on file with the City of Sacramento Planning Division is a two-page memo from Lawrence Smith of Environmental Resources Management to Cheri Velzy (affiliation unknown) that is dated August 10, 2005 (see Attachment 2). The level of detail in the risk assessment is inadequate for purposes of verifying the data and assumptions that led to the conclusions stated in the assessment and in the DEIR. All data, assumptions, and modeling output files must be included in the CEQA record to assess the veracity of the conclusions reached. The screening health risk assessment assumes, for example, that "… four line-haul locomotives per day pass by the Curtis Park Development site…". Since four locomotives are typically used to power one line haul train, and because the number of line-haul trains passing the project site is listed in Chapter 5.8 (Public Health and Hazards) as 20 per day, the health risk assessment must be revised to be consistent with actual railroad activity levels during periods of normal economic conditions. Railroad activity levels should be verified by the Union Pacific Railroad to make the risk assessment creditable. As mentioned above, diesel PM emissions

25-17 from idling switch engines must also be quantified and verified by Union Pacific Railroad and included in

Letter 25 Cont'd

25-17 cont. the risk assessment, including the shorter distances from the nearest onsite residences at which these sources will operate.

25-18 Additionally, the screening risk assessment must be expanded to include acute and chronic health impacts resulting from diesel PM emissions from locomotive operation. Emissions and health impacts of acrolein, especially, must be included in the assessment.

25-19 Finally, the operation of heavy duty diesel equipment on site during remediation operations and during construction will also increase cancer risks and acute and chronic health hazards in combination with locomotive emissions and these cumulative impacts should be evaluated in existing residential areas near the project site. All data, assumptions, and modeling results of this evaluation must be included in the FEIR to assure the credibility of the conclusions.

25-20 (p. 5.3-10, Impacts related to the update of the Remedial Action Plan, 1st paragraph) This paragraph states that "Under the current Remedial Action Plan (RAP), contaminated soils would be excavated, disposed of at an appropriately certified landfill, and clean fill dirt would be introduced to return the site to the current grade." In a letter to DTSC dated July 28, 2008, ERM Remediation and Construction Management, on behalf of Curtis Park Village, informed DTSC that the volume of contaminated soil found during continuing investigations exceeded the volume anticipated in the 1995 RAP by a factor of 4, and that full excavation and offsite disposal was no longer economically feasible. In the same letter, ERM proposes to removed contaminated soil from the proposed residential areas and bury and cap it in the proposed commercial areas (http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/2022794425/DTSC_07.28.2008%20Intent%20to%20change%20Remedy.pdf). After a new analysis of RAP activity equipment exhaust and fugitive dust emissions is completed, this mitigation measure must be rewritten to recognize the revised project scope and set of emission activities. Printouts of URBEMIS-2007 model runs must be included in the FEIR to provide full disclosure to the public of the assumptions and data underlying the analysis of increased emissions associated with these activities.

25-21 (p. 5.3-11, Impacts related to exhaust emissions and fugitive particulate matter emissions from project-associated construction activities, 2nd paragraph) This paragraph suggests that health risks from toxic air contaminants would be less than significant because emissions "... would be spread over (the) site and would not affect any specific receptor for any length of time". The acute impacts of acrolein, a constituent of diesel emissions, are quantified by the California Office of Health Hazard Assessment on a maximum one-hour average basis. Since a one-hour span is not a significant "length of time", a screening risk assessment of diesel emissions from construction equipment must be performed for the construction phase of this project and the health impacts evaluated must include cancer risk, acute and chronic health hazards in order to quantitatively assess whether these impacts will be less than significant. In the construction equipment screening risk assessment report, include all data, assumptions, and modeling output files. Discuss in corresponding mitigation measure how the assumptions of equipment type and use contained in the screening risk assessment will be enforced as operational conditions in project entitlements and Mitigation Monitoring Plan requirements.

25-22 (p. 5.3-17, Development of the project could place new sensitive receptors in proximity of a rail line, a source of diesel particulate emissions, 1st and 2nd paragraphs) The screening health risk assessment performed for this project is inadequate and without sufficient documentation. As stated above, the risk assessment must be revised and expanded to include toxic emissions from idling and operating switch

5

Letter 25 Cont'd

25-22 cont.

engine locomotives in the Curtis Park railyard, and must appropriately account for the closer distances that these engines operate to proposed onsite residences. Line-haul and switcher locomotive activity rates must be quantified, as opposed to assumed, and the activity values used in the risk assessment must be verified by the Union Pacific Railroad to be creditable. All data, assumptions, and model output files must be explicitly included in the risk assessment report.

4. As project site remediation will occur in soils deemed sufficiently toxic to constitute a federal Superfund Site, emissions of remediation activity dust must be more carefully monitored and controlled than is proposed in the DEIR.

25-23

(p. 5.3-11, Impacts related to exhaust emissions and fugitive particulate matter emissions from project-associated construction activities, 3rd paragraph) The generation of controlled dust emissions "... could potentially result in localized exceedances of ... a significance threshold; therefore, a *potentially significant* impact could result". Because of this potential, this mitigation measure should include a requirement to continuously monitor PM_{10}, such as has been performed during excavation of contaminated soils in 2005-2008, using a network of particle counters near existing residences closest to actively disturbed areas under construction. An upwind particle counter and wind instruments on a tower should be included in the network to quantify background PM_{10} levels and wind directions. A permit condition should be included in the dust control plan to prohibit the difference between the upwind and downwind monitors from exceeding 50 $\mu g/m^3$ over an eight-hour shift, or an alternative limit based on the results of a health risk assessment that would prevent increased cancer risks of 1.0-in-a-million and acute and chronic health hazards in excess of 1.0 to adjacent residents. This permit condition should require notification to the Sacramento Metropolitan Air Quality Management District (SMAQMD) whenever any violation of this limit is measured, and the construction contractor in such event should be required to notify the District of additional preventive and remedial actions to be taken to avoid further violations. Approval and enforcement of any dust-control plan should be delegated by the City to the SMAQMD, as that agency has the necessary experience and resources to secure compliance with dust control plan conditions. The City of Sacramento Development Services Department, to whom the dust control plan is proposed to be directed for approval and enforcement in the DEIR, has little relevant experience in this field and typically defers to recommendations of the SMAQMD. Because the dust control plan for this project will be dealing with emissions from soil containing toxic substances with developmental health consequences, and because a number of infants and young children live in the residences immediately adjacent to the project boundary that will be impacted by remediation and construction dust, it is imperative that the most capable local agency be given authority to approving and enforcing the Plan. Any violation of the dust control plan should be deemed to be a violation of SMAQMD Rule 403 (Fugitive Dust) in order to assure sufficient penalties to make enforcement credible.

25-24

Thank you for the opportunity to comment on the air quality section of the DEIR for the Curtis Park Village Project.

Sincerely,

Earl Withycombe, P.E.

Attachments

6

Letter 25
Cont'd

Attachment 1

Resume of Earl Withycombe, P.E.

Letter 25
Cont'd

Résumé

Earl Withycombe

Education

1970, B.S., Aeronautical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts

1989, Certificate in the Management of Hazardous Materials, University of California, Davis, California

Professional Experience

8/06 to present	Air Resources Engineer/SCAQMD Planning Liaison California Air Resources Board

Served as the planning liaison to the South Coast Air Quality Management District, facilitating coordination between ARB and the District in the development of the 2007 8-hour ozone and $PM_{2.5}$ State Implementation Plan for the South Coast Air Basin. Technical analysis in support of air quality planning activities included control measure benefit quantification, emission inventory refinement, air quality impact assessment, and control technology research.

5/93 to 6/06	Partner Sierra Research
4/88 to 5/93	Senior Engineer Sierra Research

Worked as a partner and project manager in a consulting firm specializing in air quality analysis and management. Experience included management of regulatory development and project evaluation services for governmental clients; management of process, control, and instrumentation design; emission and impact evaluation; and compliance strategy services for private clients. Technical contributions included air quality modeling, combustion modeling, control equipment design and analysis, ambient air quality analysis, ambient and stack sampling project design, screening risk assessment, permit development, and particulate matter and fugitive dust emission factor development services for a variety of projects, including those related to power production,

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cogeneration, industrial boilers, geothermal activities, mineral extraction and processing, lumber production, toxic waste treatment, fugitive dust, and Superfund remediation. Advocacy services included permit negotiation, technical briefing and presentation, expert witness testimony, legal support, rulemaking representation, regulatory interpretation, and technical reporting for a variety of public and private clients.

7/83 to 4/88 Managing Partner, Sierra Air Consultants

Founded and managed a small consulting firm specializing in air quality impact analysis. Directed the development of permit applications and provided air quality troubleshooting services to a number of wood processing clients. Analyzed the environmental impacts of several energy projects for environmental and governmental clients. Managed all fiscal and administrative functions for the partnership.

7/75 to 4/88 Air Basin Engineer
Mountain Counties Air Basin,
Lake Tahoe Air Basin

Established and managed a consulting practice providing exclusive and comprehensive technical services to an association of nine county air pollution control districts in the Sierra Nevada region of California. During vacancies in administrative positions, assumed the responsibilities of program management for interim periods in several Districts in the Air Basin. Drafted numerous amendments to the air basin plan in implementing federal and state mandates and responding to new local problems. Developed annual budgets for a number of districts.

Developed ozone nonattainment plans for El Dorado and Mariposa Counties. Drafted and implemented the first local Prevention of Significant Deterioration program in rural California. Analyzed compliance with emission limits and ambient air quality standards for all major and many minor new and modified source applications within the nine county region. Developed comprehensive stationary and area source emission inventories for Mountain Counties baseline inventory (1977) and for the Lake Tahoe Nonattainment Plan (1981). Designed air quality monitoring networks throughout the Air Basin, including systems to measure the impacts of controlled wildland vegetative burning and residential wood combustion. Developed toxic pollutant test burn plans for the experimental incineration of toxic wastes in cement kilns, rotary kilns, and starved air incinerators. Designed a testing program and developed district regulations for the assessment and control of asbestos emissions from unpaved roads and parking lots. Certified all test plans and oversaw all stationary source testing in the Air Basin.

Served as the Co-Chairman of the CAPCOA-ARB New Source Review Rule Committee that developed the 1982 CAPCOA NSR rule which served for many years as a model regulation for the permitting of new sources by districts. Drafted and successfully lobbied several legislative bills amending the relationship between districts and the California Air Resources Board and authorizing experimental programs seeking innovative solutions to air quality problems. Drafted language and lobbied for passage of AB 3374 (1986), the second Calderon landfill testing bill,

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which refocused priorities on active landfills and adopted more cost effective monitoring protocols for small rural landfills.

11/86 to 4/87 — Air Pollution Control Officer
Northern Sierra Air Quality Management District

Designed and managed the process for unifying three county air pollution control districts into a multi-county agency to increase program service levels while reducing administrative costs. During agency formation, served as agency administrator and organized basic fiscal, regulatory, enforcement, legal and legislative programs. Designed and enacted a stationary source permit fee proposal that dramatically increased program revenues. Developed the first district wildland vegetation management burning regulation and permit fee program in the state.

1/79 to 4/86 — Member and Chairman
Sierra County Board of Supervisors

Served two terms as a member and three years as Chairman of the Board of Supervisors of Sierra County. Chaired the Board's Finance, Personnel, and Health & Welfare Committees. Served as the de facto county administrator coordinating multi-department responses to legislation mandates and community problems. Drafted and enacted numerous ordinances, resolutions, and Board orders in the areas of general administration, health, personnel management, human services, finance, and public safety. Served seven years as the Chairman of the County Board of Equalization. Together with the County Auditor, supervised the development of annual county budgets and fiscal policy. Served as the County's labor negotiator for six years. Represented the County on numerous inter- and intra-county boards, commissions, and councils. Served two years on the Executive Committee of the County Supervisors Association of California. Drafted and sponsored several bills streamlining state statutes related to unique rural concerns. Coauthored and led the successful lobbying effort to secure passage of SB 1691 (1983) which established the state's first locally administered groundwater management districts.

8/73 to 1/75 — Air Pollution Control Officer
County of Sierra

Served as the program manager of a rural county air pollution control district. Developed and implemented compliance plans for two timber processing facilities. Managed the accounting, budget, reporting, permit review, and air quality monitoring functions of the agency. Developed the technical justification for formation of the Mountain Counties Air Basin to supplant the mountain portions of the Sacramento and San Joaquin Valley Air Basins. Drafted major portions of the first Air Basin Plan and related regulations.

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Cont'd

Credentials, Memberships, and Awards

Qualified Environmental Professional, Air Pollution; Institute of Professional Environmental Practice
Registered Civil Engineer, California
Member, Air and Waste Management Association
Outstanding Individual, 1994 Summer Smog Season Campaign, Partners for Clean Air, Sacramento, California
Clean Air Award, American Lung Association of Sacramento-Emigrant Trails, 1996
Environmentalist of the Year Award, Environmental Council of Sacramento, 1997
Pottenger Award for Volunter Service, American Lung Association of California, 2002

Selected Publications

"Fairbanks International Airport Air Quality Conformity Assessment and Applicability Determination," Sierra Research Report No. SR2005-08-01, prepared for PDC Consulting Engineers, August 12, 2005

"2004 AB 2588 Health Risk Assessment", prepared for the University of California, Santa Cruz, December 2004

"Screening Risk Assessment of Sample Selected Projects Included In the Southern California Association of Governments' Draft 2004 Regional Transportation Plan", prepared for Southern California Association of Governments, February 2004

"BACM Technololgical and Economic Feasibility Analysis", prepared for the San Joaquin Valley Unified Air Pollution Control District, January 2003

"Air Quality Impact Analysis: Patterson Sand & Gravel Company", prepared for EDAW, March 2002

"White Paper: Analysis of Road Construction Emission Contributions to PM_{10} Concentrations in the SCAG Region", prepared for Southern California Association of Governments, February 2002

"1997 Health Risk Assessment Report", prepared for Louisiana-Pacific Corporation, February 2000

"Most Stringent PM_{10} Control Measure Analysis", prepared for the Maricopa Association of Governments, May 1998

"Particulate Control Measure Feasibility Study", prepared for the Maricopa Association of Governments, January 1997

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**Letter 25
Cont'd**

"Air Quality Impacts of the Proposed Rough and Ready Project", prepared for Ford Construction Company, June 1994.

"Evaluation of Public Health Impacts Resulting from Emission of Asbestos Fibers from the California Asbestos Monofill Project", prepared for Calaveras County Air Pollution Control District, November 1993.

"Feasibility and Cost Effectiveness of New Air Pollution Control Measures", prepared for Maricopa Association of Governments, August 1993.

"A Methodology for Assessing the Significance of Air Quality Impacts Under the California Environmental Quality Act and the Amador County Air Pollution Control District Rules and Regulations", prepared for Amador County Air Pollution Control District, June 1993.

"Air Quality Impacts of the Proposed Brigantino Placement Project", prepared for Granite Rock Company, August 1991.

"City of Redlands and C.L. Pharris Sand & Gravel Inc. Preannexation Agreement Air Quality Analysis", prepared for the City of Redlands, June 1990.

"Air Quality Impacts of Proposed Eagle Mountain Project", prepared for Mine Reclamation Corporation, March 1990.

"Air Quality Permitting Requirements for the Eagle Mountain Mine Project", prepared for Mine Reclamation Corporation, September 1989.

"Air Toxics 'Hot Spots' Information and Assessment Act (AB 2588) Emission Inventory Plans and Reports", prepared for Blue Mountain Minerals, Diamond Walnut Growers Inc., American Moulding & Millwork Company, and Teledyne Picco, July 1989.

"Rohr Industries, Inc. Riverside Facility Environmental Compliance Audit", prepared for Rohr Industries, Inc., May 1989.

"Blue Mountain Minerals Emission Baseline Analysis", prepared for Blue Mountain Minerals, April 1989.

"Blue Mountain Minerals Dust Control System Emission Compliance Analysis", prepared for Blue Mountain Minerals, April 1989.

"Copper Cove Village Asbestos Remediation Project: Test Methods and Health Risk", prepared for Calaveras County Air Pollution Control District, March 1989.

"R.C. Collet Rocklin Aggregate Facility Emission Impact Analysis", prepared for R.C. Collet, March 1989.

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**Letter 25
Cont'd**

"Evaluation of Public Health Impacts Resulting from Emission of Asbestos Fiber From the Calaveras Asbestos Ltd. Landfill Project", prepared for Calaveras County Air Pollution Control District, October 1988.

"San Joaquin Valley Biomass Emission Analysis", prepared for Biomass Coalition, September 1988.

"Air Quality and Environmental Significance: The South Valley Power Project", prepared for the City of Calexico, February 1987.

"Cyclone Efficiency Analysis by Microcomputer", 1986 CAPCOA Engineers Technical Seminar, December 1986.

"Air Quality", Foothill County Mining Handbook, Special Publication 86, California Division of Mines and Geology, October 1985.

"Smoke Management", Proceedings of the 6th Annual Conference, Forest Vegetation Management Conference, November 1984.

**Letter 25
Cont'd**

Attachment 2

Diesel (Locomotive) Screening Health Risk Assessment for the Curtis Park Project

Letter 25 Cont'd

To: Lawrence Smith

From: Cheri Velzy

Date: August 10, 2005

Subject: Diesel Screening Health Risk Assessment for the Curtis Park Project

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Introduction

In 1998, the California Air Resources Board identified the particulate matter (PM) emissions in diesel exhaust to be carcinogenic. This memorandum presents the analysis approach and results of a health risk assessment of diesel PM from locomotives traveling on tracks adjacent to the Curtis Park Development Project. The analysis evaluates the increased probability of cancer from diesel PM at locations (residences) near the tracks.

Analysis Approach

ERM has conducted a screening health risk assessment of diesel PM emissions from diesel locomotives traveling on the tracks adjacent to the proposed Curtis Park development. The results of this screening health risk assessment produced an "order of magnitude" estimate of the potential increase in cancer risk at proposed residences within the development that are near the tracks. The screening health risk assessment methodology is described briefly below.

EPA fleet average PM emission factors (for a fleet average in the year 2007) for diesel locomotives were used to estimate emissions from diesel trains (EPA 1997). These factors are presented in terms of grams of emissions per brake horsepower hour. The average power output of diesel train engines for line-haul locomotives, based on EPA data, is estimated at between 3,500-5,000 horsepower for newer line-haul locomotives (EPA 1998). This analysis conservatively used 5,000 horsepower in the emissions estimates. It was assumed that approximately four line-haul locomotives per day pass by the Curtis Park Development site, giving an annual total of 1,460 trains per year if the trains travel 365 days per year.

The EPA ISCST dispersion model was used with worst-case meteorological data to estimate the ground-level diesel PM concentrations at the proposed residences. The nearest residence is located approximately 100 feet from the track. The Office of Environmental Health Hazard Assessment (OEHHA) unit risk factor for diesel PM was then used to evaluate inhalation health risk from diesel PM at residences near the tracks.

Results

The estimated cancer risk from exposure to 1,460 trains per year was modeled at 2.4 in one million. The Sacramento Metropolitan Air Quality Management District has published air quality assessment guidelines (SMAQMD 2004) that describe approved analysis methods and significance of impacts

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relative to the California Environmental Quality Act (CEQA). These guidelines state a cancer risk threshold of 10 in one million as a significance threshold. Thus the estimated risk from this analysis is below the CEQA significance threshold.

