

Comment Letter 1

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

HUMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
 DISTRICT 3 – SACRAMENTO AREA OFFICE
 2379 GATEWAY OAKS DRIVE, STE 150 - MS 19
 SACRAMENTO, CA 95833
 PHONE (916) 274-0635
 FAX (916) 263-1796
 TTY 711



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 Be energy efficient!*

January 10, 2014

032013-SAC-0179
 03-SAC-51 / PM 2.03
 SCH#2008082049
 P08-086

Ms. Dana Allen
 Planning Division
 City of Sacramento
 300 Richards Blvd., 3rd Floor
 Sacramento, CA 95811-0218

McKinley Village – Draft Environmental Impact Report (DEIR)

Dear Ms. Allen:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the McKinley Village Project DEIR. The project consists of the construction and operation of a 328-unit residential development, a neighborhood recreation center with incidental retail uses, parks, and associated infrastructure on an approximately 48.75-acre site. The project is bounded by State Route 51 (Business 80) and currently has access via A Street, a two-lane overpass across Business 80 that connects the development with downtown Sacramento through the Sutter’s Landing Regional Park, and another access from 40th Street in East Sacramento. There is no existing or proposed direct access to the State Highway System (SHS) from the proposed McKinley Village Project. The following comments are based on the DEIR.

Traffic Impact Study (TIS) Methodology

On page 4.9-43 of the DEIR in Figure 4.9-8, seventeen percent of the proposed project’s outbound traffic will access eastbound Business 80 at the E Street on-ramp. The methodology used to calculate Level of Service (LOS) on Business 80 is incorrect because it did not consider the cumulative delay caused by bottlenecks downstream on mainline Business 80. As a result, the LOS (delay) shown in Table 4.9-12, on page 4.9-57, does not reflect existing conditions. LOS is depicted as “D” when it should be “F” as noted in the table’s footnotes which state, “* *Observed LOS is worse than reported. The analysis methodology does not fully capture traffic operations effects in congested locations with bottlenecks. ** Actual LOS would be worse as the project adds trips to a congested facility operating at LOS F. The analysis methodology does not fully capture traffic operations effects in congested locations.*” Caltrans requests the TIS

1-1

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Ms. Dana Allen / City of Sacramento, Planning Division
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consider the true shock wave effect, and include the cumulative delay on mainline Business 80 in order to show the true traffic impacts of the proposed project.

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1-1
Cont.

Mitigation

On page 4.9-39 of the DEIR Table 4.9-8 indicates trip generation from the proposed project to be 266 trips during AM peak hours and 341 trips for the PM peak hours. On pages 4.9-41 and 4.9-43, Figures 4.9-7 and 4.9-8 indicate forty-three percent of trips will go to Business 80. Currently Business 80, in the vicinity of this project, is operating at LOS F during peak hours, and will be further exacerbated by the proposed project's traffic during peak hours. Continuous developments, such as this one, will increase traffic volumes, reduce speeds and reduce LOS in this segment of the corridor. However, no mitigation measures have been identified to mitigate the proposed project's traffic impacts to the SHS. Caltrans has serious concerns regarding the lack of adequate traffic analysis.

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If impacts are identified once adequate traffic analysis is conducted, potential mitigation measures could include fair share contributions to the following projects:

- E Street Transition Lane Project;
- Sacramento Regional Transit District facilities in and around the project area;
- Fiber Optics Installation from United States (US 50) to Interstate (I-80);
- Auxiliary Lane Project southbound (SB) 80; and
- Ramp Meters on the T St. SB onramp, N St. SB onramp, and the H St. SB onramp.

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Planned State Highway System Projects

The following is a list of planned SHS Projects, within the vicinity of McKinley Village, that are on the current Sacramento Area Council of Governments Metropolitan Transportation Plan, and should be considered:

- E Street Transition Lane Project;
- Bus / Carpool Lanes Project from US 50 to I-80. Caltrans recommends an approximate 25-foot easement to accommodate future widening on Business 80 from post-mile (PM) 1.683 to PM 2.448.

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Encroachment Permit

Please be advised that any work or traffic control that would encroach onto the State Right of Way (ROW) requires an encroachment permit that is issued by Caltrans. To apply, a completed encroachment permit application, environmental documentation, and five sets of plans clearly indicating State ROW must be submitted to the address below.

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Mr. Tim Greutert
California Department of Transportation
District 3, Office of Permits
703 B Street, Marysville, CA 95901

Traffic-related mitigation measures should be incorporated into the construction plans prior to the encroachment permit process. See the website at the following URL for more information: <http://www.dot.ca.gov/hq/traffops/developserv/permits/>.

Hydraulics

There are two 36-inch, reinforced concrete pipes that convey run-off, toward the proposed development, from north to south under Business 80, and are located approximately 500 feet east of existing flood gates. The Master Storm Drainage Study did not mention these pipes. Caltrans is concerned about how the pipes will be addressed by the proposed development and requests further drainage studies to reveal these potential impacts prior to project approval.