REFERENCES

Office of Environmental Health Hazard Assessment (OEHHA). 2003. Air Toxics Hot Spots Program Risk Assessment Guidelines. August.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2004. Guide to Air Quality Assessment in Sacramento County. July.

United States Environmental Protection Agency (EPA). 1998. Locomotive Emission Standards: Regulatory Support Document (abridged version). April.

United States Environmental Protection Agency (EPA). 1997. Technical Highlights: Emission Factors for Locomotives. EPA420-F-97-051. December.

LETTER 25: EARLE WITHYCOMBE, RESIDENT

Response to Comment 25-1

See Response to Comment 5-186.

Response to Comment 25-2

See Response to Comment 5-187.

Response to Comment 25-3

See Response to Comment 5-188.

Response to Comment 25-4

See Response to Comment 5-189.

Response to Comment 25-5

See Response to Comment 5-190.

Response to Comment 25-6

See Response to Comment 5-191.

Response to Comment 25-7

See Response to Comment 5-192.

Response to Comment 25-8

See Response to Comment 5-193.

Response to Comment 25-9

See Response to Comment 5-194.

Response to Comment 25-10

See Response to Comment 5-195.

Response to Comment 25-11

See Response to Comment 5-196.

Response to Comment 25-12

See Response to Comment 5-197.

Response to Comment 25-13

See Response to Comment 5-198.

Response to Comment 25-14

See Response to Comment 5-199.

Response to Comment 25-15

See Response to Comment 5-200.

Response to Comment 25-16

See Response to Comment 5-201.

Response to Comment 25-17

See Response to Comment 5-202.

Response to Comment 25-18

See Response to Comment 5-203.

Response to Comment 25-19

See Response to Comment 5-203.

Response to Comment 25-20

See Response to Comment 5-204.

Response to Comment 25-21

See Response to Comment 5-205.

Response to Comment 25-22

See Response to Comment 5-206.

Response to Comment 25-23

See Response to Comment 5-207.

Response to Comment 25-24

See Response to Comment 5-208.

Letter 26

To: Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Dept

June 1, 2009

Re: comments on DEIR for the Curtis Park Village Project (P04-109)

To all concerned,

26-1 There has been lots of concern over the proposed Curtis Park Village. I have many concerns, but wish to focus all the following comments on the proposed addition of a vehicle access point at 24th St / 10th Ave.

Many neighbors in the vicinity feel they were deceived by the scooping process that occurred in December 2005 through January 2006. During this time, residents in the area were asked to comment on a proposed bike/pedestrian access at 10th/24th. Most residents supported this access, although there were many concerns over the impact of the additional traffic. Then, after the scooping process was completed, we were told that 10th/24th was not only approved for bikes and walkers but it was also approved for automobile access and that we do not really have a right to challenge automobile access, because access has all ready been granted and the city is just "changing the type of access".

26-2 Now the Project Updates in the DEIR shows not only automobile access, but also a significant increase in the number of high-density residential units that are directed towards this access point and thus encouraged to use the Southwestern portion of Curtis Park as a cut-through to avoid traffic.

A good deal of residents in the area of Donner Ave and 5th have complained about the proposed access points in their area and seems to have gotten consideration about the impact. Yet, while we have complained, we have yet to receive any noteworthy consideration. In fact, every time a new map comes out, it indicates yet an even greater impact on this intersection. Indeed, at a recent meeting, I approached Mr. Petrovich about the increased impact at this intersection and the fact that 10th/24th will be more significantly impacted than any of the access point in the Northern section, he affirmed my concern and then acknowledged some "areas are just going to be more impacted".

26-3 I wholeheartedly reject the nature of this impact and the consequential destruction this will cause to our neighborhood. The proposed 10th/24th access point could quite possibly be the most impacted of *all* the points leading into Curtis Park proper. This is true for a number of reasons:

26-4 1) First, it is the only Southern access point in the entire Southern section into Curtis Park, whereas there are a number of proposed access points in the Northern section.

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Cont'd

26-5 2) Second, there will be significantly more new traffic in the Southern section than in the Northern section (since this is where the commercial area is and where *all* proposed the high-density residents will live).

26-6 3) Third, the layout of alleyways and streets actually directs the new residential traffic towards us and, simultaneously, makes it inconvenient to travel through the new streets in the development (This includes approx 38 new high-density units, 80 high-density low-income units and 30 or more new single-family residents, plus the developer is encouraging existing residents on 24th to use the alley way. All told, this could add new traffic from over 200 residential units, all encouraged to cut through our neighborhood).

26-7 4) Fourth, there is a complete disregard for adequate parking for high-density units and this will clog our neighborhood not only with a large number of additional parked cars, but also a large number of cars driving around looking for parking spaces.

26-8 5) Fifth, in addition to the new residents who will use this intersection point there will significant numbers of others who will use this intersection to gain access to the park itself in Curtis Park. We are already inundated with large numbers of people who use our street because it is adjacent to the tennis courts, children's playground equipment, and reserved picnic area near the intersection of 10th and West Curtis.

26-9 I strongly encourage the city to seriously consider the following measures to help mitigate the impact on 10th/24th:

26-10 1) The most obvious is to consider additional access points in the Southern section leading into Curtis Park. When I asked Mr. Petrovich about this possibility, he indicated to that the only way to do this is for the city to purchased someone's property and tear down their house. However, this is not the only way for secure additional access points. Petrovich Development owns many other properties on 24th and the city should consider these for access.

26-11 2) Move some of the high-density units to other sections of the development. For some reason, Petrovish wants to keep all the high-density units in the south section of the development. I suspect he is doing this because he thinks there is more value to the northern property if there are no high-density units. However, the very Northern most section of the development is obviously the closest to light rail access and it is not being used for anything other than the largest single-family lots. This represents a clear lack of concern for locating high-density next to light rail.

26-12 3) Relocate what is being referred to as "Multi-family affordable" units. No one in our neighborhood is buying this misnomer. What is being proposed for this site is

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26-12 cont. R-5 zoning. The main reason for making this R-5 is to have a "residential hotel" built next to existing homes. This goes against everything we have been promised. For the past 4 years we have heard Petrovich state that he promises to only put "like-across-from-like", meaning existing single family homes would only have new existing family homes located across from them. We already have a number of new residences proposed to be built on 24th St. These lots will be developed at 5 times the density of the surrounding neighborhood and now we are being told that we are also going to have to live across from a 4 or 5 story residential hotel. And please do not think that people in this neighborhood are persuaded by the "senior units" label attached to this part of the development. We already know that once access is approved, access designation can be changed. Please locate this R-5 HOTEL rezoning inside the development where it is across from only new development. It is inappropriate in scale for our neighborhood (which just happens to have the *smallest* average size homes in Curtis Park). It will also significantly reduce traffic through the proposed 10th/24th intersection if it is moved.

26-13 4) Relocate the vehicle access points of egress and ingress that are currently proposed to exit on the proposed 10th St addition to new locations. It would be easy to relocate these so that egress and ingress would all occur on the proposed new boulevard. (Please see diagram 1 at end of this set of comments.)

26-14 5) Make the main driving circle located in the commercial area easy to navigate. This will increase traffic flow down the proposed new corridor and will encourage traffic to stay on that boulevard. Please do not let the developer put some big statue there that will block the view. I have driven these circles in many locations throughout the world and they only allow good traffic flows if they provide good visibility. Additionally, while I very into creating new play spaces for kids to climb on, please do not allow pedestrian access to the circle. We need increased flow of traffic and increased safety of citizens, not the other way around.

26-15 6) Make the new intersection at Sutterville efficient at getting traffic in and out of the development. If traffic is unable to move through quick enough, it will only encourage traffic to cut through existing neighborhoods.

26-16 7) Make traffic flow on Sutterville more efficient, especially between the proposed development and the freeway. If you do not think traffic gets very congested here and creates conditions whereby traffic on Sutterville cuts through existing neighborhoods in the Southeastern section of Curtis Park, I strongly encourage your traffic engineers to talk to residents in that neighborhood. It happens regularly. Please help prevent congestions like that seen on Watt Ave and Fair Oakes. We are already close – I often sit at the Franklin/Sutterville traffic light for 10 minutes or more before I get through.

26-17 8) Make traffic flow onto the freeway more efficient. If the city does not commit to this, then the traffic will regularly get backed up on Sutterville and will cause people to use 24th St north of the proposed development.

Letter 26
Cont'd

26-18 9) Have a plan for City College parking. If students park in the proposed development area, it will displace other legit emit parkers and will thus move parking into existing neighborhoods. The only way to assure this is to have parking enforcement and it is going to have to be paid for by either the developer or the city.

26-19 10) Have a plan to enable existing residents in Curtis Park to continue parking near their homes. This will entail costs such as parking permits, signage, and enforcement.

26-20 11) Consider erecting a traffic barrier on 10th St, thus preventing vehicles from driving down 10th Ave.

Thank you for your thoughtful consideration in these matters
Sincerely

Scott Johnson
916-454-5005
scottjohnson@surewest.net

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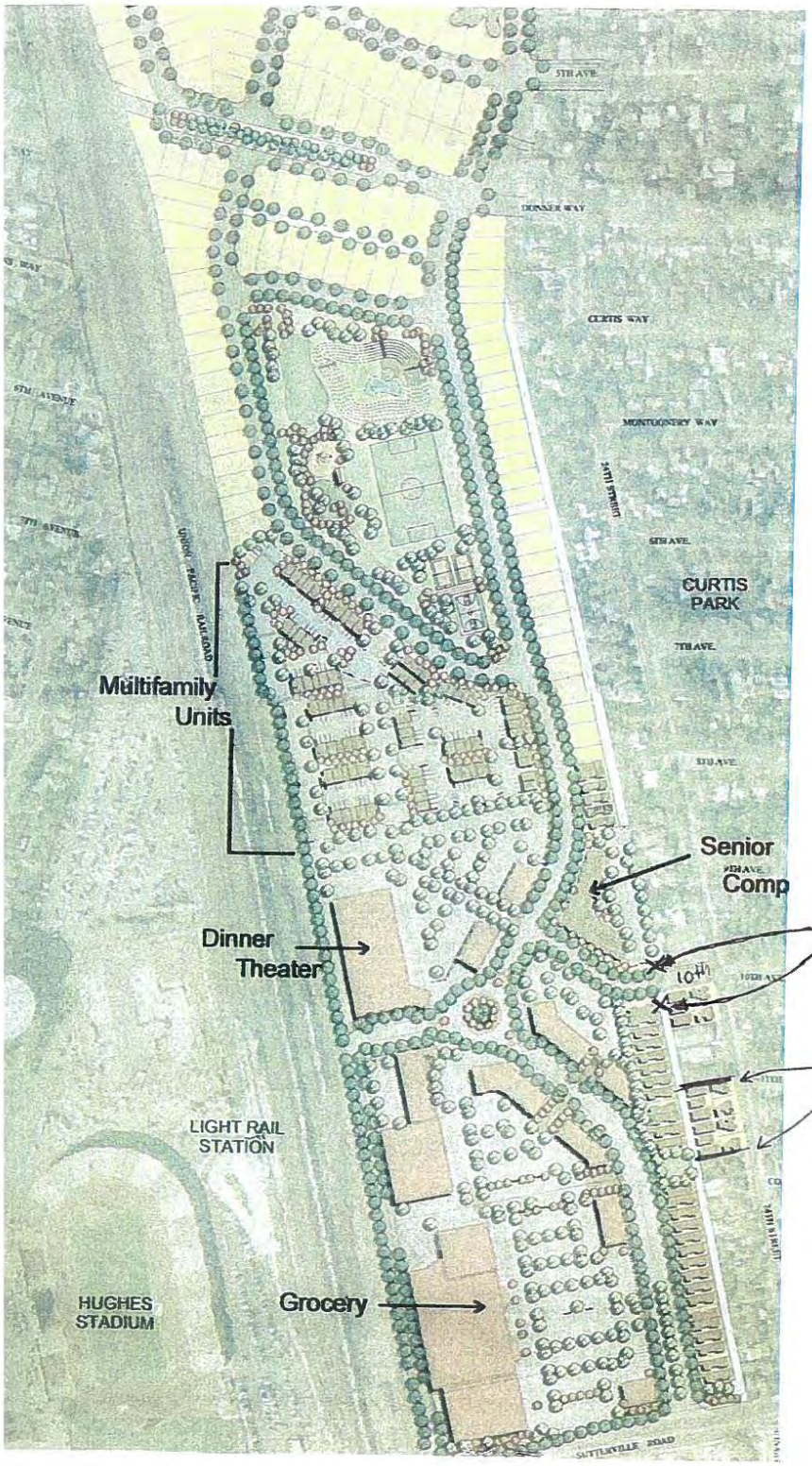
Cont'd



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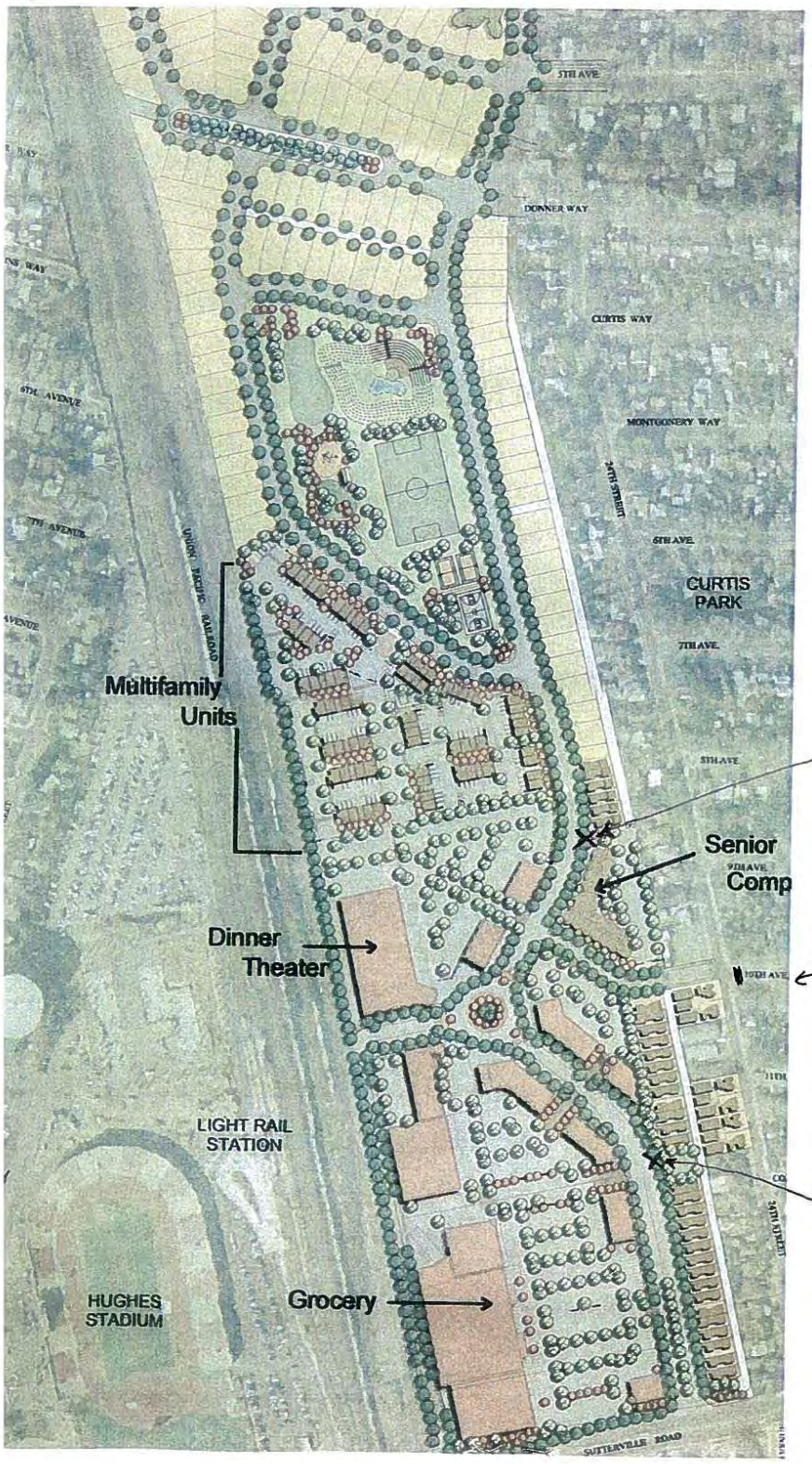
Letter 26
Cont'd



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LETTER 26: SCOTT JOHNSON, RESIDENT

Response to Comment 26-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 26-2

As shown in Table 5.2-11 on page 5.2-33 of Chapter 5.2, Transportation and Circulation, of the DEIR, with implementation of the proposed project, the 24th Street / 10th Avenue intersection would operate at LOS A during both the AM and PM peak hours. Therefore, according to the traffic analysis, implementation of the project would not significantly impact this intersection.

Response to Comment 26-3

The 10th Street access point is proposed under Access Scenario #3 only. The project impacts under this scenario are identified in the DEIR.

Response to Comment 26-4

In direct response to the comment, there are numerous southern access points into Curtis Park, including the following connections:

- 24th Street;
- West Curtis Drive;
- East Curtis Drive;
- Cutter Way; and
- Streets connecting to Franklin Boulevard.

In the context of the other comments in the letter, it appears that the commenter intended to state that the "[…] proposed 10th/24th access point […] is the only Southern access point in the entire Southern section into Curtis Park Village." In response to what appears to have been intended, a new southern access to Curtis Park Village is proposed on Sutterville Road at Road A. A traffic signal will be provided at that intersection that will serve the project and divert much of the traffic from 24th Street in Curtis Park to Road A.

Response to Comment 26-5

The analysis of the proposed project disclosed the impacts of the land uses proposed for the project.

Response to Comment 26-6

See Response to Comment 5-119.

Response to Comment 26-7

A parking analysis was performed as a part of the traffic study and included in the Traffic and Circulation chapter, as well as in Appendix D of the DEIR. The findings indicate that the proposed on-site parking spaces would be adequate in meeting the parking demand of the proposed project for all land uses.

Response to Comment 26-8

See Response to Comment 5-119.

Response to Comment 26-9

See Responses to Comments 26-10 through 26-20 below.

Response to Comment 26-10

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 26-11

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 26-12

Based on comments received from the general public, the senior housing component of the proposed project was moved to the west side of the project site.

Response to Comment 26-13

The comment suggests relocating vehicle access and does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 26-14

Based on comments received from the general public, the modern roundabout has been eliminated from the proposed project.

Response to Comment 26-15

Mitigation measures are proposed in the DEIR (with revisions in the FEIR) that will mitigate the impacts of the project on the Sutterville Road / Road A intersection and provide efficient traffic operations at the intersection.

Response to Comment 26-16

Roadway operations on Sutterville Road after the implementation of the project are reported in the DEIR. Mitigation measures are proposed in the DEIR (with revisions in the FEIR) that will mitigate the impacts of the project on the Sutterville Road. Traffic operating conditions after mitigation are disclosed in the DEIR (See page 5.2-54). Traffic operating conditions after mitigation are also included in the level of service worksheets provided as part of the traffic study (See Appendix D of the DEIR).

Response to Comment 26-17

Impacts to operations on freeway ramps after the implementation of the project are reported in the DEIR. Mitigation measures were developed at the freeway interchange and conditions after mitigation are disclosed in the DEIR (See pages 5.2-40 and 5.2-41). Feasible mitigation measures were not identified for the SR 99 freeway mainline.