1-6

A Street Bridge

On pages 2-10, 2-58, and 4.9-93 the DEIR discusses a new sidewalk for the north side of the A Street Bridge. Caltrans requests the DEIR reflect that the new sidewalk is subject to Caltrans approval.

1-7

Transportation Management Plan (TMP)

Environmental Impact 4.9-5 indicates project build-out could cause potentially significant traffic impacts due to construction-related activities. Please add Caltrans, to Mitigation Measure 4.9-5, as a reviewer of the required construction traffic and parking TMP. TMPs must be prepared in accordance with Caltrans' *Manual on Uniform Traffic Control Devices*. Further information is available for download at the following web address: <http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/pdf/camutcd2012/Part6.pdf>

1-8

If you have any questions regarding these comments or require additional information, please contact Arthur Murray, Intergovernmental Review Coordinator at (916) 274-0616 or by email at: Arthur.Murray@dot.ca.gov.

Sincerely,



TRACEY FROST, Interim Chief
Office of Transportation Planning – South

c: Scott Morgan, State Clearinghouse

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DEPARTMENT OF TRANSPORTATION
DISTRICT 3 – SACRAMENTO AREA OFFICE
2379 GATEWAY OAKS DRIVE, STE 150 - MS 19
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January 24, 2014

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Ms. Dana Allen
Planning Division
City of Sacramento
300 Richards Blvd., 3rd Floor
Sacramento, CA 95811-0218

McKinley Village – Draft Environmental Impact Report (DEIR)

Dear Ms. Allen:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the McKinley Village Project DEIR. The project consists of the construction and operation of a 328-unit residential development, a neighborhood recreation center with incidental retail uses, parks, and associated infrastructure on an approximately 48.75-acre site. The project is bounded by State Route 51 (Business 80) and currently has access via A Street, a two-lane overpass across Business 80 that connects the development with downtown Sacramento through the Sutter’s Landing Regional Park, and another access from 40th Street in East Sacramento. There is no existing or proposed direct access to the State Highway System (SHS) from the proposed McKinley Village Project. On January 10, 2014, Caltrans provided comments to the McKinley Village DEIR. Below is a follow-up to our original reference to the planned Bus/Carpool Lane Project from US 50 to I-80.

Planned State Highway System Projects

Caltrans initially recommended an approximate 25-foot easement to accommodate future widening on Business 80 from post-mile (PM) 1.683 to PM 2.448.

The project site plan has already provided a 15-foot buffer area between the existing Business 80 right of way and the proposed sound wall adjacent to the freeway that could accommodate future widening on Business 80. Therefore, upon further analysis, we retract the comment regarding Caltrans recommends an approximate 25-foot easement.

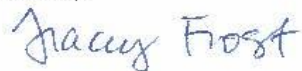
1-9

"Caltrans improves mobility across California"

Ms. Dana Allen / City of Sacramento, Planning Division
January 24, 2014
Page 2

If you have any questions regarding these comments or require additional information, please contact Arthur Murray, Intergovernmental Review Coordinator at (916) 274-0616 or by email at: Arthur.Murray@dot.ca.gov.

Sincerely,



TRACEY FROST, Interim Chief
Office of Transportation Planning – South

c: Scott Morgan, State Clearinghouse

bcc: Nieves Castro, District 3 Office of Planning and Modal Programs

Andrew Brandt, District 3, Deputy Director, Transportation Planning and Local Assistance

Gary Arnold, District 3, Division of Planning and Local Assistance

Eric Fredericks, District 3, Office of Environmental Planning

Dennis Jagoda, District 3, Hydraulics

Eric Frederickson, HQ Division of Engineering Services, Office of Special Funded Projects

Steven Vo, District 3, Office of Travel Forecasting and Modeling

Jim Calkins, District 3, Division of Traffic Operations

Nelson Xiao, District 3, Division of Traffic Operations

Jess Avila, District 3, Project Management

Ken Lastufka, District 3, Office of Environmental Planning

Royce Gotcher, HQ, Division of Rail

"Caltrans improves mobility across California"

**Letter 1: Tracey Frost, Interim Chief, California Department of Transportation,
January 10, 2014**

- 1-1: The commenter states that the methodology used to calculate the level of service (LOS) on Business 80 (Capital City Freeway) is incorrect because it does not consider the cumulative delay created by bottlenecks on mainline Business 80. The commenter indicates that Table 4.9-12 is incorrect because it does not reflect accurate existing conditions and requests that the cumulative delay on Business 80 be considered in order to show the true traffic impact of the project.

As explained on page 4.9-22 of the Draft EIR, freeway operations were analyzed using procedures and methodologies contained in the HCM 2010 for base freeway segments and ramp merge/weave areas. For weaving sections, the Leisch Method described in the HCM 2010 (RTB 2010) was applied. The Draft EIR provides observed LOS and explains that the analysis does not capture traffic operations effects in congested locations with bottlenecks.

Furthermore, complete or comprehensive freeway analysis is not required as part of the Draft EIR because the project is not required to identify impacts to Business 80/Capital City Freeway as explained on pages 4.9-1 and 4.9-38 of the Draft EIR and below in Response to Comment 1-2. The freeway operations analysis contained in the Draft EIR is for informational purposes only and is not intended to provide a comprehensive analysis of freeway operations and impacts. See also Responses to Comments to 1-2 and 31-109 for more information.

- 1-2: The commenter states that no mitigation measures have been identified to mitigate the project's traffic impacts to the state highway system.

As explained on page 4.9-1 of the Draft EIR, the City of Sacramento, with concurrence from the Sacramento Area Council of Governments (SACOG) has concluded that the proposed project is consistent with the Sustainable Communities Strategy (SCS) prepared and adopted by SACOG (see Appendix N). Under Senate Bill 375, projects that are determined to be SCS consistent are granted certain CEQA streamlining benefits. These include relief from analysis of project impacts of passenger vehicles related to greenhouse gas emissions, impacts on the regional transportation network, and growth inducement. In this context, the "regional transportation network" refers to all roadways contained in the regional SACOG model, which includes all State highway facilities, local arterials and many local collectors. Therefore, in accordance with the Public Resources Code Section 21159.28, it is not necessary to determine project impacts to the state transportation system (i.e., Capital City Freeway). (DEIR, p. 4.9-38.)

- Despite no requirement to identify impacts to State highways, Section 4.9 of the Draft EIR does include analysis of the Capital City Freeway for informational purposes. This information is made available to assist Caltrans since it is responsible for evaluating State highway traffic operations and identifying future improvement needs especially within SCS areas where development projects are no longer required to perform independent impact analysis.
- 1-3: Commenter identifies potential mitigation measures including fair share contributions to the following: E Street Transition Lane Project, SRTD facilities in and around the project area, Fiber Optics Installation from US-50 to I-80, Auxiliary Lane Project southbound 80 and Ramp Meters on T Street SB onramp, N Street onramp and H Street SB onramp.
- See Response to Comment 1-2 regarding the analysis required under SB 375.
- 1-4: Commenter states the following constitutes a list of planned SCS projects within the vicinity of McKinley Village that are on the current SACOG MTP and should be considered: E Street Transition Lane Project and Bus/Carpool Lanes Project US-50 to I-80. The commenter recommends an approximate 25-foot easement to accommodate future widening on Business 80 (Capital City Freeway) from post mile (PM) 1.683 to PM 2.448.
- An easement dedication cannot be required and should be identified as a request for reservation. Caltrans letter dated January 24, 2014, see Response to Comment 1-9, states that a 25-foot easement is not required due to the project's proposed site plan that provides a 15-foot buffer area between Capital City Freeway and the proposed sound wall.
- 1-5: The commenter notes that any work or traffic control plan that would encroach into the state right-of-way (ROW) requires an encroachment permit.
- Caltrans is identified as a Responsible Agency on page 2-66 of the Draft EIR and the City will consult with Caltrans to obtain all necessary encroachment permits.
- 1-6: Commenter states two 36-inch RCP pipes convey run-off toward the proposed project under Capital City Freeway. The commenter is concerned how the pipes will be addressed by the proposed development and requests further drainage studies.
- The project engineer has been in discussion with both Caltrans staff and City Department of Utilities (DOU) staff regarding the existing 36-inch pipes. The pipes were placed in 1954 prior to development of the City's 28th Street Landfill to the

north of the freeway. Drainage facilities within the City's landfill were constructed by the City after the culverts were installed by Caltrans. The 36-inch pipes appear to provide drainage for surface flows from approximately 17 acres of the closed landfill site and Capital City Freeway. The preliminary drainage plans submitted as part of the project application provide sufficient information to identify the extent of excavation that may be required, and to confirm that the project site will accommodate drainage facilities that may be required for the project. The Department of Utilities, in conjunction with Caltrans, will require, if the project is approved, drainage plans with sufficient detail to design and operate drainage infrastructure that meets the City's standards, and receives and manages off-site flows from the closed landfill and freeway drainage facilities. The Draft EIR includes sufficient analysis to evaluate the impact (see Impact 4.6-6) and the impact remains less than significant.

- 1-7: The comment requests that Caltrans be involved in review of the sidewalk proposed on the north side of the A Street Bridge. To address this concern the Draft EIR Project Description is revised to read:

The fourth sentence in the last paragraph on page 2-10 is revised as follows:

The A Street Bridge will be upgraded in order to improved to provide vehicular, bicycle, and pedestrian access to the site. Improvements to the bridge will include adding a sidewalk on the north side and new paving, striping and upgrading the guardrails. Caltrans may consider other bridge designs, including a cantilever to provide additional pedestrian access on the north side, but any such approaches would require additional design and discussions with Caltrans. The bridge is owned and maintained by the California Department of Transportation (Caltrans) and is routinely checked to ensure it is structurally sound. An inspection structural review of the bridge was conducted by Caltrans in March 2011, and the review concluded the bridge is structurally sound (Caltrans 2011).