Response to Comment 26-18

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 26-19

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 26-20

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

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Response to Comment 26-21

See Response to Comment 26-13.

Response to Comment 26-22

See Response to Comment 26-13.

Response to Comment 26-23

See Response to Comment 26-13.

Response to Comment 26-24

See Response to Comment 26-13.

Response to Comment 26-25

See Response to Comment 26-20.

Letter 27

June 1, 2009

Jennifer Hageman
Environmental Project Manager
City of Sacramento, Planning Division
300 Richards Boulevard
Sacramento, CA 95811

RE: Comments on the Curtis Park Village EIR

27-1 Please consider the following comments and concerns on behalf of the undersigned residents on 10th and 11th Avenues within Curtis Park.

27-2 1) The draft EIR does not provide satisfactory mitigation for the negative impact of this development on the proposed 10th Avenue connection at 24th Street. The plan routes residents in Villages 2, 3 and 5, Senior Housing complex, a theatre, and commercial business area on Roads A and C right to two-lane Road B to access 24th Street at 10th Avenue.

27-3 a. The Curtis Park streets were not designed to handle the amount of anticipated travel from a development of this magnitude. Traffic patterns within the development need rerouting to minimize impact on the narrowest sections of 24th Street.

27-4 b. While we may appreciate the relocation of the 24th/Sutterville traffic light to Road A, how will all this routed traffic turn left on Sutterville Road? What is the

27-5 advantage of replacing the light with a stop sign where more traffic will sit in idle, spewing exhaust fumes, to enter Sutterville one car at a time?

27-6 c. When traffic backs up on 24th Street, Road B drivers will likely go straight across 24th down 10th Avenue to access West Curtis as an alternative route. With parking along West Curtis, it becomes a one-car lane. At a minimum, Road B should be staggered to discourage driving straight across the existing 10th Avenue.

27-7 The current plan as it relates to our street is unacceptable and diminishes the quality of life and property value for existing long-time residents on 10th-11th Streets and West Curtis. The Section 7 Alternative Proposals with reduced commercial space are an improvement. However, we request consideration of an overpass along the mid-west side of the development to route vehicular traffic onto 4-lane Freeport Blvd and limit the 24th Street accesses to pedestrian and bicycle.

2) The plan does not consider parking impact on 10th and 11th Avenue that will likely result from parking deficiencies within the concentrated commercial area and residents at the south end of the new development.

27-8 a. With ingress/egress to the southeast housing and commercial area difficult and parking deficiencies, drivers will seek parking along 24th Street and on 10th Avenue. All current Curtis Park recreation facilities including playground, basketball and tennis courts are located at 10th Avenue/West Curtis leaving 10th Avenue to resemble a parking lot on weekends. What measures would be taken to prevent additional public parking on 10th Avenue?

Letter 27 Cont'd

27-9 b. The plan does not encourage bike and pedestrian access to the commercial area on the south end to lessen the need for vehicles and parking.

27-10 3) At the May 28 presentation, Mr. Petrovich mentioned plans for an artistic structure on the roundabout. We appreciate the artistic consideration, but his description of a locomotive structure for children to physically explore in a traffic roundabout would not be compatible use. "Green" with art works for us!

27-11 Attached are photos to further illustrate the above points. In closing, we appreciate the opportunity to review and comment on the proposed development. We thank you for considering our interests and we look forward to future collaboration toward acceptable solutions.

Teresa Montijo
2501 – 10th Avenue
Sacramento, CA 95818
(916) 653-4574

The following undersigned residents concur with these concerns and comments:

2500 10th Ave Sac 95818
2534 - 10th Ave 95818
2540 " " "
2525 10TH AVE 95818
2525 10th Ave 95818 news@harryj.org
2517 10th Ave 95818
2909 10th Ave Sac 95818 scottjohnson@sbcglobal.net
2509 10th Ave. Sac 95818 shirleharrington@hotmail.com
2511 Rounds Ave 95818 pearson-r@ecs.edu
2508-10th Ave 95818
2532 10th Ave 95818
2541 10th Ave Sac 95818

LETTER 27: TERESA MONTIJO, RESIDENT

Response to Comment 27-1

The comment is an introductory statement and does not address the adequacy of the DEIR.

Response to Comment 27-2

The majority of project-generated traffic is projected to travel via Road A to and from Sutterville Road. See Response to Comment 5-119.

Response to Comment 27-3

See Responses to Comments 5-119 and 5-121. The amount of project traffic that would use Curtis Park streets is disclosed in the DEIR. Traffic volumes and traffic was included in Appendix D of the DEIR.

Response to Comment 27-4

See Response to Comment 19-16.

Response to Comment 27-5

The removal of the traffic signal would reduce the potential for through traffic to use 24th Street hence diverting most of such traffic onto the proposed Road A, where a traffic signal will be installed at the intersection of Road A and Sutterville Road. Turning movement and traffic volume data was included in Appendix D of the DEIR.

Response to Comment 27-6

The December 2009 proposed project includes reconfiguration of the traffic roundabout and a direction connection to 10th Avenue. However, the cumulative traffic volume along 10th Avenue would 18 trips eastbound and 27 trips westbound. As stated in the October 2009 Traffic Memorandum (Appendix B of this FEIR, the intersection of Road A and 10th Avenue would operate at LOS A and LOS B. Therefore consistent with the conclusion in the DEIR, the impact to 10th Avenue would be less than significant.

Response to Comment 27-7

The comment does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

Response to Comment 27-8

A parking analysis for the currently proposed project was performed as a part of the traffic study and included in the Transportation and Circulation chapter, as well as in Appendix D of the DEIR.

The findings indicate that the proposed parking spaces would be adequate in meeting the parking demand of the proposed project for all land uses. Parking impacts on 10th and 11th Avenues are not anticipated.

Response to Comment 27-9

Bicycle and pedestrian access will be provided at 10th Avenue. Sidewalks will be provided throughout the project site, as required by City Code, and bicycle parking will also be provided, as required by City Code and as a condition of approval.

Response to Comment 27-10

Based on comments received from the general public, the modern roundabout has been eliminated from the proposed project.

Response to Comment 27-11

The comment does not address the adequacy of the EIR.

Letter 28

June 1, 2009

Ms. Jennifer Hageman, Senior Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811

Re: DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CURTIS PARK VILLAGE PROJECT (P04-109)

Dear Ms. Hageman:

28-1 I am writing to provide comments on the Draft Environmental Impact Report (DEIR) for the Curtis Park Village (CPV) Project. I am a resident of the Curtis Park neighborhood and consequently have a keen interest in the project.

28-2 In general, I am a supporter of the CPV Project. However, the design and orientation of Commercial Area #1 creates significant environmental impacts that are unmitigated, but could be feasibly avoided. The DEIR is flawed and should be rewritten to require that the project minimize or avoid such impacts. The DEIR is also flawed in failing to fully consider the Village Green Alternative.

28-3 As provided in CEQA Guidelines section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues. The City of Sacramento is the public agency responsible for reviewing site plans for the Curtis Park Village Project for compliance with CEQA, including applicable land use regulations and design guidelines. I am

28-4 requesting that the City conduct additional environmental review to fully consider the Village Green Alternative, or revise the CPV Project to ensure that it fully complies with all applicable land use, design guidelines, and other legal requirements.

28-5 The Commercial Area #1 is the dominant commercial area of the CPV Project in both size and location. It would sit on Sutterville Road and dominate the southern end of CPV, both inside and outside the project footprint. Commercial Area #1 would be a predominately retail use zone, and would allow for the development of approximately 160,000 square feet of retail uses. Area 1 would include neighborhood serving retail tenants that would also serve the surrounding neighborhoods, and, owing to its proximity to transit corridors, would serve all of near south Sacramento. Area 1 is the commercial anchor to the entire project, and its success and character will impact the greater Curtis Park, Land Park, Oak Park and surrounding areas more than any other segment of the CPV Project.

Letter 28 Cont'd

The DEIR Inadequately Analyzes Consistency of Commercial Area #1with Sacramento Land Use Policies.

According to the DEIR, the following goals and policies from the Sacramento 2030 General Plan are applicable to the land use analysis under CEQA:

Policy LU 2.1.2 Protect Established Neighborhoods. The City shall preserve, protect, and enhance established neighborhoods by providing sensitive transitions between these neighborhoods and adjoining areas, and requiring new development, both private and public, to respect and respond to those existing physical characteristics buildings, streetscapes, open spaces, and urban form that contribute to the overall character and livability of the neighborhood.

Policy LU 2.1.3 Complete and Well-Structured Neighborhoods. The City shall promote the design of complete and well structured neighborhoods whose physical layout and land use mix promote walking to services, biking, and transit use; foster community pride; enhance neighborhood identity; ensure public safety; are family-friendly and address the needs of all ages and abilities.

28-6

Policy LU 2.1.5 Neighborhood Enhancement. The City shall promote infill development, redevelopment, rehabilitation, and reuse efforts that contribute positively (e.g., architectural design) to existing neighborhoods and surrounding areas.

Policy LU 4.1.6 Neighborhood Transitions. The City shall provide for appropriate transitions between different land use and urban form designations along the alignment of alleys or rear lot lines and along street centerlines, in order to maintain consistent scale, form, and character on both sides of public streetscapes.

Goal LU 5.3 Traditional Centers. Promote traditional centers where people can shop and socialize within walking distance of surrounding neighborhoods.

Goal LU 2.4 City of Distinctive and Memorable Places. Promote community design that produces a distinctive, high-quality built environment whose forms and character reflect Sacramento's unique historic, environmental, and architectural context,

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Cont'd

28-6 cont.

and create memorable places that enrich community life.

Policy LU 2.4.1 Unique Sense of Place. The City shall promote quality site, architectural and landscape design that incorporates those qualities and characteristics that make Sacramento desirable and memorable including walkable blocks, distinctive parks and open spaces, tree-lined streets, and varied architectural styles.

Policy LU 2.4.2 Responsiveness to Context. The City shall promote building design that respects and responds to the local context, including use of local materials, responsiveness to Sacramento's climate, and consideration of cultural and historic context of Sacramento's neighborhoods and centers.

Goal LU 2.7 City Form and Structure. Require excellence in the design of the city's form and structure through development standards and clear design direction.

Policy LU 2.7.6 Walkable Blocks. The City shall require new development and redevelopment projects to create walkable, pedestrian scaled blocks, publicly-accessible mid-block pedestrian routes where appropriate, and sidewalks appropriately scaled for the anticipated pedestrian use.

Policy LU 2.7.7 Buildings that Engage the Street. The City shall require buildings to be oriented to and actively engage and complete the public realm through such features as building orientation, build-to and setback lines, façade articulation, ground-floor transparency, and location of parking.

Policy LU 2.7.8 Screening of Off-street Parking. The City shall reduce the visual prominence of parking within the public realm by requiring most off-street parking to be located behind or within structures or otherwise fully or partially screened from public view.

Goal LU 5.4 Regional Commercial Centers. Establish major mixed use activity centers through development and reinvestment in regional commercial centers that are vibrant, regionally-accessible destinations where people live, work, shop, and congregate in a mix of retail, employment, entertainment, and residential uses.

LU 5.4.2 Enhanced Design Character. The City shall encourage redevelopment of existing regional commercial centers into dynamic mixed-use centers by replacing surface parking

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Letter 28
Cont'd

with structured parking, replacing parking area drive aisles with pedestrian-friendly shopping streets, infilling parking areas with multi-story mixed-use buildings, and creating attractive, well-appointed streetscapes and plazas.

28-6 cont. All of the aforementioned land use goals and policies from the Sacramento 2030 General Plan have been cited by the DEIR as applicable to the land use analysis of the CPV Project under CEQA. Moreover, all of these goals and policies apply to Commercial Area #1 either because it is an integral part of the project or because these goals and policies call out requirements that apply directly to commercial centers. Nevertheless, the DEIR provides little or no specific analysis for how Commercial Area #1 complies with these goals and policies. 28-7 The analysis of the CPV Project for consistency with the Sacramento 2030 General Plan begins on page 4-10 and ends on page 4-12. 28-8 The analysis is little more than a page in length. However, the discussion shows very little thought devoted to the impacts of Commercial Area #1 on Curtis Park, Land Park, Oak Park, and the surrounding neighborhoods. Here are some excerpts:

> … Curtis Park Village includes … commercial services …
>
> … The commercial component would in turn provide necessary services and shopping opportunities for nearby residents as directed in Policy 4.1.2. 28-9
>
> … The area located within the Traditional Center designation would include … commercial uses. As proposed, the commercial portion would include a diversity of uses, would be served by transit, and include multiple cultural and entertainment options. In compliance with Goal LU 5.3 the proposed project would provide a center for shopping and socialization within walking distance of the surrounding neighborhoods.

Of the dozen or more goals and policies cited above, the DEIR cites only one, Goal LU 5, which encourages Traditional Centers within walking distance of surrounding neighborhoods. 28-10 Among other deficiencies, the DEIR says nothing about how Commercial Area #1 will provide a sensitive transition between the project and adjacent neighborhoods ((LU 2.1.2); 28-11 promote walking to services and use of public transit (LU 2.1.3); 28-12 contribute attractive architectural design to existing neighborhoods and surrounding areas (LU 2.1.5); 28-13 produce a distinctive environment and memorable places that enrich community life (LU 2.4); 28-14 promote architectural design that includes walkable blocks, tree-lined streets, and varied architectural styles (LU 2.4.1); 28-15 create walkable, pedestrian scaled blocks and sidewalks appropriately scaled for the anticipated pedestrian use (LU 2.7.6); orient buildings to actively engage the public realm (LU 2.7.7); reduce the visual prominence of parking within the public realm through parking located behind or within structures or otherwise fully or partially screened from public view; or, among other things, 28-16 create dynamic mixed-use centers by replacing surface parking with structured parking, and fostering pedestrian-friendly shopping streets.

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Cont'd**

In fact, Commercial Area #1 does none of these things because it is designed as a traditional shopping center with acres of surface parking in front of the major retail use. The large, concentrated parking area will provide an abrupt transition between the pedestrian life of Curtis Park to the east and most of the retail space on the west side. The big parking lots would blunt any attractive architectural designs of the commercial buildings with acres of black top just like Roseville Mall or Arden Fair Mall. Rather than promote walkable blocks or buildings that will engage the public realm the big parking lot will promote shoppers to drive and park closely to their favorite store. The acres of parking would increase the visual prominence of parking and negate pedestrian friendly shopping. In short, the design of Commercial Area #1 does just the opposite of what the Sacramento 2030 General Plan requires.

28-17

Neither is the design of Commercial Area #1 saved by a veneer of retail on the northeast and southest courners. As long as parking dominates the heart of this 17 acrea space Commerical Area #1 will operate like any other strip mall designed with perimeter shops around a central parking lot. This land use just encourages shoppers to drive up and park close to their shop of choice. Does the shopping center containing Norstrom Rack on Arden Way seem pedestrian friendly? Is the character of the R Street development at 19th Street changed because a Pete's coffee shop sits between the street and Safeway parking lot? Not at all. These developments are car-oriented and fundamentally at odds with the policies of the Sacramento 2030 General Plan to create and enhance pedestrian friendly neighborhoods.

28-18

This brief comment is not intended as an exhaustive list of the full extent of the deficiencies of the DEIR in analyzing the consistency of the CPV Project with the General Plan. It is meant as only a sample of the analytical shortfalls of the DEIR. It serves only to illustrate that the DEIR makes a series of conclusory and gratuitous statements about protecting the character and livability of the Curtis Park neighborhood and surrounding neighborhoods (see e.g., Land Use, page 4-10), but does not actually analyze the CPV Project with all of the goals and policies of the Sacramento 2030 General Plan. The residents of Curtis Park and Sacramento participated in numerous public meetings and worshops to develop the 2030 General Plan. Sacramentens have been clear that they want a more pedestrian-oriented city on the model of Portland or other well-planned municipalities. Thus, it is very disappointing to see a DEIR that has not adequately taken into account those desires and that apparently has given little more than lip service to them.

28-19

28-20

The DEIR does not analyze the impacts of the vast additions of vehicle-oriented shopping to what is one of the few, true pedestrian neighborhoods outside of Midtown Sacramento. The CPV Project should be enhancing and growing the pedestrian nature of Curtis Park with shops that draw pedestrians along tree lined streets that connect the neighborhoods of Curtis Park, Land Park, Oak Park and Sacramento City College together. Instead the CPV Project would create just another parking wasteland in the commercial heart of a project with great potential, and in dramatic contrast to Curtis Park. The DEIR is inadequate in its analysis of these impacts and should be revised.

28-21

28-22

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Letter 28 Cont'd

The DEIR Erroneously Concludes that Inadequate Parking is Less Than Significant.

Sacramento's Zoning Code requires adequate parking to support residential and commercial development. According to the DEIR, the peak parking demand for shared parking spaces at Curtis Park Village is 1,563 spaces, whereas the proposed parking supply, excluding that of the single-family homes, is 1,356 spaces. This difference amounts to a deficit of over 200 parking spaces, 92 of which are lacking in the commercial areas. Nevertheless, the DEIR simply concludes that the proposed parking supply is adequate and results in less than significant impacts. No analysis accompanies this conclusion. The shortfall in parking amounts to a significant impact. More parking should be provided to meet the commercial demands of the planned retail space. The best location for such parking would be underground or in a parking structure between the retail space and the railroad right-of-way. The DEIR is deficient in proposing adequate mitigation for this significant impact.

28-23
28-24
28-25
28-26

Air Quality Impacts from Vehicle Exhausts Are Not Adequately Mitigated.

Section 5.3-5 of the DEIR states that the proposed project would result in the development of commercial and office uses that would generate emissions of ozone-precursor pollutants (i.e., ROG and NOX). The predicted operational emissions are 160.5 lbs/day of ROG and 135 lbs/day of NOX, both of which exceed the SMAQMD significance thresholds of 65 lbs/day. The DEIR concludes that this impact, which results almost exclusively from vehicle exhausts, would be significant. However, the DEIR proposes only half measures in an Air Quality Management Plan (AQMP) that would have a minimum of 15 percent reduction of ROG and NOX emissions. The DEIR acknowledges that this mitigation is inadequate and would still result in regional air quality impacts that would be ***significant and unavoidable***. The DEIR offers no explanation for why these impacts are "unavoidable."

28-27

Air quality in the Sacramento air basin suffers from high levels of ozone. New studies by the U.S. EPA have linked chronic ozone exposure to reduced life span and will likely lead to even stricter NAAQS for ozone and ozone procurers in the future. Simply stating in the DEIR that the project will violate current ROG and NOX standards by two times the limit or more, with the threat of even greater health effects, directly threatens the health and welfare of local residents and future CPV users. The proposed mitigation of violations of SMAQMD air quality standards is inadequate and illustrates that the proposed project does not avoid or minimize environmental damage where feasible. The City should explore a revision to the project that relies more on pedestrian access than upon vehicle trips.

28-28

The DEIR Incorrectly Dropped the Village Green Alternative from Consideration

Pursuant to CEQA Guidelines section 15126.6, the EIR should study a reasonable range of alternatives to the proposed project that meet most of the objectives of the project and avoid or substantially lessen one or more of the significant environmental impacts. Among the factors to consider in eliminating alternatives are 1) failure to meet

28-29

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Letter 28 Cont'd

most of the project objectives; 2) infeasibility; or 3) inability to avoid significant environmental impacts.