The first sentence in the second paragraph under the header A Street Overcrossing of Capital City Freeway Pedestrian Facilities on page 4.9-93 is revised as follows:

It is recommended that pedestrian facilities on either side of the bridge transition to bifurcated sidewalks with standard planter strips separating the sidewalks from the travel lanes, consistent with pedestrian facilities to be provided elsewhere within the project site and Caltrans approval.

- 1-8: The comment requests that Caltrans be added as a reviewer to the project's required traffic and parking Transportation Management Plan in Mitigation Measure 4.9-5 on page 4.9-62. To address this request the Draft EIR is revised to read:

The first sentence on Mitigation Measure 4.9-5 on page 4.9-62 is revised to read:

Prior to the beginning of construction, the applicant shall prepare a construction traffic and parking management plan to the satisfaction of City Traffic Engineer and subject to review by all affected agencies including Caltrans.

- 1-9: The comment provides a correction to a statement made in a prior comment (see Response to Comment 1-4) and indicates that there is adequate right-of-way to accommodate the proposed Caltrans widening project on the eastbound lanes adjacent to the project site. No further response is required.

Comment Letter 2

STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION
180 PROMENADE CIRCLE, SUITE 115
SACRAMENTO, CA 95834

EDMUND G. BROWN JR., Governor



December 17, 2013

Dana Allen
City of Sacramento
300 Richards Blvd
Sacramento, CA 95811

Re: Notice of Completion for McKinley Village Project, SCH #2008082049

Dear Dana Allen:

As the state agency responsible for rail safety within California, the California Public Utilities Commission (CPUC or Commission) recommends that development projects proposed near rail corridors be planned with the safety of these corridors in mind. New developments and improvements to existing facilities may increase vehicular traffic volumes, not only on streets and at intersections, but also at at-grade highway-rail crossings. In addition, projects may increase pedestrian traffic at crossings, and elsewhere along rail corridor rights-of-way. Working with CPUC staff early in project planning will help project proponents, agency staff, and other reviewers to identify potential project impacts and appropriate mitigation measures, and thereby improve the safety of motorists, pedestrians, railroad personnel, and railroad passengers. A formal application to the CPUC is required for any new crossings along with an acceptable CEQA document.

2-1

The McKinley Village Project proposes the construction of two (one vehicle and one pedestrian) new grade separated railroad crossings to access the project area. It also proposes that the existing at-grade crossing at 28th Street be utilized as a second vehicle access the project property.

There needs to be a study done to evaluate traffic safety issues at the 28th Street at-grade railroad crossing. Any increase in traffic to the at-grade crossing by this project needs to be evaluated for potential impacts to safety and hazards.

In general, the major types of impacts to consider are collisions between trains and vehicles, and between trains and pedestrians. Measures to reduce adverse impacts to rail safety need to be considered. General categories of such measures include:

2-2

- Improvements to warning devices at existing highway-rail crossings
- Installation of additional warning devices
- Improvements to traffic signaling at intersections adjacent to crossings, e.g., traffic preemption
- Installation of median separation to prevent vehicles from driving around railroad crossing gates
- Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains
- Installation of pedestrian-specific warning devices, channelization and sidewalks
- Construction of pull out lanes for buses and vehicles transporting hazardous materials

Dana Allen
December 17, 2013
Page 2 of 2

- Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the railroad right -of-way
- Elimination of driveways near crossings
- Increased enforcement of traffic laws at crossings
- Rail safety awareness programs to educate the public about the hazards of highway-rail grade crossings.

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Commission approval is required to modify an existing highway-rail crossing or to construct a new crossing.

If you have any questions, please feel free to contact me at (916) 928-2515 or atm@cpuc.ca.gov .

Sincerely,



David Stewart, Utilities Engineer
Rail Crossings Engineering Section
Safety and Enforcement Division

Letter 2: David Stewart, Utilities Engineer Rail Crossings Engineering Section, Safety and Enforcement Division, Public Utilities Commission, December 17, 2013.

2-1: The comment provides information regarding the role of the Public Utilities Commission (PUC) for projects proposed near railroad facilities.

The project applicant has been working with the PUC to ensure rail safety is not compromised. The comment does not raise issues regarding the adequacy of the Draft EIR or information contained in the Draft EIR. No further response is required.

2-2: The comment states needs to be a study done to evaluate traffic safety issues at the 28th Street at-grade railroad crossing and provides a list of measures to be reviewed.

The City of Sacramento Department of Public Works (DPW) is the responsible agency to review traffic safety. The project's engineer has reviewed the existing 28th Street at-grade crossing with City Public Works staff including the existing automatic signal crossing arms. The McKinley Village project proposes to improve/modify the existing warning devices to insure all traffic lanes are controlled by the crossing arms, and construct median separation and pedestrian specific warning devices (extend crossing arms to proposed sidewalks). DPW will review the final plans including requirements for additional warning devices, prohibition of parking, need for and feasibility of pull out lanes, fencing, and elimination of driveways near crossings. The project is also proposing construction of a sidewalk and a barrier curb to the at-grade railroad crossing at 28th Street. A review of the Federal Railroad Administration (FRA) website revealed only one accident reported at this crossing in March 1981. No other accident reports are listed on the FRA website. Please see also Master Response 9 that addresses safety concerns along 28th Street in this area.

2-3: The comment notes that PUC approval is required to modify an existing highway rail crossing or to construct a new crossing.

The Draft EIR indicates that approval by the PUC will be sought for a new public crossing at 40th Street and for the proposed bicycle pedestrian underpass at Alhambra Boulevard, if approved by Union Pacific (DEIR, p. 2-67). The project applicant has been in contact with PUC to ensure any modifications to the rail crossing at 28th Street obtain all the required permits and approvals.



Comment Letter 3



Central Valley Regional Water Quality Control Board

24 December 2013

Dana Allen
City of Sacramento
300 Richards Boulevard
Sacramento, CA 95811

CERTIFIED MAIL
7012 2210 0002 1419 6813

COMMENTS TO REQUEST FOR REVIEW FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, MCKINLEY VILLAGE (P0-086) PROJECT, SCH NO. 2008082049, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 12 November 2013 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Draft Environmental Impact Report* for the McKinley Village P0-086) Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

McKinley Village (P0-086) Project
Sacramento County

- 2 -

24 December 2013

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits¹

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 97-03-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

¹ Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

McKinley Village (P0-086) Project
Sacramento County

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24 December 2013

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit, or any other federal permit, is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements

If USACOE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project will require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

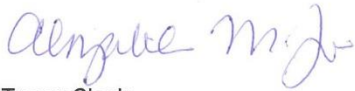
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

McKinley Village (P0-086) Project
Sacramento County

- 4 -

24 December 2013

If you have questions regarding these comments, please contact me at (916) 464-4684 or tcleak@waterboards.ca.gov.



to Trevor Cleak
Environmental Scientist

cc: State Clearinghouse Unit, Governor's Office of Planning and Research, Sacramento

Letter 3: Trevor Cleak, Environmental Scientist, Central Valley Regional Water Quality Control Board, December 24, 2013

The letter provided by the Central Valley Regional Water Quality Control Board includes information on Board requirements and permits. The letter does not include any comments on the adequacy of the Draft EIR or on information contained in the Draft EIR. Therefore, no response is required.

Comment Letter 4



Central Valley Regional Water Quality Control Board

31 December 2013

Ms. Dana L. Allen
 Environmental Planning Services
 City of Sacramento Community Development Department
 300 Richards Boulevard, 3rd Floor
 Sacramento, California 95811

DRAFT ENVIRONMENTAL IMPACT REPORT, MCKINLEY VILLAGE RESIDENTIAL DEVELOPMENT PROPOSAL, SACRAMENTO COUNTY

Central Valley Water Board Title 27 permitting staff has reviewed the November 2013 Draft Environmental Impact Report (EIR) for the McKinley Village Project prepared by Dudek Associates for the City of Sacramento (the City) under CEQA regulations. The 328-unit residential development project would be constructed on a 49-acre parcel of privately-owned land immediately south of the closed 28th Street Landfill. The parcel is bounded by the Capital City (Business 80) freeway to the north and the Union Pacific railroad line to the south. The parcel is accessible only by the A Street bridge, which connects to the landfill site. Our comments are as follows:

1. Various sections of the report may unnecessarily repeat information already described. Groundwater monitoring results, for example, are described on Pages 4.4-9 and then repeated on Pages 4.4-15 and 4.4-42. Gas information design and monitoring results are also repeated multiple times. The City might consider consolidating each topic into a single section and then cross-referencing as necessary. The description of groundwater quality information should be located in Section 4.5 (Hydrology, Water Quality and Drainage), not Section 4.4 (Public Hazards and Safety).

The report also appears to jump from one topic to another. The City might consider reorganizing/re-ordering such information. For example, a basic site description and background should be provided before other details such as monitoring well locations and adjacent land uses. See Page 4.4.2.

2. The report should specifically address whether the project site was ever operated as a burn dump and how such determination was made (e.g., boring log descriptions, soil samples, SWIS data base search). Indirect evidence provided in the report as to the absence of solid waste disposal (e.g., 2006 geotechnical investigation) does not preclude the possibility that waste was burned.

3. On Page 4.4-39, the report notes that the two groundwater monitoring wells (C-11S and C-11D) and six landfill gas monitoring probes on the northern perimeter of the site will be



KARL E. LONGLEY ScD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCCE, EXECUTIVE OFFICER

11020 Sun Center Drive #200, Rancho Cordova, CA 95670 | www.waterboards.ca.gov/centralvalley



Dana Allen
City of Sacramento

- 2 -

31 December 2013

relocated for the project. Relocation of the wells should occur prior to project construction in accordance with Central Valley Water Board staff and LEA approvals.