Six alternatives were evaluated in the EIR. One alternative that was dismissed was the Village Green Alternative. The purpose of this alternative was to create a more human scale environment with activities centered on a village green as a means of reducing the emphasis on the automobile and the visual impacts of parking lots. The Village Green Alternative was proposed during community consultation. Overall, the Village Green Alternative would have resulted in the construction of 126,000 square feet of commercial space and 602 residential units. By comparison, the proposed project includes approximately 260,000 square feet of commercial uses and 470 residential units.

28-29 cont.

With respect to the other alternatives included in this DEIR, the Village Green Alternative uses are "substantially similar" to Reduced Commercial Alternative A, though Reduced Commercial Alternative A would have slightly more commercial space and fewer residential units. In addition, Reduced Commercial Alternative B would contain less commercial space than the Village Green Alternative, and has fewer residential units. The Multi-Family Alternative assesses a similar number of residential units, 545 versus 602 for the Village Green Alternative, while including a larger commercial area. In addition, the Village Green Alternative would require additional park space based on an increase in the number of units. None of the alternatives would include as many residential units as the Village Green Alternative, although the difference in the number of residential units between the Multi-Family Alternative and the Village Green Alternative was relatively small. Apparently, the Village Green Alternative was dismissed not because it failed to meet most project objectives, or that it was infeasible, but because the environmental impact from the small number of additional parking spaces would not reduce impacts to a greater extent than the alternatives included in the analysis, including the Multi-Family Alternative.

28-30

The Village Green Alternative is a reasonable alternative. It meets the land use goals and policies better than the proposed project or any alternatives kept in the DEIR. It reduces the environmental impacts of the project by reducing the traffic impacts of a larger commercial center and by creating a walkable, attractive neighborhood. The DEIR offers no reasons why the Village Green Alternative was not anticipated to reduce environmental impacts but only the conclusion that it would not. Therefore, the DEIR is deficient and should be revised to include a thorough analysis of the Village Green Alternative.

28-31

The CPV Project offers a unique opportunity to create a truly attractive new urban center of the kind that have envigorated Portland, OR, Baltimore, MD, Pittsburg, PA and other American cities. Sacramento is desperately in need of such pedestrian-friendly neighborhoods with character and charm. If this project were to succeed in this way it could revitalize all of near-south Sacramento by connecting Curtis Park and Oak Park with Land Park and the Sacramento City College campus. The CPV Project as proposed, and particularly Commercial Area #1, fails to create the attractive urban space as the

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Letter 28
Cont'd

28-31 cont. nucleus for such development. The project should be revised and mitigated to meet this need.

Thank you for seriously onsidering these comments.

Sincerely yours,

Wm. W. Westerfield

William W. Westerfield
2716 9th Avenue
Sacramento

Postscript:

28-32 • **The EIR should analyze how the project can be designed for efficient and effective pedestrian circulation with an emphasis on providing maximum access to streets with transit routes and to nearby light rail stations.**

28-33 • **The EIR should study all options for minimizing parking impacts including options for parking behind the retail centers.**

28-34 • **Study options for encouraging pedestrian access to the retail using walkways that connect storefronts and using recessed parking.**

28-35 These additional bulleted requirements, not addressed in my principal comments above, are germane to the DEIR. The DEIR does not adequately analyze efficient and effective pedestrian circulation, options for minimizing parking behind (and to the West) of planned retail in Commercial Area #1, or options to encourage walkways to connect storefronts and use of recessed parking. The DEIR should study how the Village Green Alternative minimizes these parking impacts. I believe that this alternative avoids or minimizes these parking impacts of Commercial Area #1 better than the proposed project or any alternative of the DEIR.

28-36

28-37

- WWW

LETTER 28: WILLIAM WESTERFIELD, RESIDENT

Response to Comment 28-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 28-2

The comment is an introductory statement and does not identify specific concerns.

Response to Comment 28-3

The comment correctly identifies the City as the Lead Agency.

Response to Comment 28-4

Upon approval of the project, which includes a General Plan Amendment, the project would be consistent with the City of Sacramento General Plan and other standards, as noted in the Chapter 4 of the DEIR, Land Use.

Response to Comment 28-5

See Response to Comment 5-22. The comment is a summary statement and does not address the adequacy of the EIR.

Response to Comment 28-6

The commenter lists applicable policies from the DEIR and notes that the commercial portion of the project requires compliance. The comment does not address the adequacy of the DEIR.

Response to Comment 28-7

The Curtis Park Village PUD is subject to a Planning Director Plan review to ensure conformance with the PUD Schematic Plan and Design Guidelines. While the project would require approval of a General Plan Amendment, the project will be required to be consistent with the goals and policies in the 2030 General Plan. For clarification purposes, the proposed project's consistency with the 2030 General Plan policies is discussed in greater detail below:

Policy LU 2.1.2	The proposed project includes a buffer of single-family residential (Cottage infill and Brownstone) units and senior units between the commercial portions of the project site. In addition, as noted in Chapter 1, Introduction, of the FEIR, the senior residential units were moved south to be adjacent to the proposed

	cottage infill. The proposed project includes 6.8-acre park and various commercial uses to serve the surrounding community. The Curtis Park Village design guidelines include building design principles to ensure continuity with the surrounding neighborhood.
Policy LU 2.1.3	The proposed project includes signed bicycle lanes located along Road A and Road C within the commercial zone per City of Sacramento Standards. In addition, all public streets shall have sidewalks on both sides of the street. The roundabout will calm traffic, allow for an unsignalized intersection, and provide safety for pedestrian and bicycles.
Policy LU 2.1.5	The proposed project is an infill development and includes a variety of uses including, single-family residential, multi-family residential, senior residential, and a variety of commercial uses to serve the surrounding community. In addition, the project includes the development of a 6.8-acre park.
Policy LU 4.1.6	See Response to Policy LU 2.1.2.
Goal LU 5.3	The proposed project traditional center commercial is located near light rail transit and is within walking/biking distance of the surrounding community and Sacramento City College.
Goal LU 2.4	The Curtis Park Village Design Guidelines include building design principles that require a connection or harmony among buildings in form, scale, and proportions. In addition, the architectural character of each building will consider the building type, materials, form and design of other building in the neighborhood.
Policy LU 2.4.1	See Response to Goal LU 2.4.
Policy LU 2.4.2	See Response to Goal LU 2.4
Policy LU 2.7	As stated above, the proposed project includes Design Guidelines that would be subject to Planning Director review.
Policy LU 2.7.6	All streets include sidewalks on both sides. Where feasible, the project shall include separate sidewalks from streets using bollards, parked cars, and/or street trees to provide a sense of protection for the pedestrian per City of Sacramento Standards.

Policy LU 2.7.7	The proposed project would be required to comply with PUD Design Guidelines: Pattern Book that would govern architecture and landscape features.
Policy LU 2.7.8	The proposed project includes a landscape plan which would provide screening for off-street parking.
Goal LU 5.4	The proposed project includes a mix of retail and commercial development.
Policy LU 5.4.2	See Response to Goal LU 5.4

The above discussion is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 28-8

The comment is in regard to the length of the Sacramento 2030 General Plan consistency discussion and does not address the adequacy of the EIR.

Response to Comment 28-9

See Response to Comment 28-7.

Response to Comment 28-10

See Response to Comment 28-7.

Response to Comment 28-11

See Response to Comment 28-7.

Response to Comment 28-12

See Response to Comment 28-7.

Response to Comment 28-13

See Response to Comment 28-7.

Response to Comment 28-14

See Response to Comment 28-7.

Response to Comment 28-15

See Response to Comment 28-7.

Response to Comment 28-16

See Response to Comment 28-7.

Response to Comment 28-17

The comment addresses the project layout and will be forwarded to decision-makers for their consideration.

Response to Comment 28-18

The comment discusses the layout of other shopping centers and does not address the adequacy of the EIR.

Response to Comment 28-19

The DEIR discussion complies with Section 15125(d) of the CEQA Guidelines.

Response to Comment 28-20

The comment will be forwarded to the decision-makers for their consideration.

Response to Comment 28-21

The impacts to traffic, including pedestrian impacts, are addressed in Chapter 5.2. The air quality and noise impacts are addressed in Chapter 5.3 and 5.4, respectively.

Response to Comment 28-22

The comment addresses project design and will be forwarded to the decision-makers for their consideration.

Response to Comment 28-23

A shared parking analysis was performed for the project as currently proposed and is provided in Appendix D. The analysis has shown that the peak parking demand for shared parking spaces at Curtis Park Village is 1,182 spaces, excluding demand from single-family homes. As the project is proposed to provide 1,356 spaces for non-single family uses, the project's impact would be less-than-significant. This information is incorrectly reflected in the text of the DEIR. The first paragraph on Page 5.2-45 is revised to read:

> The findings indicate that the peak parking demand for shared parking spaces at Curtis Park Village is 1,~~563~~182 spaces and would occur between 7:00 pm and 8:00 pm on a typical December weekend evening. This does not include the parking demand from the single-family homes as their requirements are assumed to be fulfilled by the individual garage provided for each unit.

The above text revision is for clarification purposes and does not alter the conclusions in the DEIR.

Response to Comment 28-24

See Response to Comment 28-23.

Response to Comment 28-25

See Response to Comment 28-23.

Response to Comment 28-26

See Response to Comment 28-23. Because adequate parking is provided, the impact is less-than-significant and no mitigation is required.

Response to Comment 28-27

As stated on page 5.3-15 of the DEIR, the proposed project would result in total predicted emissions that would exceed the SMAQMD threshold. Implementation of mitigation measures would have a minimum overall reduction of 15 percent in the project's anticipated operation missions, as recommended by SMAQMD. In addition, Mitigation Measure 5.3-5(a) states that available mitigation measures include the listed mitigation, but are not limited to only the mitigation listed. All *feasible* mitigation measures have been required; however, as noted in the DEIR, after implementation of all *feasible* mitigation measures, the project's emissions would still remain above SMAQMD thresholds. Therefore, a significant and unavoidable impact is identified.

Response to Comment 28-28

See Response to Comment 28-27. The comment suggests a revised design and will be forwarded to the decision-makers for their consideration.

Response to Comment 28-29

See Responses to Comments 5-17, 5-22, and 5-25. As stated in Response to Comment 5-22, the Village Green Alternative was dismissed from consideration because the Alternative is not anticipated to reduce environmental impacts that would result from implementation of the proposed project. Furthermore, the Village Green Alternative would not reduce impacts to a greater extent than the alternatives that were analyzed in the DEIR, and could actually increase impacts as a result of the high number of residential units included in the Alternative. In fact, as stated on page 7-4 of the DEIR, Table 5.2-10 in the Transportation and Circulation chapter of the DEIR indicated that the

mix of commercial uses included in the proposed project would result in traffic throughout the day, whereas residential traffic typically is concentrated at the peak morning and evening commute hours. Therefore, the substantial number of additional residential units included in the Village Green Alternative would result in greater impacts to traffic. Therefore, the Village Green Alternative was not dismissed merely because environmental impacts would not be reduced under the alternative, but because the alternative would potentially increase environmental impacts.

Response to Comment 28-30

See Responses to Comments 5-17, 5-22, and 5-25.

Response to Comment 28-31

The comment addresses the merits of the proposed project and will be forwarded to the decision-makers for their consideration.

Response to Comment 28-32

See Chapter 5.2 of the DEIR (pages 5.2-41 and 5.2-42) for an analysis of the pedestrian and transit impacts of the proposed project.

Response to Comment 28-33

As stated in Response to Comment 28-23, the project's proposed 1,356 parking spaces for non-single family use would be greater than the peak parking demand of 1,182 spaces. Therefore, consistent with the conclusion in the DEIR, the impact related to parking would be less-than-significant and mitigation is not required. The comment regarding project design will be forwarded to the decision-makers for their consideration.

Response to Comment 28-34

See Response to Comment 28-32.

Response to Comment 28-35

See Responses to Comments 28-23 and 28-32.

Response to Comment 28-36

See Response to Comment 28-23.

Response to Comment 28-37

The comment will be forwarded to the decision-makers for their consideration.

Letter 29

FW CPV DEIR Comments.txt
>>> "Renner Johnston" <rjohnston@mognot.com> 06/01/2009 4:55 PM >>>
Jennifer:

A few comments to add to the Curtis Park Village DEIR Comments.

29-1 I have reviewed the DEIR comments from SCNA and generally agree with them. I add a few points that might have not been covered.

29-2 Not having clear alternatives for the amount of commercial on site appears incorrect. When reviewing the alternatives on traffic flow 5.2, it appears that only alternative "scenarios" of minor connection changes (5th Ave and 10th Ave connections) are considered, but not the alternatives of significant commercial square footages. Because the commercial areas are the biggest traffic generators this seems like a missing important piece. The smaller commercial options should be added to the EIR study.

29-3 Not taking the 21st street conversion into consideration, now constructed for some time, is clearly inadequate. This conversion made many changes to the driving patterns of the neighborhood. Northbound 21st street is now bumper to bumper in the mornings, something that never occurred before the conversion.

29-4 24th Street north of the project: The removing the jog in 24th street and removing a stop sign at Portola may improve auto flow, but it certainly encourages auto speed to increase. This high speed in a narrow street will impact pedestrians negatively. It appears that the traffic volume to be added to the street is about 60%. Auto speed will clearly increase on 24th without the stop sign, making pedestrian and bike crossings more dangerous near Marshall and Portola. 24th is cited as an important bike route to and from the project.

29-5 A mitigation of traffic calming and reduction of commercial space should be required to reduce speed and improve pedestrians us is important.

29-6 24th Street and the Society for the Blind - not mentioned in the DEIR.
The added speed and volume on 24th street will make the pedestrian crossings more dangerous the bus stop for the Society near Castro. Every day blind people cross 24th street hoping that no one will hit them trying to cross to the northbound bus. It is a dangerous situation now - and frightening to watch. Adding a ped crossing light at Castro and ped island would be a reasonable solution.

29-7 DMV campus crossing. Already a traffic guard is needed to deal with the speed designed street at the campus crossing. A pedestrian island here and narrowing lanes would be a helpful mitigation. This crossing is not discussed in the DEIR.

Renner Johnston
2324 Marshall Way
Sacramento, CA
95818

Page 1

LETTER 29: RENNER JOHNSTON, RESIDENT

Response to Comment 29-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 29-2

As shown on page 7-7 of the DEIR, the EIR considered five alternatives, including two reduced commercial alternatives and two alternatives without commercial.

Response to Comment 29-3

See Responses to Comments 5-33 and 5-107.

Response to Comment 29-4

The daily traffic volume on 24th Street between Portola and Marshall Way is currently 3,685 vehicles and the proposed project scenarios would increase the volume to between 5,288 and 5,296 vehicles. This increase would be approximately 44 percent. Please see Responses to Comment 1-8 and 5-130 for a discussion of traffic operations and safety on 24th Street.

Response to Comment 29-5

The amount of commercial space is not directly related to pedestrian safety. See Response to Comment 5-122.

Response to Comment 29-6

See Response to Comment 5-130 and Response to Verbal Comment 1-8.

Response to Comment 29-7

The design elements at the DMV campus crossing would exist with or without the proposed project and the project is not expected to result in a significant impact at this location.

Letter 30

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

June 2, 2009

Jennifer Hageman
City of Sacramento
300 Richards Boulevard
Sacramento, CA 95811

Subject: Curtis Park Village (P04-109)
SCH#: 2004082020

Dear Jennifer Hageman:

30-1

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on June 1, 2009, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

**Letter 30
Cont'd**

Document Details Report
State Clearinghouse Data Base

SCH#	2004082020
Project Title	Curtis Park Village (P04-109)
Lead Agency	Sacramento, City of
Type	**EIR** Draft EIR
Description	NOTE: Extended Review to June 1, 2009 The proposed project would convert the existing 72 acre project site into a mixed-use, urban infill development. Curtis Park Village, as proposed, would be one of Sacramento City's largest infill projects. The intent of the project is to create a neighborhood consisting of single-family home sites, multi-family and senior multi-family residential complexes, a neighborhood park area, and neighborhood-serving retail and commercial development areas. The proposed project includes ~260,000 sf of commercial retail, 178 single-family home sites, and 80 unit senior multi-family housing complex, a 212 unit multi-family residential housing complex, and an 8.7 acres (6.8 net acres) park

Lead Agency Contact

Name	Jennifer Hageman
Agency	City of Sacramento
Phone	916-808-5538 ***Fax***
email	
Address	300 Richards Boulevard
City	Sacramento ***State*** CA ***Zip*** 95811

Project Location

County	Sacramento
City	Sacramento
Region	
Lat / Long	38° 32' 43.5" N / 121° 29' 3.65" W
Cross Streets	Sutterville Road, Portola Way and 24th Street
Parcel No.	013-0010-008, 009, 021 thru 028; 013-0062-001, 002
Township	8N ***Range*** 4E ***Section*** 13 ***Base*** MDB&M

Proximity to:

Highways	I-80, I-5, SR 99
Airports	Sacramento Executive
Railways	Union Pacific
Waterways	Sacramento River
Schools	McClatchy High,SCC,New Technology HS, Sutter MS,CA MS,CBHS
Land Use	Traditional Neighborhood Low Density, Traditonal Neighborhood High Density, Traditional Center, Opportunity Area

Project Issues	Aesthetic/Visual; Agricultural Land; Air Quality; Biological Resources; Archaeologic-Historic; Cumulative Effects; Drainage/Absorption; Economics/Jobs; Flood Plain/Flooding; Geologic/Seismic; Landuse; Growth Inducing; Minerals; Noise; Other Issues; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian
Reviewing Agencies	Resources Agency; Department of Fish and Game, Region 2; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 3; Regional Water Quality Control Bd., Region 5 (Sacramento); Department of Toxic Substances Control; Native American Heritage Commission; Public Utilities Commission; State Lands Commission

Note: Blanks in data fields result from insufficient information provided by lead agency.

Letter 30
Cont'd

Document Details Report
State Clearinghouse Data Base

Date Received 04/01/2009 Start of Review 04/01/2009 End of Review 05/01/2009

Note: Blanks in data fields result from insufficient information provided by lead agency.

LETTER 30: TERRY ROBERTS, DIRECTOR, STATE CLEARINGHOUSE

Response to Comment 30-1

The comment does not address the adequacy of the EIR.

3.2 RESPONSES TO LATE COMMENTS

3.2 RESPONSES TO LATE COMMENTS

This chapter includes responses to each of the two late comment letters received on the Curtis Park Village DEIR.

The following is an index of the commenters and corresponding responses.

Sacramento Audubon Society
P. O. Box 160694, Sacramento, CA 95816-0694

Letter 31

June 12, 2009

Jennifer Hageman, Senior Planner
City of Sacramento
Development Services Department
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

Re: DEIR Comments for Curtis Park Village project regarding Purple Martins

Dear Ms. Forest:

31-1 Sacramento Audubon Society offers the following comments on the draft Environmental Impact Report (DEIR) prepared for the proposed Curtis Park Village project. Sacramento Audubon has over 2,500 members in the Sacramento area. Sacramento Audubon is a founding member of Habitat 2020, a coalition of local environmental organizations that is dedicated to defending and restoring species of concern and their obligate habitats in the Sacramento region. Sacramento Audubon Society is also an active member of the Environmental Council of Sacramento ("ECOS").

31-2 Sacramento Audubon submitted a three-page letter outlining numerous issues regarding the potential effects of the Curtis Park Village project on the Purple Martin (*Progne subis*), a species identified as a California Species of Special Concern, which has been eliminated from practically its entire former range in California's Central Valley, primarily due to the historical conversion of its native habitat for urban and agricultural uses, followed by competition with the non-native European starling for remaining, adaptive habitats. As our letter noted, the population is maintained precariously within the City of Sacramento. The 2008 census identified only 83 nesting pairs at 11 distinct colonies within highway bridge structures, all located within the City of Sacramento's city limits. The population has declined by 52% between 2004-2008 (Airola et al. 2008) and preliminary estimates from ongoing surveys suggest a further decline of at least 20% between 2008 and 2009. The major threat to the species is vehicle collisions from intensified traffic volumes and light rail traffic near remaining colonies, and degradation of habitat conditions as a result of ongoing infrastructure and redevelopment projects within the City of Sacramento.

31-3 Our scoping letter detailed numerous issues that we requested that the DEIR address regarding project impacts on the Purple Martin. As is typical of all recent environmental documents prepared by the City for projects where Purple Martins are present, the issues have not been addressed. In fact this DEIR sets a new low. It appears that the EIR preparers did not read our letter, as they continue to perpetuate misinformation about the biology and status of the species (e.g., suggesting that martins nest in trees, which has not been documented on the floor of the Central Valley in over 30 years). More importantly, the DEIR does not address, in any form, the serious project issues we identified, including the following:

Letter 31
Cont'd.

31-4 • Construction impacts associated with any changes to the Sutterville bridge or lands beneath it or adjacent to it;

31-5 • Loss or impairment of perching habitat on wires and light poles adjacent to the bridge;

31-6 • Loss or impairment of sites for collection of nesting material;

31-7 • Loss or impairment of insect food sources from conversion of wetlands onsite;

31-8 • Adverse effects of proposed buildings on flight access to the bridge nesting sites and foraging space;

31-9 • Traffic increases and resulting potential for increased vehicle collision mortality; and

31-10 • Increased nest site competition with European Starlings as a result of creation of enhanced starling foraging habitat (turf areas and planting of fruiting trees and shrubs).

Based on review of recent project proposals presented by the project proponent and the City at a neighborhood meeting, we believe that several issues should receive intensive focus in further environmental analysis and project design.

31-11 We continue to be extremely concerned and frustrated by the City's continued pattern of ignoring our issues and the readily available information regarding the habitat needs and precarious status of the Purple Martin and continued inadequate analysis of impacts of projects. It should not be left to us to continually have to identify issues, conduct environmental analysis, and propose mitigation. Rather the City should commit to contracting with qualified individuals who understand the biology and conservation needs of Purple Martins in Sacramento.

We respectfully request that the City thoroughly address these issues

31-12 One of the City of Sacramento's few, remaining purple martin colonies nests in the Sutterville overpass, adjacent to the proposed Curtis Park Village project site. This colony has supported 4-8 nesting pairs annually since 2002, representing a significant portion (3-7%) of the City of Sacramento's remnant population. The Curtis Park Village project may have potentially significant, direct adverse impacts to this colony of purple martins, and, by extension, may also result in cumulatively considerable, significant, adverse impacts to the species, which may lead to the extirpation of purple martins from the entire Central Valley.

31-13 A substantial amount of research on the biology and management of the City of Sacramento's purple martins has been conducted by Mr. Dan Airola, a Sacramento Audubon Society member and expert on the species, over the last 15 years, which is enclosed with this comment letter, and which we hereby incorporate, in its entirety, into the City's record of proceedings for the proposed Curtis Park Village project. The EIR preparers should familiarize themselves with this literature and contact Mr. Airola for information on site-specific impacts that the proposed Curtis Park Village project poses to the Sutterville overpass purple martin colony.

Letter 31
Cont'd.

Sacramento Audubon Society specifically requests that, at a minimum, the City of Sacramento prepare and recirculate a partial revision of the Draft EIR for the proposed Curtis Park Village project to consider and incorporate alternatives or measures that would avoid the following, potentially significant, adverse impacts to the City of Sacramento's Sutterville overpass purple martin colony:

- Construction impacts associated with any changes to the Sutterville bridge or lands beneath it or adjacent to it;
- Loss or impairment of perching habitat on wires and light poles adjacent to the bridge;
- Loss or impairment of sites for collection of nesting material;

31-14

- Loss or impairment of insect food sources from conversion of wetlands onsite;
- Adverse effects of proposed buildings on flight access to the bridge nesting sites and foraging space;
- Traffic increases and resulting potential for increased vehicle collision mortality; and
- Increased nest site competition with European Starlings as a result of creation of enhanced starling foraging habitat (turf areas and planting of fruiting trees and shrubs).

The project EIR also should address and avoid the potential cumulative impacts of this project and at least 6 other ongoing or proposed project at other sites in the City that support 70% of the current Sacramento nesting population of purple martins (Airola et al. 2008):

- the Downtown Railyard project;
- CalTrans' I-80 Across-the-top project;

31-15

- Catholic Health West's construction of a parking lot at 29th and "S" Streets;
- The City's rehabilitation of a parking lot at 19th and "W" Streets; and
- Two planning areas located north and south of Highway 50 near 65th Street and Redding Road.

31-16

If the direct effects of Curtis Park Village project, and its cumulatively considerable impacts in conjunction with the above-mentioned projects, cannot be avoided, the EIR should, at a minimum, investigate and incorporate feasible mitigation measures to fully offset such impacts. Feasible mitigation measures that can and should be incorporated into the proposed Curtis Park Village's project design to offset such impacts include, but are not limited to, providing replacement and additional perch sites (to discourage use of light rail conductors, which can result in collisions with trains), compatible management of nearby areas for collection of nesting

Letter 31
Cont'd.

31-16 cont. materials, discouragement landscape design that would increase competition by European starlings, and provision of artificial nest sites.

31-17 If the Sutterville overpass purple martin colony cannot feasibly be protected onsite, the EIR should specify feasible offsite mitigation measures. These measures include, but are not limited to, 1) protection and enhancement of other nesting colonies, 2) providing support for the maintenance and expansion of Sacramento Audubon Society's current, ongoing pilot program to induce purple martins to use nest boxes in areas that are not presently threatened by the City's current and ongoing infrastructure and redevelopment projects, and 3) a firm commitment by the City to develop and implement a time-specific and fully funded set of comprehensive planning and recovery guidelines for purple martins within the Sacramento region.

31-18 As mandated by CEQA, enforceable monitoring of avoidance or mitigation measures for purple martin populations and their habitats, supported by a defined and adequate source of operational funding, must be incorporated into the CEQA mitigation monitoring and reporting plan for the proposed Curtis Park Village project, to ensure that any adopted avoidance or mitigation measures will actually be fully implemented. Such monitoring commitments must also include provisions to ensure that the City will evaluate the effectiveness of adopted measures, and make adaptive changes as may be necessary to ensure the continued viability and recovery of the City's purple martin populations.

31-19 Sacramento Audubon Society thanks the City of Sacramento for the opportunity to provide these comments regarding the proposed Curtis Park Village project's potentially significant, adverse, direct and cumulative impacts to purple martin colonies within the City of Sacramento, and looks forward to the City's adoption of measures to avoid or fully mitigate such impacts before taking any action to approve the proposed project.

Sincerely,

Keith G. Wagner

Keith G. Wagner, Attorney at Law and
President, Sacramento Audubon Society

Literature Cited

Airola, D. A. and D. Kopp. 2007. Breeding population status and mortality assessment of Purple Martins in Sacramento during 2006. Central Valley Bird Club Bulletin 10:34-44.

Airola, D. A., D. Kopp, and K. Thomas. 2008. Breeding population status, reproductive success, and mortality of Purple Martins in Sacramento in 2007. Central Valley Bird Club Bulletin 11(2)

Letter 31
Cont'd.

Airola, D.A. and B.D.C. Williams 2008. Purple Martin (*Progne subis*). *In:* California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. W. D. Shuford and T. Gardali (editors). Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA and California Department of Fish and Game, Sacramento, CA.

LETTER 31: KEITH G. WAGNER, SACRAMENTO AUDUBON SOCIETY

Response to Comment 31-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 31-2

The paragraph is a general comment. See responses to comments below.

Response to Comment 31-3

The paragraph is a general comment on the approach to analyses of potential impacts on Purple Martins for other environmental analyses in the City.

The text on page 5.5-11 of the DEIR is revised as follows to acknowledge the nesting habitat of purple martins.

According to the CNDDB search performed in May 2008, Purple Martins have occurred five times within a 1.5 mile vicinity of the project site. Purple Martins can nest in tall, isolated trees or snags, which occur on the project site, and are usually found underneath bridge structures in the Sacramento area.

Response to Comment 31-4

The project does not propose improvements to the overcrossing of the railroad tracks on Sutterville Road, west of the project site, nor is construction proposed beneath the bridge. Therefore, the bridge where the colony nests will not be disturbed as a result of update to the RAP or construction of the Curtis Park Village project. Construction of site features could occur as close as the toe of the slope of the bridge embankment, which forms the southern boundary of the project site. The project does not currently include site plans, so it is not possible to determine how close, and what type of, construction could occur near the bridge.

In response to the commenter's concerns, the following mitigation measure is hereby added to page 5.5-19 of the DEIR in order to reduce the potential impacts to nesting purple martins resulting from the construction of Curtis Park Village project. This mitigation was developed for the Railyards Specific Plan in consultation with the commenter. As noted, implementation of this mitigation measure would reduce the impacts to a less-than-significant level.

5.5.4(b) Prior to any grading or construction activities from March 15 to May 15 within 100 feet of the overcrossing of the railroad tracks on Sutterville Road, adjacent to the project site, a preconstruction survey shall be conducted by a qualified biologist within 15 days of the start of project-related activities. If active nests are present in the overcrossing, no construction shall be conducted within 100 feet of the edge of the purple martin colony (as demarcated by the

active nest hole closest to the construction activity) at the beginning of the purple martin breeding season from March 15 to May 15. The buffer area shall be avoided to prevent disturbance to the nest(s) until it is no longer active. The size of the buffer area may be adjusted if a qualified biologist and CEFG determine it would not be likely to have adverse effects on the purple martins. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest(s) is no longer active.

Response to Comment 31-5

As noted in Response to Comment 31-4, the project does not propose improvements to the bridge. Therefore, the proposed project would not result in the loss or impairment of perching habitat on wires and light poles adjacent to the bridge.

Response to Comment 31-6

The site is currently impaired for the collection of nesting materials due to the ongoing remediation activities of toxic soils over the majority of the site. The ability for groundcover to become established is compromised by the on-going remediation activities and associated ground disturbances. In addition, existing ground cover is removed during remediation. Although the proposed project would result in development of the site, park and open space areas, totaling approximately 8 net acres in addition to an open space greenbelt in the northern portion of the project site are proposed. These areas would provide landscaping that would provide nesting material for the Purple Martins.

Response to Comment 31-7

As noted on Page 5.5-1 of the DEIR, jurisdictional waters (such as wetlands) are not considered an issue for the proposed project site. The depressions that contain water through the dry season are associated with the remediation activities associated with the toxic cleanup (Page 5.5-1 of the DEIR).and are; therefore, considered temporary.

Response to Comment 31-8

The proposed project is located northeast of the Sutterville Road railroad overcrossing. The location, height, and size of buildings on the southern-most parcel of Curtis Park Village are not currently known. However, given the flat topography in the area; the fact that the area around the railroad overcrossing is built out, with the exception of this site; and the fact that the bridge is over multiple railroad tracks, which provides a long, open corridor for the birds, it is not anticipated that access to the nesting area would be substantially different from its current state.

Response to Comment 31-9

Although the development of the Curtis Park Village project would result in increased automobile traffic on Sutterville Road at the railroad overcrossing, there is currently approximately 29,000 average daily traffic using the overcrossing (Table 5.2-7,page 5.2-20 of the DEIR), so the development of Curtis Park Village would not result in a significantly changed condition for the birds. Sutterville Road would remain a heavily travelled street.

Response to Comment 31-10

See Response to Comment 31-6.

Response to Comment 31-11

The comment refers to previous projects in the City and does not address the adequacy of the EIR.

Response to Comment 31-12

See Responses to Comments 31-4 through 31-10.

Response to Comment 31-13

The comment does not address the adequacy of the DEIR.

Response to Comment 31-14

See Responses to Comments 31-4 through 31-10.

Response to Comment 31-15

The issue of cumulative impacts of development in the City on special-status birds was analyzed in the MEIR (see page 6.3-36) and in the DEIR for the Curtis Park Village project on page 5.5-20. The cumulative impact was determined to be significant and unavoidable in the MEIR due to the permanent loss of habitat. The DEIR determined that the cumulative impact was less than significant because the project would be required to participate in mitigation plans for special-status species and subject to the policies and mitigation measures in the MEIR.

Response to Comment 31-16

As noted in Responses to Comments 31-4 and 31-5, the proposed project would not disturb perch sites, nor would it remove or disturb existing nest sites.

The request that the project manage nearby areas for collection of nesting materials and discourage landscape designs that would increase competition by European starlings will be passed on to the decision makers during approval of the project.

Response to Comment 31-17

As noted in Response to Comment 31-4, the proposed project would not remove existing nest sites. No improvements to the Sutterville Road overpass are proposed.

Response to Comment 31-18

See Responses to Comments 31-4 through 31-17. The EIR requires Mitigation Measure 5.5-4(a) (See page 5.5-19 of the DEIR) and Mitigation Measure 5.5-4(b) (See above) to address potential impacts to raptors and migratory birds (including Purple Martins). If approved, this mitigation would be included in the Mitigation Monitoring Program for the Curtis Park Village project, which is enforced by the City.

The evaluation of the effectiveness of the mitigation measure as it relates specifically to Purple Martins is beyond the responsibility of the Curtis Park Village project. The comment will be passed on to the decision makers during approval of the project.

Response to Comment 31-19

The comment is a concluding statement and does not address the adequacy of the EIR.

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 3 – SACRAMENTO AREA OFFICE
2800 GATEWAY OAKS DRIVE (MS19)
SACRAMENTO, CA 95833
PHONE (916) 274-0635
FAX (916) 263-1796
TTY 711

Letter 32

Flex your power!
Be energy efficient!

June 15, 2009

03-2009-SAC-0021
03-SAC-99 PM 23.128
Curtis Park Village
Draft Environmental Impact Report (DEIR)
SCH#: 200482020

Ms. Jennifer Hageman
City of Sacramento
300 Richards Blvd., 3rd Floor
Sacramento, CA 95811

Dear Ms. Hageman:

Thank you for the opportunity to review and comment on Curtis Park Village. The project proposes to construct a mixed-use urban infill development on a 72-acre site located just south of the existing Curtis Park area. The development is composed of 183 single-family units, an 80 unit senior living apartment building, 212 multi-family units, 171,000 sq ft of commercial area, two restaurants, and one dinner theater. Per the DEIR, this project has the potential to result in significant impacts to the State Route (SR) 99/12th Avenue southbound and northbound off-ramps and ramp intersections. Our comments are as follows:

32-1

- The project description provided in Chapter 5.2, Transportation and Circulation, needs to be reconciled with the project description provided in Chapter 1. The two descriptions are different regarding the number of housing units and proposed square feet of commercial area. The traffic study may not address 89,000 sq. ft. of commercial and may overstate the number of single-family homes.

32-2

- Tables 5.2-9, 5.2-14, and 5.2-19 illustrate conditions on the SR 99 ramps and show that the project will result in more vehicles backing up onto southbound SR 99 mainline at the southbound SR 99/12th Avenue off ramp. Table 5.2-14 shows that the proposed project will result in a 1,425 ft. queue of vehicles waiting to exit the freeway during the p.m. peak hour in the baseline year. Since the existing ramp has only 725 ft. of storage, vehicles will queue (back up) 700 ft. onto mainline SR 99. That means that cars may be stopped as far back as 6th Avenue as they wait to exit southbound SR 99 at the ramp. This presents a serious safety issue, especially the potential for an increase in rear end collisions on the freeway mainline.

32-3

"Caltrans improves mobility across California"

Letter 32
Cont'd.

- The project impacts related to ramp and mainline queuing must be mitigated. Prior to project occupancy, fair share fees should be collected for needed future improvements. The southbound off-ramp should be modified to accommodate more vehicles through ramp terminus widening (two left turn and two right turn lanes) to provide additional storage for vehicles sufficient to preclude queuing on mainline under normal p.m. peak hour conditions with project. In addition, it is strongly recommended that a deceleration lane for the off ramp be constructed, which could start just south of the pedestrian overcrossing, and extend to the off-ramp terminus. This would provide additional off-mainline storage. Caltrans and the City should coordinate on what improvements are necessary and feasible to mitigate queuing and how to fit them within existing Caltrans right of way.

32-4

32-5

- We recommend that the City develop additional local road improvements, such as more effective traffic signal phasing, to help eliminate queuing onto mainline SR 99 and require the project to provide fair share funding for the improvements.

32-6

- Impact 5.2-10, Cumulative Impacts to Study Intersections – Caltrans concurs with Mitigation Measure 5.2-10(h) at the SR 99/12th Avenue northbound ramps which states the project applicant shall modify signal timing to provide split phase for all approaches and re-stripe the eastbound lanes to provide one left-turn, one left-through, and one through lane. In addition to this, two receiving lanes must be constructed on the onramp for the turn movement from eastbound 12th Avenue to the northbound SR 99 ramps. Fair share fees should be collected for this improvement.

32-7

32-8

- Page 5.2-60, Mitigation Measure 5.2-8(j) is mentioned as reducing the traffic queue at the northbound 12th Ave. off-ramp. This measure is not found within the DEIR.

32-9

Given the need to address potential safety issues that would be exacerbated by the project, Caltrans would like to meet with the City to clarify exactly the project mitigation and potential ramp improvements. If you have any questions about these comments, or to set up the meeting please contact Gabriel Corley at (916) 274-0611.

32-10

Sincerely,

ALYSSA BEGLEY, Chief
Office of Transportation Planning—South

cc: State Clearinghouse

"Caltrans improves mobility across California"

LETTER 32: ALYSSA BEGLEY, CALTRANS

Response to Comment 32-1

The comment is an introductory statement and does not address the adequacy of the EIR.

Response to Comment 32-2

See Response to Comment 5-28.

Response to Comment 32-3

Queuing at the 12th Street southbound off ramp is an existing condition without the project and the project would add traffic to the ramp and further extend the length of the queue during the pm peak hour. Implementing Mitigation Measure 5.2-10(h) would reduce the traffic queue to less than the existing conditions. Furthermore, City staff proposed to add queue detectors at the off ramp to address this concern, but the approach was rejected by Caltrans staff in discussions with City staff.

Response to Comment 32-4

City staff has coordinated with Caltrans staff on feasible mitigation measure to be implemented with the Curtis Park Village project. The project shall be responsible for adding a southbound right turn lane. Caltrans will work with the City of Sacramento to implement other improvements that would improve existing deficiencies in the area.

Response to Comment 32-5

See Response to Comment 32-4.

Response to Comment 32-6

See Response to Comment 32-4.

Response to Comment 32-7

See Response to Comment 32-4.

Response to Comment 32-8

See Response to Comment 32-4.