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4-3
Cont.

- 4. As noted in a 12 November 2013 Central Valley Water Board staff inspection report (copy enclosed), current waste discharge requirements (WDRs) Order No. R5-2004-0039 for the 28th Street Landfill does not require monitoring of landfill soil gas probes for volatile organic compounds (VOCs). Future revised WDRs for the landfill may require VOC monitoring of one or more of the offsite gas probes along the project perimeter.

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4-4

- 5. On Page 4.4.12, the report states:


Although VOCs in groundwater and methane in soil gas have been detected on the site and along the southern boundary of the landfill . . . these conditions do not "represent a limitation to residential development" as long as the landfill is maintained by the City in accordance with local, state, and federal requirements to control and monitor groundwater and methane (see Appendix K).

The report should consider the possibility that noncompliance with the landfill WDRs could potentially result in offsite impacts and the need for further corrective action and/or monitoring. The report should address what mitigation measures will be incorporated into the project to address such contingency. At a minimum, the project should be compatible with the reasonably foreseeable release scenario approved for landfill corrective action financial assurances under Title 27 (e.g., gas release). See WDR Finding 51.

↑
4-5

- 6. Separate comments on the project may be provided by other Central Valley Water Board program staff.

Central Valley Water Board staff appreciates the opportunity to comment on the Draft EIR for the McKinley Village project. If you have any questions, please feel free to contact me at (916) 464-4641 or by email at jmoody@waterboards.ca.gov.


 JOHN MOODY
 Water Resources Control Engineer
 Title 27 Permitting and Mines

Enclosure

cc w/o enclosure:

- Gino Yekta, CalRecycle, Sacramento
- John Lewis, Sacramento County Environmental Management Department, Sacramento
- Lisa Jameson, Sacramento County, Environmental Management Department, Sacramento
- Steve Harriman, City of Sacramento Department of Utilities, Sacramento
- Ambrose McCready, SCS Engineers, Sacramento
- Ryan Fong, River Rock Investment Group, Sacramento
- Randolf Brandt, Geosyntec, Oakland
- Nickolas Targ, Holland & Knight, San Francisco

Letter 4: John Moody, Water Resources Control Engineer, Central Valley Regional Water Quality Control Board, December 31, 2013

- 4-1: The comment notes that information is repeated throughout Section 4.4, Hazards and Public Safety and suggests the information could be consolidated into a single section; indicates information on groundwater should be included in Section 4.5, Hydrology, Water Quality and Drainage instead of Section 4.4, Hazards and Public Safety; and is suggesting the sections be reorganized.

Information provided in Section 4.4, in some instances, is repeated in other portions of the analysis to ensure it is captured if an individual is only reviewing select portions of the section to avoid cross references, which may be distracting. The analysis of groundwater is included in Section 4.4 due to the potential contamination of groundwater on the project site associated with the proximity to the City's closed landfill. Depth to groundwater and issues associated with groundwater quality are also addressed in Section 4.5.

The suggestions provided by the commenter are noted; however, because the comment does not raise an issue regarding the physical effects on the environment, no further response is required.

- 4-2: The commenter requests that the report identify whether the McKinley Village site was used as a burn dump and how such a determination was made.

There is no evidence that the project site was used as a burn dump or that any solid waste disposal occurred on the site. Several site evaluations have been made to assess the site's history and to document whether landfilling or other operations, which could include operating a burn dump, may have created environmental conditions on the McKinley Village property. These evaluations have included reviewing the site's history as documented through aerial photographs, Sanborn Fire Insurance maps, regulatory agency records, and regulatory agency published lists, including the State Solid Waste Information System list. The findings of these assessments are documented in the Phase I Environmental Site Assessment (ESA) report prepared for the project site and included in Appendix H and L of the Draft EIR. No information suggesting the site has been used as a burn dump was found in any of the resources reviewed.

Moreover, the conclusion that the site was not used as a burn dump is also supported by the findings of the engineering firm Wallace Kuhl and Associates (WKA), which

conducted a geotechnical analysis of the site in 2006. To assess whether the site could have received waste from the (closed) 28th Street Landfill (landfill), the engineering firm reviewed its 2006 geotechnical assessment and the location of the property in the context of the landfill. WKA found that of the 40 geotechnical borings collected from across the project site in 2006, there is no record of potential landfill material as having been observed. In addition, WKA found that the adjacent Capital City Freeway, which separates the landfill from the project site, was constructed before the landfill was in operation. Therefore, WKA stated its “opinion that the [closed] 28th Street Landfill *does not* physically extend into the McKinley Village site.” (Letter Report, FR: Stephen L. French, Wallace Kuhl Associates, TO: Tim Crush, Wood Rodgers, Inc (October 9, 2013) (emphasis in the original)).

Based on an evaluation of historical site uses, a review of subsurface soil conditions, and the lack of connection between the landfill and the project site there is no evidence that a burn dump operated on the project site.

- 4-3: The comment notes that the two groundwater wells and six landfill gas monitoring probes should be relocated prior to construction.