Response to Comment 32-9

For clarification purposes, the first paragraph of the Mitigation Measure section on page 5.2-60 is revised as follows:

> Implementation of Mitigation Measure 5.2-~~8(j)~~ 10(h) would reduce the traffic queue at the northbound 12th Avenue off-ramp for the Proposed Project and all access scenarios to ***less than significant*** levels.

The above change is for clarification purposes only and does not alter any of the conclusions contained within the DEIR.

Response to Comment 32-10

The comment does not address specific details in the EIR, but will be forwarded to the decision-makers for their consideration.

3.3 RESPONSES TO VERBAL COMMENTS

3.3 RESPONSES TO VERBAL COMMENTS

This chapter responds to the verbal comments received on the Curtis Park Village DEIR during the public comment period. Comments were presented to the City of Sacramento Community Development Department at a public hearing conducted on May 28, 2009. Each commenter has been assigned a commenter number and each comment made by that commenter is given a secondary number (i.e., Comment 2-4 would be the fourth comment made by the second commenter at the hearing).

The following is an index of the commenters and corresponding responses.

Verbal Comments

CITY OF SACRAMENTO

DEVELOPMENT SERVICES DEPARTMENT

PUBLIC COMMENTS

RE: CURTIS PARK VILLAGE

CITY HALL
SACRAMENTO, CALIFORNIA

THURSDAY, MAY 28, 2009

ORIGINAL

REPORTED BY: ESTHER F. SCHWARTZ
CSR NO. 1564

CAPITOL REPORTERS (916) 923-5447

ATTENDEES

CITY OF SACRAMENTO:

JENNIFER HAGEMAN

COMMENTERS:

EARL WITHYCOMBE

ANDREA ROSEN

---oOo---

SACRAMENTO, CALIFORNIA

THURSDAY, MAY 28, 2009, 9:05 A.M.

---oOo---

MR. WITHYCOMBE: My name is Earl Withycombe. I am a resident of 2226 Portola Way, which is just north of the north boundary of the Curtis Park railyard.

My residence windows are approximately 25 feet north of the railyard boundary. The block that I live on has three toddlers and eight children under the age of 12. I am very concerned about the health impact of construction and especially toxic soil remediation operations on their health. Curtis Park railyard is a Superfund site. So designated because soils there contain levels of lead and arsenic that are dangerous to public health.

1-1

The Draft Environmental Impact Report includes a mitigation for construction dust that includes the submittal of a dust control plan to the Development Services Department. I feel that this mitigation is inadequate in that the City's Development Services Department has no significant experience in its interpretation or enforcement of dust control plans.

1-2

I would request that the City delegate approval and enforcement of the dust control plan to

1-3

3

CAPITOL REPORTERS (916) 923-5447

1-3 cont.

1-4

1-5

1-6

the Sacramento Metropolitan Air Quality Control Management District, an agency with significant experience in pollution control, including control of construction dust. I would ask that the construction dust control plan include a proviso to require continuous monitoring during all construction -- continuous monitoring of particulate matter concentrations during all construction activities, especially during toxic remediation operations.

I would request, also, that the dust control plan establish a limit in increases in particulate matter, so-called PM-10 levels, from exceeding 50 micrograms per cubic meter at downwind stations in comparison to upwind stations, averaged over an eight-hour work shift, or by a toxic risk limit for lead and arsenic exposure equal to increased cancer risk of one in a million.

The health risk assessment that was conducted as a part of this EIR states that train activities adjacent to the project site are at a level of one locomotive per day. In the hazards section of the EIR, a statement is made that approximately 20 trains per day run on the railyard tracks adjacent to the project site. Typical operation for a long

1-6 cont.

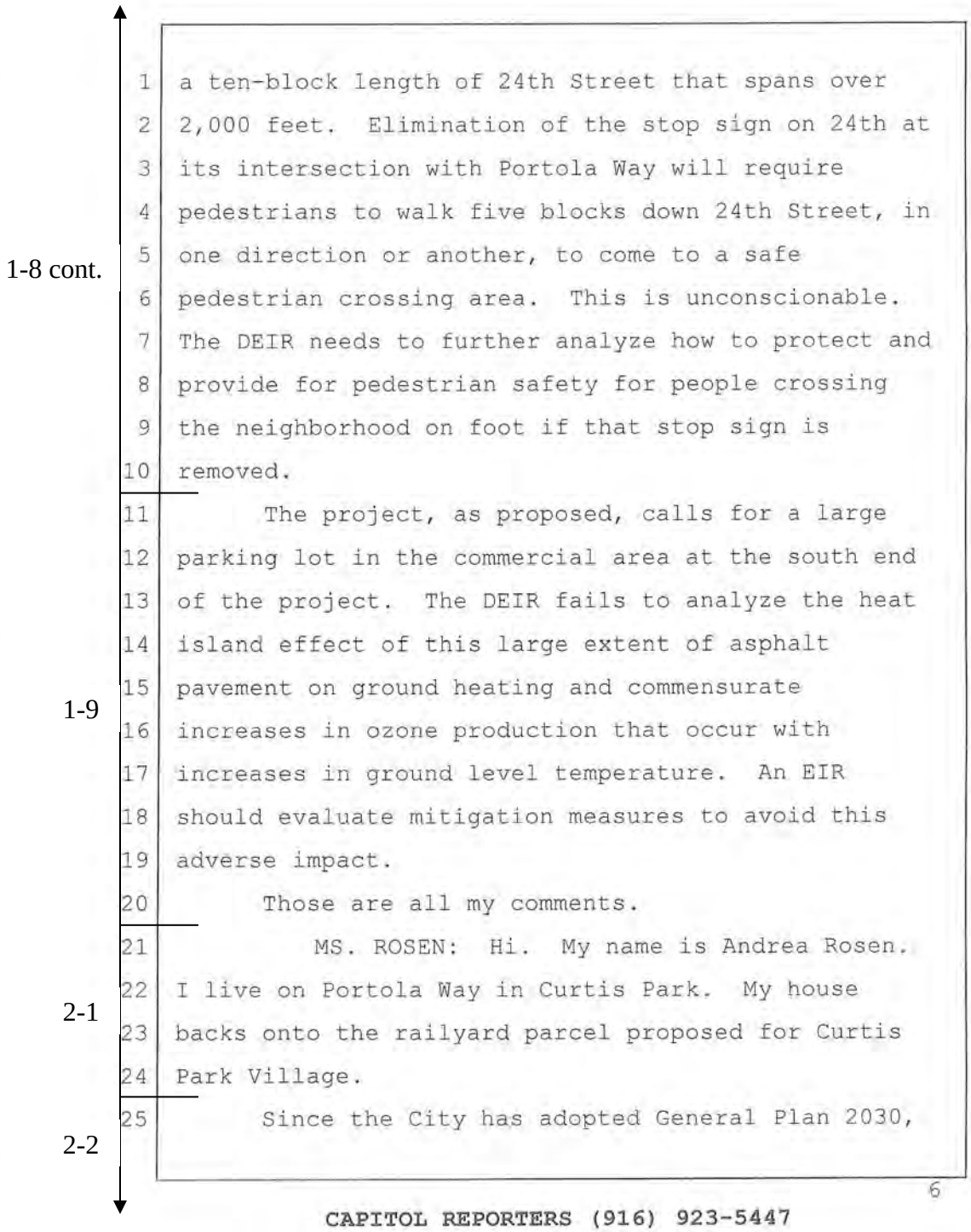
haul train is to use three to four locomotives per train, which means that instead of one locomotive per train, as was assumed in the health risk assessment, up to 80 locomotives per day are traversing the tracks adjacent to the site.

The health risk assessment needs to be redone. Not only to reflect typical train activity levels during normal economic times, as verified by the Union Pacific Railroad, but also that the health risk assessment include the contributions from idling switch engines that use the rails, the storage rails, that are even closer to the project boundary and, during times of construction, the diesel particulate contributions from on-site construction equipment. Not only should the health risk assessment be expanded to include these omitted sources, but it should also be expanded to include not only evaluation of cancer risk from diesel particulate, but also the acute hazard health impact from omissions of acrolein that are found as a component of diesel engine exhaust.

1-7

As a mitigation for traffic increases on 24th Street, the Draft EIR calls for the elimination of a stop sign on 24th Street at Portola Way. This stop sign provides the only pedestrian crossing safety in

1-8



a ten-block length of 24th Street that spans over 2,000 feet. Elimination of the stop sign on 24th at its intersection with Portola Way will require pedestrians to walk five blocks down 24th Street, in one direction or another, to come to a safe pedestrian crossing area. This is unconscionable. The DEIR needs to further analyze how to protect and provide for pedestrian safety for people crossing the neighborhood on foot if that stop sign is removed.

1-8 cont.

The project, as proposed, calls for a large parking lot in the commercial area at the south end of the project. The DEIR fails to analyze the heat island effect of this large extent of asphalt pavement on ground heating and commensurate increases in ozone production that occur with increases in ground level temperature. An EIR should evaluate mitigation measures to avoid this adverse impact.

1-9

Those are all my comments.

MS. ROSEN: Hi. My name is Andrea Rosen. I live on Portola Way in Curtis Park. My house backs onto the railyard parcel proposed for Curtis Park Village.

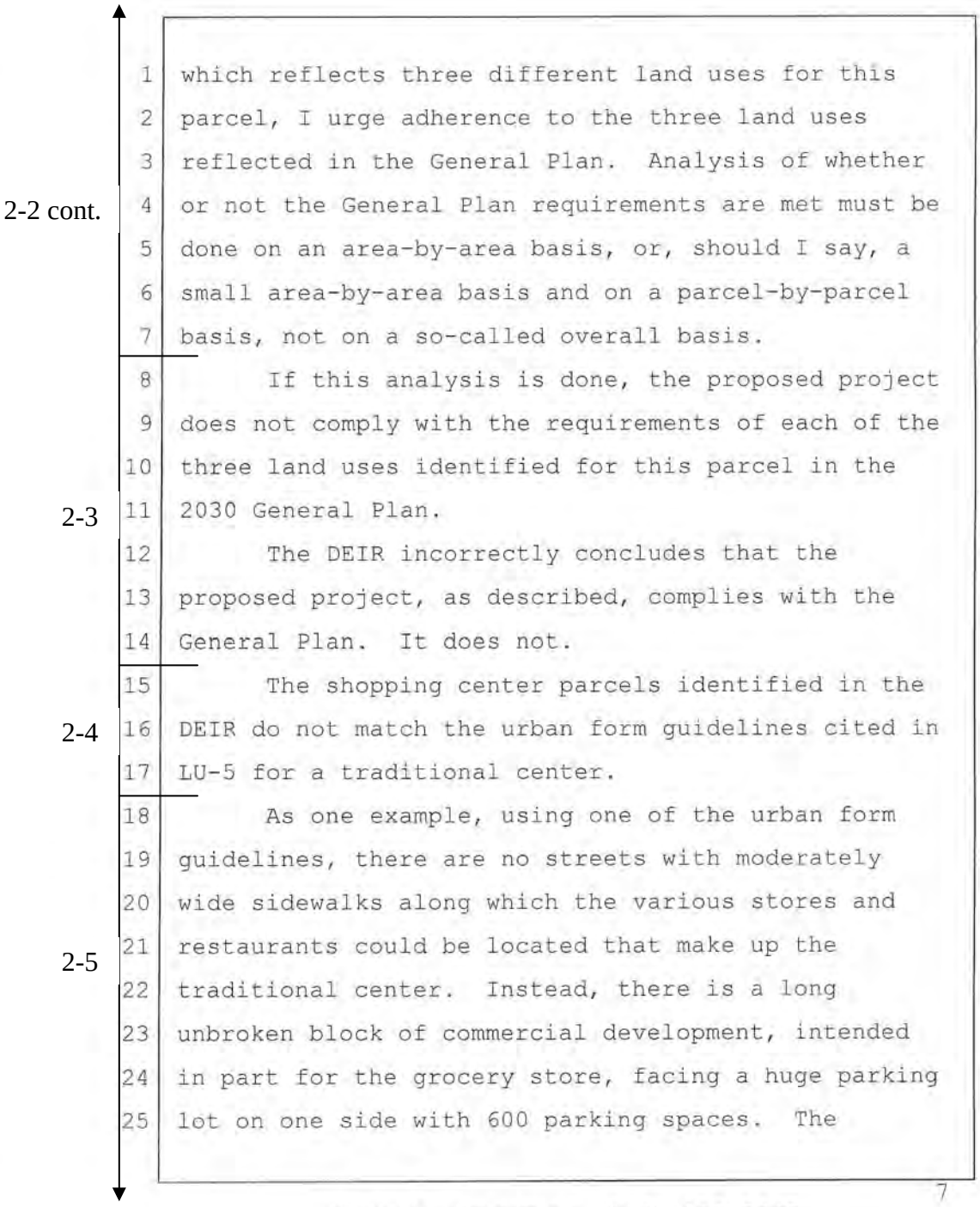
2-1

Since the City has adopted General Plan 2030,

2-2

6

CAPITOL REPORTERS (916) 923-5447



which reflects three different land uses for this parcel, I urge adherence to the three land uses reflected in the General Plan. Analysis of whether or not the General Plan requirements are met must be done on an area-by-area basis, or, should I say, a small area-by-area basis and on a parcel-by-parcel basis, not on a so-called overall basis.

2-2 cont.

If this analysis is done, the proposed project does not comply with the requirements of each of the three land uses identified for this parcel in the 2030 General Plan.

2-3

The DEIR incorrectly concludes that the proposed project, as described, complies with the General Plan. It does not.

The shopping center parcels identified in the DEIR do not match the urban form guidelines cited in LU-5 for a traditional center.

2-4

As one example, using one of the urban form guidelines, there are no streets with moderately wide sidewalks along which the various stores and restaurants could be located that make up the traditional center. Instead, there is a long unbroken block of commercial development, intended in part for the grocery store, facing a huge parking lot on one side with 600 parking spaces. The

2-5

7

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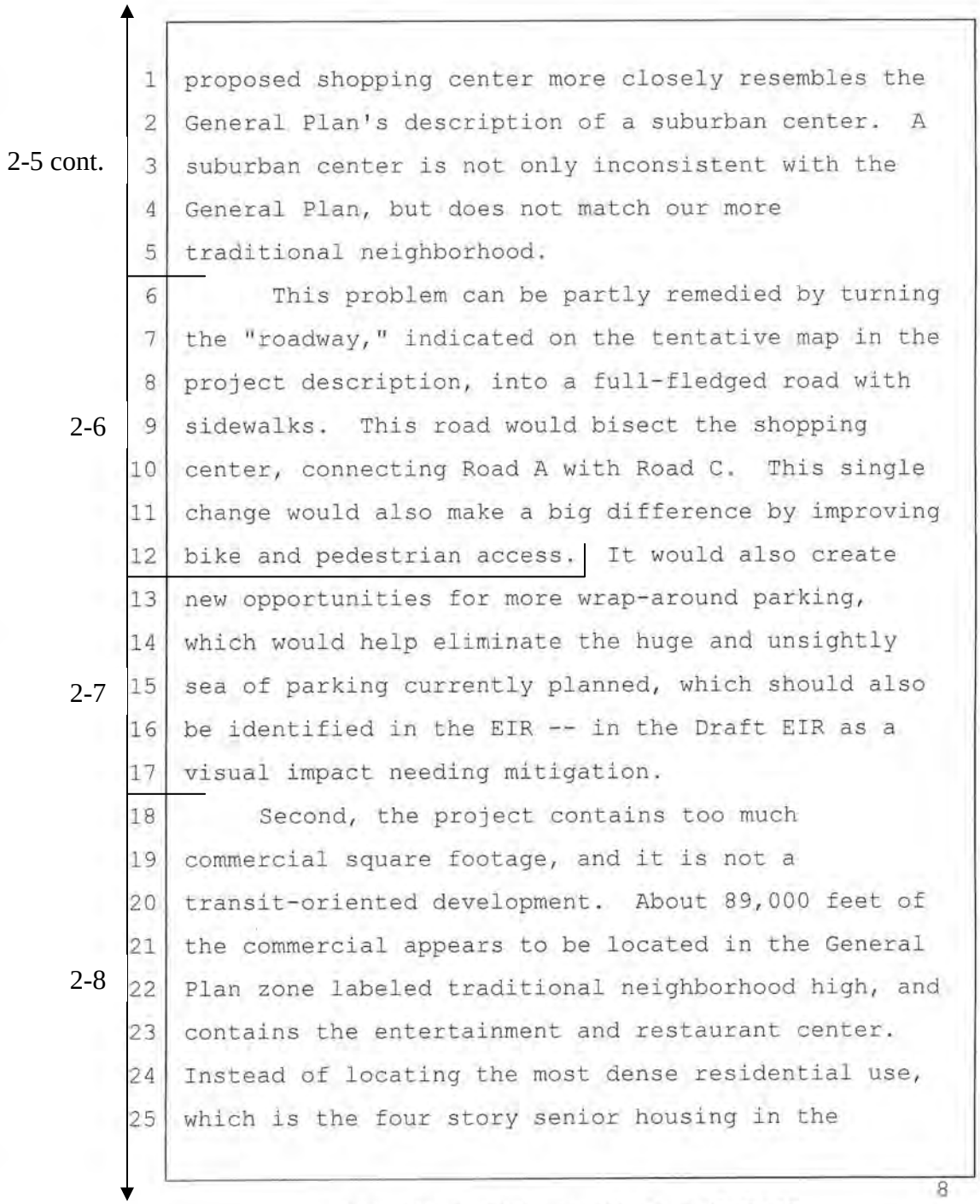

proposed shopping center more closely resembles the General Plan's description of a suburban center. A suburban center is not only inconsistent with the General Plan, but does not match our more traditional neighborhood.

2-5 cont.

This problem can be partly remedied by turning the "roadway," indicated on the tentative map in the project description, into a full-fledged road with sidewalks. This road would bisect the shopping center, connecting Road A with Road C. This single change would also make a big difference by improving bike and pedestrian access. It would also create new opportunities for more wrap-around parking, which would help eliminate the huge and unsightly sea of parking currently planned, which should also be identified in the EIR -- in the Draft EIR as a visual impact needing mitigation.

2-6

2-7

Second, the project contains too much commercial square footage, and it is not a transit-oriented development. About 89,000 feet of the commercial appears to be located in the General Plan zone labeled traditional neighborhood high, and contains the entertainment and restaurant center. Instead of locating the most dense residential use, which is the four story senior housing in the

2-8

8

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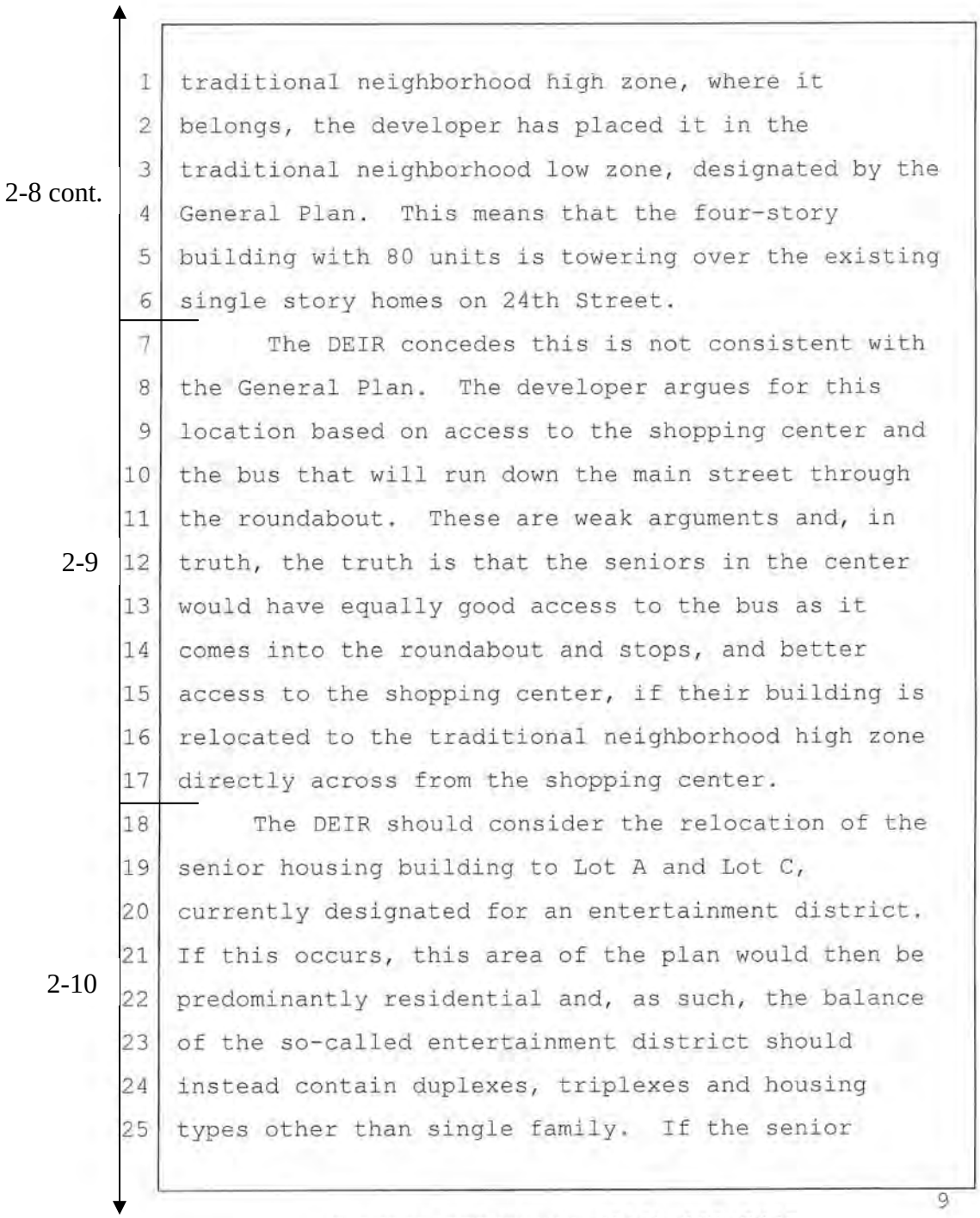

traditional neighborhood high zone, where it belongs, the developer has placed it in the traditional neighborhood low zone, designated by the General Plan. This means that the four-story building with 80 units is towering over the existing single story homes on 24th Street.

2-8 cont.

The DEIR concedes this is not consistent with the General Plan. The developer argues for this location based on access to the shopping center and the bus that will run down the main street through the roundabout. These are weak arguments and, in truth, the truth is that the seniors in the center would have equally good access to the bus as it comes into the roundabout and stops, and better access to the shopping center, if their building is relocated to the traditional neighborhood high zone directly across from the shopping center.

2-9

The DEIR should consider the relocation of the senior housing building to Lot A and Lot C, currently designated for an entertainment district. If this occurs, this area of the plan would then be predominantly residential and, as such, the balance of the so-called entertainment district should instead contain duplexes, triplexes and housing types other than single family. If the senior

2-10

9

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2-10 cont.

center is relocated out of the traditional neighborhood low zone, the brown stones that were shown in the developer's earlier plan could run continuously from Sutterville, moving north.

Destination entertainment centers, as proposed by the developer for this project, are not consistent with the traditional center concept. It represents a use that is not consistent with the General Plan, nor is it in neighborhood serving use. Even though an entertainment venue might be

2-11

shoehorned into the allowed uses listed in the General Plan for that traditional center as a special use, this part of the General Plan requires such special uses to be compatible. It is not. Diversity of residential offerings would be far superior to a destination entertainment center.

It is also important that commercial square footage of the project be reduced from its enormous 259,000 square feet down to something that is more truly neighborhood serving. Perhaps around half

2-12

that number. Elimination of the destination entertainment, which is by design intended to draw auto traffic from outside the neighborhood, would move this project closer to a lower commercial footprint and make it a much better overall project.

2-12 cont.

I will close with that.

(Conclusion of commenters at 9:25 p.m.)

---oOo---

REPORTER'S CERTIFICATE

STATE OF CALIFORNIA)
) ss.
COUNTY OF SACRAMENTO)

I, ESTHER F. SCHWARTZ, certify that I was the official Court Reporter for the proceedings named herein, and that as such reporter, I reported in verbatim shorthand writing those proceedings;

That I thereafter caused my shorthand writing to be reduced to printed format, and the pages numbered 3 through 11 herein constitute a complete, true and correct record of the proceedings.

IN WITNESS WHEREOF, I have subscribed this certificate at Sacramento, California, on this 31th day of May, 2009.

ESTHER F. SCHWARTZ
CSR NO. 1564

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VERBAL COMMENT 1, EARL WITHYCOMBE

Response to Verbal Comment 1-1

The comment does not address the adequacy of the DEIR.

Response to Verbal Comment 1-2

It should be noted that Mr. Withycombe also submitted written comments (Letter 25). See Response to Comment 25-23.

Response to Verbal Comment 1-3

See Response to Comment 25-23.

Response to Verbal Comment 1-4

See Response to Comment 25-23.

Response to Verbal Comment 1-5

See Response to Comment 25-23.

Response to Verbal Comment 1-6

See Response to Comment 25-16 in Section 3.0 of the FEIR.

Response to Verbal Comment 1-7

See Responses to Comments 25-17 through 25-19.

Response to Verbal Comment 1-8

To correct the text, Mitigation Measure 5.2-10(b) on page 5.2-54 is revised as follows:

> *5.2-10(b) 24th Street / Portola Way – The project applicant shall pay a fair share contribution to <u>install a traffic signal at this intersection.</u> ~~convert the intersection from all-way stop control to two-way stop control with stop signs only for the Portola Way approaches to the intersection.~~ This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a **less than significant** level.*

The above change corrects text and does not alter any of the conclusions contained within the DEIR.

Installation of a traffic signal would provide a safe crossing location for pedestrians while providing acceptable operations for vehicles. Upon implementation, the intersection would operate at LOS A during both AM and PM peak hours with average delays of 6.3 seconds and 5.8 seconds, respectively.

Response to Verbal Comment 1-9

As urban areas develop, changes occur in their landscape. Buildings, roads, and other infrastructure replace open land and vegetation. Surfaces that were once permeable and moist become impermeable and dry. These changes cause urban regions to become warmer than their rural surroundings, forming an "island" of higher temperatures in the landscape.

Heat islands occur on the surface and in the atmosphere. On a hot, sunny summer day, the sun can heat dry, exposed urban surfaces, such as roofs and pavement, to temperatures 50–90°F hotter than the air, while shaded or moist surfaces – often in more rural surroundings – remain close to air temperatures. Surface urban heat islands are typically present day and night, but tend to be strongest during the day when the sun is shining.

In contrast, atmospheric urban heat islands are often weak during the late morning and throughout the day and become more pronounced after sunset due to the slow release of heat from urban infrastructure. Elevated temperature from urban heat islands, particularly during the summer, has the following negative effects:

- *Increased energy consumption*: Higher temperatures in summer increase energy demand for cooling and add pressure to the electricity grid during peak periods of demand.
- *Elevated emissions of air pollutants and greenhouse gases*: Increasing energy demand generally results in greater emissions of air pollutants and greenhouse gas emissions from power plants. Higher air temperatures also promote the formation of ground-level ozone.

The project site has previously been disturbed and has little native vegetation. The previous disturbance of the site means that the site is already contributing to a heat island effect to some extent. The streets, parking lots, pavement and buildings to be constructed by the project would tend to increase the heat island effect. The heat island effect would be offset by landscaping, trees, lawn and other vegetation that would be part of the project that would tend to reduce the heat island effect. Currently thresholds of significance for contribution of a project to the urban heat island effect do not exist. However, Mitigation Measure 5.3-5(a) in the DEIR includes measures to reduce heat island effects. In addition, the project would be required to comply with Policy ER 3.1.6, Urban Heat Island Effects, of the 2030 General Plan, which states the following:

> The City shall continue to promote planting shade trees with substantial canopies, and require, where feasible, site design which uses trees to shade rooftops, parking facilities, streets, and other facilities to minimize heat island effects.

VERBAL COMMENT 2, ANDREA ROSEN

Response to Verbal Comment 2-1

The comment is an introduction and does not address the adequacy of the EIR.

Response to Verbal Comment 2-2

It should be noted that Ms. Rosen submitted written comments on the DEIR (Letter 21). See Response to Comment 21-3 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-3

See Response to Comment 21-3 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-4

See Response to Comment 21-5 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-5

See Response to Comment 5-36 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-6

See Response to Comment 15-9 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-7

See Response to Comment 15-9 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-8

See Responses to Comments 5-36, 5-152, 5-153, and 5-154 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-9

Comment noted. See Chapter 2.0 of the FEIR, Revisions the Draft EIR Text. The independent living units were relocated closer to the roundabout and commercial area to provide greater accessibility for residents.

Response to Verbal Comment 2-10

See Responses to Comments 5-152, 5-153, 5-154, and 5-157 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-11

See Response to Comment 21-5 in Section 3.0 of the FEIR.

Response to Verbal Comment 2-12

The comment suggests an alternative project design and does not address the adequacy of the EIR, but will be forwarded to the decision-makers for their consideration.

4. MITIGATION MONITORING PLAN

4 MITIGATION MONITORING PLAN

4.0 INTRODUCTION

Section 15097 of the California Environmental Quality Act (CEQA) requires all State and local agencies to establish monitoring or reporting programs for projects approved by a public agency whenever approval involves the adoption of either a "mitigated negative declaration" or specified environmental findings related to environmental impact reports.

The following is the Mitigation Monitoring Plan (MMP) for the Curtis Park Village project. The project as approved includes mitigation measures. The intent of the MMP is to prescribe and enforce a means for properly and successfully implementing the mitigation measures as identified within the Environmental Impact Report for this project. Unless otherwise noted, the cost of implementing the mitigation measures as prescribed by this MMP shall be funded by the applicant.

4.1 COMPLIANCE CHECKLIST

The MMP contained herein is intended to satisfy the requirements of CEQA as they relate to the Environmental Impact Report for the Curtis Park Village project prepared by the City of Sacramento. This MMP is intended to be used by City staff and mitigation monitoring personnel to ensure compliance with mitigation measures during project implementation. Mitigation measures identified in this MMP were developed in the Environmental Impact Report prepared for the proposed project.

The Curtis Park Village project Environmental Impact Report presents a detailed set of mitigation measures that will be implemented throughout the lifetime of the project. Mitigation is defined by CEQA as a measure which:

- Avoids the impact altogether by not taking a certain action or parts of an action;
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifies the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project; or
- Compensates for the impact by replacing or providing substitute resources or environments.

The intent of the MMP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMP will provide for monitoring of

construction activities as necessary and in-the-field identification and resolution of environmental concerns.

Monitoring and documenting the implementation of mitigation measures will be coordinated by the City of Sacramento. The table attached to this report identifies the mitigation measure, the monitoring action for the mitigation measure, the responsible party for the monitoring action, and timing of the monitoring action. The applicant will be responsible for fully understanding and effectively implementing the mitigation measures contained within the MMP. The City of Sacramento will be responsible for ensuring compliance.

During construction of the project, the City will assign an inspector who will be responsible for field monitoring of mitigation measure compliance. The inspector will report to the City Community Development Department and will be thoroughly familiar with permit conditions and the MMP. In addition, the inspector will be familiar with construction contract requirements, construction schedules, standard construction practices, and mitigation techniques. In order to track the status of mitigation measure implementation, field-monitoring activities will be documented on compliance monitoring report worksheets. The time commitment of the inspector will vary depending on the intensity and location of construction. Aided by the attached table, the inspector will be responsible for the following activities:

- On-site, day-to-day monitoring of construction activities;
- Reviewing construction plans and equipment staging/access plans to ensure conformance with adopted mitigation measures;
- Ensuring contractor knowledge of and compliance with the MMP;
- Verifying the accuracy and adequacy of contract wording;
- Having the authority to require correction of activities that violate mitigation measures, securing compliance with the MMP;
- Acting in the role of contact for property owners or any other affected persons who wish to register observations of violations of project permit conditions or mitigation. Upon receiving any complaints, the inspector shall immediately contact the construction representative. The inspector shall be responsible for verifying any such observations and for developing any necessary corrective actions in consultation with the construction representative and the City of Sacramento;
- Obtaining assistance as necessary from technical experts in order to develop site-specific procedures for implementing the mitigation measures; and
- Maintaining a log of all significant interactions, violations of permit conditions or mitigation measures, and necessary corrective measures.

4.2 MITIGATION MONITORING PLAN

The following table indicates the mitigation measure number, the impact the measure is designed to address, the measure text, the monitoring agency, implementation schedule, and an area for sign-off indicating compliance.

MITIGATION MONITORING PLAN Curtis Park Village						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
5.2 Transportation and Circulation						
5.2-1	Impacts to study intersections under baseline plus project conditions.	*5.2-1(a)*	*At the Freeport Boulevard / 2nd Avenue intersection, provide protected left-turn phasing for the northbound and southbound approaches. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a* ***less than significant*** *level.*	Department of Transportation	Implement improvements prior to the first building permit	
		5.2-1(b)	*At the Sutterville Road / Road A intersection, provide overlap signal phasing to allow the southbound Road A right turning traffic to proceed on a green arrow simultaneously with the eastbound left turning movement, and prohibit U-turns for the eastbound left turning movement; add a southbound left-right lane to provide one left-turn lane, one left-right lane, and one right turn lane, and provide a dedicated right turn lane for the westbound Sutterville Road approach to the intersection. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a* ***less than significant*** *level.*	Department of Transportation	Show improvements on improvement plans and construct prior to the first building permit	

MITIGATION MONITORING PLAN Curtis Park Village						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		5.2-1(c)	*Modify the southbound approach to the Sutterville Road / SR99 SB Ramps intersection to provide a left-turn lane, a combination left-through-right lane, and a two right-turn lanes. This change would consist of adding bring the right-turning movements to the existing combination left-through lane and allow that movement to occur under traffic signal control. This mitigation measure is required at five percent of development based on trip generation. The design of the mitigation is subject to the approval of the City Department of Transportation and Caltrans. This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a **less than significant** level during the p.m. and Saturday peak hours.*	Department of Transportation	Improvements shall be constructed at five percent of development based on trip generation	
		5.2-1(d)	*At the Road A / Area 3 intersection, provide separate right-turn and left-turn lanes on the eastbound approach. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a **less than significant** level.*	Department of Transportation	Show improvements on improvements plans and constructed prior to the first building permit in Area 3	
5.2-2	Impacts to study roadway segments	*5.2-2*	*The project developer shall work with the Regional Transit District to*	Regional Transit District	Prior to occupancy	

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
	under baseline plus project conditions.	*provide bus service or provide private shuttle service from 6:00 to 9:00 a.m. and from 4:00 to 7:00 p.m. between the commercial areas of the project site and the City College light rail station. As an alternative, the project developer shall coordinate with the City to reserve the required right of way needed to construct a pedestrian and bicycle bridge to provide access to the City College Station.*	Department of Transportation		
5.2-3	Impacts to freeway ramp under baseline plus project conditions.	*5.2-3*	*Implementation of Mitigation Measure 5.2-1(c) would reduce the traffic queue at the southbound 12th Avenue off-ramp for baseline conditions for the Proposed Project and all access scenarios. However, the reduction would not be sufficient to fully mitigate the project impacts and no other feasible mitigation measure was identified. Therefore, the impact shall remain* ***significant and unavoidable****.*	See 5.2-1(c)	See 5.2-1(c)	
5.2-7	Impacts to on-site traffic circulation and safety under baseline plus project conditions.	*5.2-7(a)*	*The design plans for the project shall be consistent with City standards. Any deviations are subject to the approval of the City Department of Transportation, Traffic Engineering Division. The horizontal curvatures shall be realigned or design elements such as "knuckles" shall be installed in compliance with City standards.*	Department of Transportation	Prior to approval of improvement plans	

MITIGATION MONITORING PLAN Curtis Park Village						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		5.2-7(b)	*The site design shall be modified to reduce the potential for vehicles leaving parking stalls to back across pedestrian crosswalks. This change may require the elimination of some angle parking spaces.*	Department of Transportation	Prior to approval of improvement plans	
5.2-9	Impacts during construction.	*5.2-9(a)*	*Before issuance of grading permits for the project site, the project applicant shall prepare a detailed Traffic Management Plan that will be subject to review and approval by the City Department of Transportation, Regional Transit, and local emergency service providers, including the City of Sacramento fire and police departments. The plan shall ensure maintenance of acceptable operating conditions on local roadways and transit routes. At a minimum, the plan shall include:* • *The number of truck trips, time, and day of street closures;* • *Time of day of arrival and departure of trucks;* • *Limitations on the size and type of trucks and provision of a staging area with a limitation on the number of trucks that can be waiting;*	Department of Transportation Regional Transit City of Sacramento Fire and Police Departments	Prior to issuance of grading permits	

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		• *Provision of a truck circulation pattern;* • *Provision of a driveway access plan to maintain safe vehicular, pedestrian, and bicycle movements (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas);* • *Safe and efficient access routes for emergency vehicles;* • *Efficient and convenient transit routes;* • *Manual traffic control when necessary;* • *Proper advance warning and posted signage concerning street closures;* • *Provisions for pedestrian safety; and* • *Provisions for temporary bus stops, if necessary.* *A copy of the construction traffic management plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before the commencement of construction that*			

MITIGATION MONITORING PLAN Curtis Park Village						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			would partially or fully obstruct roadways.			
5.2-10	Cumulative impacts to study intersections.	*5.2-10(a)*	*24th Street / 2nd Avenue – The project applicant shall pay a fair share contribution to install a traffic signal at this intersection. This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a **less than significant** level.*	Department of Transportation	Prior to issuance of building permits	
		5.2-10(b)	*24th Street / Portola Way – The project applicant shall pay a fair share contribution to install a traffic signal at this intersection. This mitigation measure would reduce the impact of the Proposed Project and all access scenarios to a **less than significant** level.*	Department of Transportation	Prior to issuance of building permits	
		5.2-10(c)	*Sutterville Road / Freeport Boulevard (north) – the applicant shall pay a fair share contribution to provide protected-permitted left turn phasing and install proper signage for southbound Freeport Boulevard. This mitigation measure would reduce the impact of the Proposed Project, Access Scenario 2 and Access Scenario 3 to a **less than significant** level.*	Department of Transportation	Prior to issuance of building permits	