As stated in the Draft EIR on page 2-50, the wells and probes will be relocated in conjunction with project development. The relocation will take place with the approval of agencies of applicable jurisdiction. The relocation of the groundwater wells and soil gas monitoring probes will occur during project construction in consultation with City staff.

- 4-4: The comment states that per a recent staff inspection by the Board current waste discharge requirements do not require onsite monitoring of landfill gas probes for volatile organic (VOC) compounds, and that future revised discharge requirements may require such monitoring.

The information provided is noted and forwarded to City staff for their consideration in regards to future monitoring of VOC compounds on the project site. No further response is required.

- 4-5: The comment recommends that: (1) the Draft EIR should consider the possibility that noncompliance with the closed 28th Street Landfill's Water Board permits could potentially result in offsite impacts and the need for further corrective action and or monitoring; and (2) the project should be compatible with the reasonably foreseeable release scenarios approved as part of the landfill's corrective action financial assurances, under waste discharge requirement finding 51.

The project is compatible with the "reasonably foreseeable" release scenario referenced by the commenter, as discussed below. In addition, based on periodic groundwater sampling both on the landfill and the project site, as described in the Draft EIR on page 4.5-18, groundwater conditions are stable or improving and are, in fact, below (better than) drinking water standards on the McKinley Village property.

The project is also compatible with the "reasonably foreseeable release scenarios." In 2003, the City conducted an evaluation to address known or reasonably foreseeable releases to groundwater at the City's closed 28th Street Landfill (landfill). Foreseeable release scenarios included: (i) gas-born release of Volatile Organic Compounds (VOCs) to groundwater; (ii) leachate release through the landfill liner system; and (iii) groundwater intrusion into the waste mass. Report, *Cost Estimates and Financial Assurance for Corrective Acton for Known or Reasonably Foreseeable Releases to Groundwater, Sacramento 28th Street Landfill, Sacramento, California* (SCS Engineers, 2003).

The Report states that previous corrective actions implemented by the City of Sacramento have had a positive effect on groundwater quality. These include landfill closure, post-closure maintenance and continued operation of the landfill gas (LFG) recovery and landfill leachate collection and control systems. The Report also states, that should future monitoring show a reversal in the current trends, significant increases in contaminant concentrations, or strong evidence of a gas-borne release to groundwater, the City will consider the following corrective actions:

- Routine monitoring of additional water quality parameters to help fingerprint the source of a reasonably foreseeable release (leachate or LFG): dissolved oxygen (field parameter), oxidation reduction potential (field parameter), alkalinity, total organic carbon, and sulfide.
- Enhancements to the LFG control system to specifically address VOC migration into underlying groundwater.
- Further evaluation (identifying boundary of release), followed by design and installation of a "source control" groundwater extraction and ex situ treatment system after groundwater is pumped to the surface.

None of these proposed considerations is incompatible with the proposed project. However, in the unlikely event that access to the project site is required, the Regional Board has authority to seek access to the site, as it does for any other area, including other residential areas proximate to the closed landfill.

Comment Letter 5

California Environmental Protection Agency

Edmund G. Brown Jr., Governor



DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY

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P.O. BOX 4025, SACRAMENTO, CALIFORNIA 95812

January 9, 2013

Ms. Dana Allen
City of Sacramento Community Development Department
Environmental Planning Services
300 Richards Boulevard, Third Floor
Sacramento, California 95811

**SUBJECT: MCKINLEY VILLAGE PROJECT (P08-806)
DRAFT ENVIRONMENTAL IMPACT REPORT - SCH 2008082049**

Dear Ms. Allen:

The California Department of Resources Recycling and Recovery (CalRecycle) has received the Draft Environmental Impact Report (DEIR) for the McKinley Village Project (Project). The DEIR evaluates the environmental impacts of the proposed Project which includes a 328-unit residential development along with parks and a neighborhood recreation center on an approximately 48.75-acre site.

CalRecycle is an agency, along with the State and Regional Water Quality Control Boards (RWQCB), responsible for the regulation and oversight of solid waste handling and disposal by implementing both State and Federal standards, including Subtitle D of the Resource Conservation and Recovery Act (RCRA). CalRecycle concentrates its expertise on the non-water quality issues with landfills including landfill gas. CalRecycle has expertise relative to solid waste and environmental, public health and safety issues associated with land uses on or near solid waste facilities including landfills. CalRecycle works with and through local agencies that act as the Solid Waste Local Enforcement Agency (LEA).

The Project is located within the City of Sacramento limits northeast of downtown Sacramento along Interstate 80 and north of the Union Pacific Railroad lines, east of Alhambra Boulevard, and west of Lanatt Street. The American River is located approximately 0.25 mile north and east of the Project site. Furthermore, the Project is located within 250 feet of the closed City of Sacramento 28th Street Landfill, a landfill (disposal site) operated and maintained by the City of Sacramento and regulated under the authority of Title 27 of the California Code of Regulations (27 CCR).