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		5.2-10(d) *Sutterville Road / City College Drive – The applicant shall pay a fair share contribution to provide overlap signal phasing to allow the northbound right turn traffic on City College Drive to proceed on a green arrow simultaneously with the westbound left turning movement, and prohibit U-turns for the westbound Sutterville Road approach to the intersection. This mitigation measure would reduce the impact of the Proposed Project and Access Scenario 2 and 3 to a* ***less than significant*** *level.*	Department of Transportation	Prior to issuance of building permits	
		5.2-10(e) *Sutterville Road / Road A – apply Mitigation Measure 5.2-1(b) which would provide overlap signal phasing to allow the southbound Road A Right turning traffic to proceed on a green arrow simultaneously with the eastbound left turning movement, and prohibit U-turns for the eastbound left turning movement; provide one left-turn lane, one left-right lane, and one right-turn lane on the southbound approach; provide a dedicated right turn lane for the westbound Sutterville Road approach to the intersection; provide an actuated exclusive pedestrian phase to serve pedestrians*	Department of Transportation	Prior to issuance of the first building permit	

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		crossing Sutterville Road; and optimize signal timing. This mitigation measure would reduce the impact of the Proposed Project and Access Scenarios 2 and 3 to a ***less than significant*** *level.*			
		5.2-10(f) *Sutterville Road / Curtis Drive West - No feasible mitigation measure was identified for the Sutterville Road / Curtis Drive West intersection. Adding a southbound right turn lane to the intersection would mitigate the impact but was not considered to be feasible because of the need for demolishing several existing buildings to provide additional right-of-way. The cumulative impact for the Proposed Project and all access scenarios would remain* ***significant and unavoidable****.*	Department of Transportation	Prior to issuance of building permits	
		5.2-10(g) *Sutterville Road / Franklin Boulevard –The project applicant shall pay a fair share contribution to add an eastbound right-turn lane that would mitigate the Saturday peak hour impact of the Proposed Project and Access Scenario 2 and Access Scenario 3 to a* ***less than significant*** *level. For a.m. and p.m. peak hour*	Department of Transportation	Prior to issuance of building permits	

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		impacts, the cycle length would increase to 110 seconds. These mitigation measures would reduce the impact of the Proposed Project and Access Scenario 2 and Access Scenario 3 to a ***less than significant*** *level.*			
		5.2-10(h) *Sutterville Road / SR 99 Northbound Ramps – The project applicant shall pay a fair share contribution to modify signal timing to provide split phase for all approaches and re-strip the eastbound lanes to provide one left-turn, one left-through, and one through lane. Construct two receiving lanes on the on-ramp for the turning movement from eastbound 12th Avenue to the northbound SR 99 ramp. This mitigation measure would reduce the impact of the Proposed Project and Access Scenario 2 and 3 to a* ***less than significant*** *level.*	Department of Transportation	Prior to issuance of building permits	
		5.2-10(i) *Road A / Area 1 – The project applicant shall pay a fair share contribution to modify the signal phasing to provide overlaps for the eastbound right-turn movement; provide protected-permitted phasing for the northbound left-turn*	Department of Transportation	Prior to issuance of building permits	

MITIGATION MONITORING PLAN Curtis Park Village						
Impact Number	**Impact**		**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
			movement; prohibit U-turn movement at this intersection; and increase the cycle length to 95 seconds. This mitigation measure would reduce the impact of the Proposed Project and Access Scenario 2 and 3 to a ***less than significant*** *level.*			
5.3 Air Quality						
5.3-1	Impacts related to the update of the Remedial Action Plan.	*5.3-1*	*Prior to import of clean soil associated with the ongoing remediation activities in excess of the volume anticipated in the existing RAP, contracts for soil hauling shall specify that all haul trucks shall be model year 2007 or newer, or be retrofitted to meet model year 2007 emission standards, for the review and approval of the DTSC and the SMAQMD.*	DTSC SMAQMD	Prior to import of soils in excess of volume in existing RAP	
5.3-2	Impacts related to exhaust emissions and fugitive particulate matter emissions from project-associated construction activities.	*5.3-2(a)*	*The project applicant shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and SMAQMD shall be notified within 48 hours of identification of non-compliant*	SMAQMD	Prior to and during construction	

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other SMAQMD or state rules or regulations.			
		5.3-2(b) *Prior to the approval of any grading permit, the project proponent shall submit a dust-control plan to the City of Sacramento Community Development Department. The dust-control plan shall stipulate grading schedules associated with the project phase, as well as the dust-control measures to be implemented. Grading of proposed project phases shall be scheduled so that the total area of disturbance would not exceed 15 acres*	Community Development Department	Prior to approval of grading permit	

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		on any given day. The dust control plan shall be incorporated into all construction contracts issued as part of the proposed project development. The dust-control plan shall, at a minimum, incorporate the following measures: • *Apply water, chemical stabilizer/suppressant, or vegetative cover to disturbed areas, including storage piles that are not being actively used for construction purposes, as well as any portions of the construction site that remain inactive for longer than 3 months;* • *Water exposed surfaces sufficient to control fugitive dust emissions during demolition, clearing, grading, earth-moving, or excavation operations. Actively disturbed areas should be kept moist at all times;* • *Cover all vehicles hauling dirt, sand, soil or other loose material or maintain at least two feet of freeboard in accordance with the*			

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		requirements of California Vehicle Code Section 23114; • *Limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when construction operations are occurring; and* • *Limit onsite vehicle speeds on unpaved surfaces to 15 mph, or less.*			
5.3-3	Impacts related to a temporary increase in NO_X emissions.	*5.3-3(a)* *Prior to issuance of a grading permit, the applicant shall submit a SMAQMD-approved plan, which demonstrates that the heavy-duty (>50 horsepower) off-road vehicles to be used during construction of the project (including owned, leased, and subcontracted vehicles) will achieve a project-wide average of 20 percent NO_X reduction and 45 percent particulate matter reduction, based on the most recent CARB fleet average at the time of construction. In addition, the applicant shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment (>50 horsepower) that will be used an aggregate of 40 or more hours during any portion of the construction*	SMAQMD Community Development Department	Prior to issuance of grading permit	

MITIGATION MONITORING PLAN Curtis Park Village					
Impact Number	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
		project. The inventory shall include the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project. Inventory shall not be required for any 30-day period in which construction activities do not occur. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the applicant shall provide SMAQMD with the anticipated construction timeline, including the start date and the name and phone number of the project manager and on-site foreman.			
		5.3-3(b) *Prior to issuance of a grading permit, the applicant shall provide a construction mitigation fee to the SMAQMD sufficient to offset project emissions of NO_X above 85 pounds per day. The amount of the fee shall be based on updated construction scheduling and equipment lists, and shall be calculated using the SMAQMD method of estimating excess emissions. The current price of NO_X construction offsets calculated by SMAQMD is $16,000 per ton.*	SMAQMD	Prior to issuance of grading permit	

MITIGATION MONITORING PLAN Curtis Park Village						
Impact Number	**Impact**	**Mitigation Measure**		**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
5.3-5	Impacts related to long-term increases of criteria air pollutants.	*5.3-5(a)*	*Prior to the issuance of any grading permit, the project applicant shall coordinate with the SMAQMD and the City of Sacramento Community Development Department to develop a project Air Quality Mitigation Plan (AQMP). In accordance with SMAQMD recommendations, the AQMP shall achieve a minimum overall reduction of 15 percent in the project's anticipated operational emissions. SMAQMD-recommended measures and corresponding emissions-reduction benefits are identified in SMAQMD's Guidance for Land Use Emission Reductions, which can be found in Appendix E of the SMAQMD document. The AQMP shall be reviewed and endorsed by SMAQMD staff prior to project implementation. Available measures to be included in the AQMP include, but are not limited to, the following:* • *Prohibit the installation of wood-burning fireplaces and stoves;* • *Provide onsite bicycle storage and showers for employees that bike to work sufficient to meet peak season maximum*	SMAQMD Community Development Department	Prior to issuance of grading permit	

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		demand; • *Provide preferential parking (e.g., near building entrance, sheltered area, etc.) for carpool and vanpool vehicles;* • *Provide transit enhancing infrastructure that includes: transit shelters, benches, etc.; street lighting; route signs and displays; and/or bus turnouts/bulbs;* • *Incorporate onsite transit facility improvements (e.g., pedestrian shelters, route information, benches, lighting) to coincide with existing or planned transit service;* • *Incorporate landscaping and sun screens to reduce energy use. Deciduous trees should be utilized for building shading to increase solar heating during the winter months. Install sun-shading devices (e.g., screens) or recessed windows on newly proposed buildings;* • *Install efficient lighting and lighting control systems;* • *Install energy-efficient heating*			

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		and cooling systems, appliances and equipment; • *Install light colored "cool" roofs and pavements (i.e., high reflectance, high emittance roof surfaces, or exceptionally high reflectance and low emittance surfaces) and strategically placed shade trees to the extent practical;* • *Limit hours of operation of outdoor lighting to the extent practical; and* • *Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30 percent of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; or, place a minimum of 50 percent of parking spaces underground or covered by structured parking; or, use an open-grid pavement system (less than 50 percent impervious) for a minimum of 50 percent of the parking lot area.*			

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		5.3-5(b)	*Documentation confirming implementation of the Air Quality Mitigation Plan shall be provided to the SMAQMD and City prior to issuance of occupancy permits.*	SMAQMD Community Development Department	Prior to occupancy permit	
5.3-8	Cumulative contribution to regional air quality conditions.	*5.3-8*	*Implement Mitigation Measures 5.3-2(a) and (b) and 5.3-4(a) and (b).*	See 5.3-2 (a) and (b) and 5.3-4 (a) and (b)	See 5.3-2(a) and (b) and 5.3-4 (a) and (b)	
5.4 Noise and Vibration						
5.4-2	Construction noise impacts to surrounding existing uses.	*5.4-2*	*Construction activities shall be limited to the hours set forth below, unless an exception is granted by the Community Development Department:* • *Monday through Saturday 7:00 a.m. to 6:00 p.m.* • *Sunday 9:00 a.m. to 6:00 p.m.* *These restricted hours shall be included on all grading and construction plans submitted for the review and approval of the Community Development Department prior to issuance of grading and construction permits.*	Community Development Department	Prior to issuance of grading and building permits	
5.4-7	Railroad noise levels at exterior noise spaces of	*5.4-7*	*Prior to the issuance of building permits, a noise barrier shall be shown*	City Engineer	Prior to the issuance of	

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	proposed project residences.	*on the plans along the western boundary of the project site, from the northern boundary of the CPV site to the southern end of the Multi-family parcel,any parcel with residences for the review and approval of the City Engineer. A barrier 10 feet in height (relative to nearest outdoor activity elevations) would intercept line of sight to railroad pass-bys, thereby reducing future UPRR noise levels to 70 dB Ldn or less at the nearest outdoor activity areas proposed adjacent to the tracks.* *Barriers can take the form of earthen berms, solid walls, or a combination of the two. Appropriate materials for noise walls include precast concrete or masonry block. Other materials may be acceptable provide they have a surface density of approximately four pounds per square foot.*		building permits	
5.4-8	Railroad noise levels at interior spaces of proposed residences on the project site.	*5.4-8(a)*	*Prior to the issuance of building permits, all residential lots and residential buildings located within the 70 dB Ldn contour shall include noise insulation features such as the following:*	City Building Department	Prior to issuance of building permits	

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			• *Sound-rated windows and doors with STC rating of 35; and* • *Stucco exterior siding.*			
		5.4-8(b)	*Prior to sale of any residential lots, statements shall be included in the title for all properties within the 65 dB Ldn contour that informs the buyer of elevated noise levels during train passages, and that train passages routinely occur during nighttime hours.*	Community Development Department	Prior to sale of residential lots	
5.4-9	Noise-producing commercial uses proposed within the project site.	*5.4-9(a)*	*Unshielded (i.e. unloading activities which are visible from any residential window) nighttime truck unloading shall be prohibited within 200 feet of any residential unit.*	Community Development Department	Prior to issuance of building permit and during project operations	
		5.4-9(b)	*Prior to issuance of a building permit, the site plans shall indicate that a parapet wall shall be constructed along the edge of the roofs of the commercial buildings of sufficient height to intercept line of sight from rooftop mechanical equipment at the nearest residences to reduce noise levels at those nearby residences.*	Community Development Department	Prior to issuance of building permit	
5.4-10	Park generated noise at residential uses proposed within the	*5.4-10*	*Park activities shall be restricted to daytime hours, with exceptions allowed on a case-by-case basis*	Parks and Recreation Department	During project operations	

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	project site.		*subject to the approval of the Director of the Parks and Recreation.*			
5.5 Biological Resources						
5.5-2	Impacts to burrowing owl.	*5.5-2*	*Prior to any ground disturbance associated with grading or construction, the applicant shall initiate a burrowing owl consultation with the California Department of Fish and Game (CDFG) and shall implement the following mitigation measures or equivalents, based on the results of the consultation.* *The developer shall arrange for burrowing owl surveys to be performed consistent with the CDFG's 1995 Staff Report on Burrowing Owl and the California Burrowing Owl Consortium's (CBOC) Survey Protocol (1997) not less than 30 days prior to ground disturbance for each phase of project grading. If burrowing owls are not detected, further mitigation is not necessary. However, if burrowing owls are detected the following steps shall be taken:* *If site disturbance commences during the nesting season (between February 1 and August 31) and burrowing owls are detected, a fenced buffer shall be*	CDFG	Prior to any ground disturbance associated with grading or construction	

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		erected on the project site by the developer not less than 250 feet between the nest burrow(s) and construction activities. The 250-foot buffer shall be observed and the fence left intact until a qualified raptor biologist determines that the young are foraging independently, the nest has failed, or the owls are not using any burrows within the buffer. *If ground disturbance associated with grading or construction commences outside of the nesting season, and burrowing owl(s) are present on-site or within 160 feet of site disturbance, passive relocation consistent with the CDFG Staff Report (1995) and the CBOC Survey Protocol (1997) shall be performed. At least one or more weeks will be necessary to accomplish this and allow the owls to acclimate to off-site burrows. The pre-construction surveys shall be repeated if more than 30 days elapse between the last survey and the start of construction activities.*			
5.5-3	Impacts to Swainson's hawk nesting and foraging habitat.	*5.5-3* *If site disturbance associated with grading or construction activities is proposed by the developer during breeding season (February to August), a pre-construction survey for*	CDFG Community Development Department	Pre-construction survey prior to site disturbance or construction	

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		Swainson's hawk nests shall be conducted within 30 days prior to site disturbance/construction activities by a qualified biologist in order to identify active nests in the project site vicinity. The results of the survey shall be submitted to CDFG and the Community Development Department. If active nests are not found during the pre-construction survey, further mitigation is not required. If active nests are found, pursuant to consultation with CDFG, a fenced buffer shall be erected by the developer on the project site not less than one-quarter mile (approximately 1,300 feet) around the active nest. Site disturbance associated with grading or construction activities that may cause nest abandonment or forced fledging shall not be initiated within this buffer zone between March 1 and September 1. Any trees containing nests that must be removed as a result of project implementation shall be removed during the non-breeding season (September to January).			
5.5-4	Impacts to raptors and migratory birds.	*5.5-4(a)*	*Prior to any grading or construction activities during the nesting season (February 1 to August 15), a preconstruction survey shall be*	Community Development Department	Pre-construction survey prior to grading or construction	

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		conducted by a qualified wildlife biologist within 15 days of the start of project-related activities. If nests of migratory birds are detected on site, or within 75 feet (for migratory passerine birds) or 250 feet (for birds of prey) of the site, the developer shall consult with the CDFG to determine the size of a suitable buffer in which new site grading or construction disturbance is not permitted until August 15, or the qualified biologist determines that the young are foraging independently, or the nest has been abandoned.	CDFG	activities	
		5.5.4(b) *Prior to any grading or construction activities from March 15 to May 15 within 100 feet of the overcrossing of the railroad tracks on Sutterville Road, adjacent to the project site, a preconstruction survey shall be conducted by a qualified biologist within 15 days of the start of project-related activities. If active nests are present in the overcrossing, no construction shall be conducted within 100 feet of the edge of the purple martin colony (as demarcated by the active nest hole closest to the construction activity) at the beginning*			

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		of the purple martin breeding season from March 15 to May 15. The buffer area shall be avoided to prevent disturbance to the nest(s) until it is no longer active. The size of the buffer area may be adjusted if a qualified biologist and CEFG determine it would not be likely to have adverse effects on the purple martins. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest(s) is no longer active.			
5.6 Cultural Resources					
5.6-1	Impacts related to the update of the Remedial Action Plan.	*5.6-1(a)*	*In the event that any prehistoric subsurface archeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, animal bone, obsidian and/or mortars are discovered during earth-moving activities, all work within 100 feet of the resource shall be halted, and the City shall consult with a qualified archeologist, representatives of the City and a qualified archeologist shall coordinate to determine the appropriate course of action. All significant cultural materials recovered shall be subject to scientific*	Community Development Department	During construction	

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		analysis and professional museum curation.			
		5.6-1(b) *If a Native American site is discovered, the evaluation process shall include consultation with the appropriate Native American representatives.* *If a Native American archeologist, ethnographic, or spiritual resources are discovered, all identification and treatment shall be conducted by qualified archeologists, who are certified by the Society of Professional Archeologists (SOPA) and/or meet the federal standards as stated in the Code of Federal Regulations (36 CFR 61), and Native American representatives, who are approved by the local Native American community as scholars of the cultural traditions.* *In the event that no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted. If historic archeological sites are involved, all identified treatment is to be carried out qualified*	Community Development Department	During construction	

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			historical archeologists, who shall meet either Register of Professional Archeologists (RPA), or 36 CFR 61 requirements.			
		5.6-1(c)	*If a human bone or bone of unknown origin is found during earth-moving activities, all work shall stop within 100 feet of the find, and the County Coroner shall be contacted immediately. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission, who shall notify the person most likely believed to be a descendant. The most likely descendant shall work with the contractor to develop a program for re-internment of the human remains and any associated artifacts. No additional work is to take place within the immediate vicinity of the find until the identified appropriate actions have taken place.*	County Coroner Native American Heritage Commission	During construction	
5.7 Geology and Soils						
5.7-1	Impacts related to the update of the Remedial Action Plan.	*5.7-1(a)*	*At least 72 hours prior to the placement of imported fill, the applicant shall have the potential fill inspected by a qualified geotechnical consultant to ensure that all fill being*	City Engineer	At least 72 hours prior to the placement of imported fill	

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		used for fills less than five feet below design grade have a plasticity index of less than or equal to 12, and that all soils are clean and free of deleterious materials, organic materials, and shall not contain particles greater than six inches in size. The results of the geotechnical analysis shall be submitted to the City Engineer prior to placement of fill.			
		5.7-1(b) *Prior to placement of imported fill, the applicant shall have the excavation surface inspected by a qualified geotechnical consultant to ensure the stability of the excavation bottom. Should the site be found to be unstable or contain loose or deleterious materials, the applicant shall perform required mitigation as identified by the geotechnical consultants and approved by the City Engineer. Mitigation for unstable fill could include, but is not limited to the following:* • *Restrict fill activities to occur when the excavation bottom is dry and stable during warm weather; or* • *Require that the placement of geotextile fabric be placed*	City Engineer	Prior to placement of imported fill	

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		prior to granular import fill. The geotextile fabric would be required to be Mirafi 600X or equivalent. Granular fill would consist of well-graded crushed materials, such as Class 2 aggregate base of Caltrans Standard Specifications, but may also consist of other granular imported materials. Uniform crushed rock may be used as a stabilizing layer provided that the crushed rock is completely wrapped in the geotextile fabric.			