CalRecycle staff has focused our review of the DEIR on Chapter 4.4 (Hazards and Public Safety) and provides the following general and specific comments.

General Comments

Development Criteria: As reported in the DEIR, landfill gas has previously been detected from monitoring wells located at the landfill boundary. Pursuant to 27 CCR, the concentration of landfill gas at the compliance wells is required to be kept under the regulatory threshold of 5% methane by volume (27 CCR 20921[a][2]). State standards also required that the concentration of methane shall be less than 1.25% by volume in on-site structures (27 CCR 20921[a][1]).

5-1

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Ms. Dana Allen
 DEIR – McKinley Village Project
 January 9, 2014
 Page 2 of 3

Current CalRecycle regulations prescribe standards for construction of structures on closed landfill sites that are within 1,000 feet of a disposal area (27 CCR 21190[g]). These standards do not apply to structures on adjacent parcels. The regulation does not prohibit construction of structures, but does contain standards that are designed to protect the public health and safety from landfill gas.

While the disposal site operator is required to control landfill gas from migrating off site at concentrations that are dangerous to public health and safety, landfill gas control measures are not always 100% effective. Landfill gas control facilities can be idled periodically for routine maintenance and infrequently for major (and/or minor) repairs. Furthermore, the control facilities can become inoperable as a result of causal events. Additionally, gas migration can occur even during normal, non-upset gas control operations. CalRecycle has seen situations where onsite monitoring and controls have not been fully effective in detecting and/or controlling landfill gas migration. Some examples where landfill gas has migrated off-site toward adjacent residential development even though a gas control system was functioning include: Canyon Park Landfill and Mission Canyon Landfill, Los Angeles County; Pleasanton Landfill, Alameda County; and Sparks-Rains Landfill and Newport Dump No. 1, Orange County.

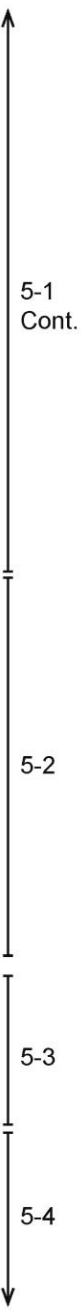
Therefore, in general, regardless of the current effectiveness of any landfill gas control and/or monitoring system, CalRecycle staff usually recommends that the property boundary of any landfill include a 1,000-foot buffer zone around the disposal area. However, we realize that because of development potential, especially in urban areas, this is not often a likely scenario.

The DEIR indicates that project consultants have stated that the landfill methane does not represent a limitation to residential development as long as the landfill is maintained by the City in accordance with requirements to control methane (DEIR pp. 4.4-12, 4.4-15, 4.4-21 and 4.4-40). These statements imply that methane gas migration can occur (and be considered a hazard) if not adequately controlled. As stated above, gas migration can occur regardless of the current effectiveness of the landfill gas monitoring and control system.

Because landfill gas generated within the landfill has had and will continue to have the opportunity to migrate into other properties, landfill gas has the potential to cause harm by creating hazardous and explosive environments. Therefore, as an additional backup safety measure, CalRecycle recommends that as a condition of development approval, any enclosed structure (i.e., residence or other public use structure) within 1,000 feet of the landfill footprint be required to comply with the standards similar to those contained in 27 CCR 21190(g) (e.g., barrier layer, venting, in-structure alarms, etc.). A copy of 27 CCR 21190(g) is attached to this letter for your reference.

Methane Standard: The regulatory standard for methane concentration at a landfill boundary is the lower explosive limit (LEL) of 5% by volume in air. However, the regulatory standard (both State and Federal) for on-site structures is 1.25% by volume in air. Since methane is an explosive hazard at 5%, the lower 1.25% level should be used to determine potential impacts to future residents especially since methane can accumulate and reach higher concentrations.

Project Impacts on the Landfill: Because of the proposed residential development, it is possible that the landfill will need to increase monitoring frequency and/or install additional monitoring wells as a protection measure. Furthermore, although the prescriptive methane compliance standard at the landfill property boundary is 5% by volume in air, because of the proposed residential development and the lower structure standard for methane, the landfill may have to implement corrective actions at lower monitoring readings than 5% at the property boundary



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should the levels pose a significant threat to nearby development. The project also includes improvements to A Street which passes through the landfill. Any improvements to the road should not impede the City's maintenance of the landfill.

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 5-4
 Cont.

These improvements may require revisions to the landfill closure and postclosure maintenance plans and approvals from CalRecycle, LEA, and RWQCB. The project proponent and the City should consult with the LEA regarding these activities.

5-5

Specific Comments

1. *Section 4.4.4 Project-Specific Impacts and Mitigation Measures 4.4-2 (Page 4.4-39):* The DEIR states that the replacement gas monitoring wells on the project property (Lennane wells) will be constructed in accordance with the DTSC Advisory on Active Soil Gas Investigations. The DTSC Advisory focus is not for long-term monitoring of potential off-site gas migration. Since the gas monitoring wells are considered part of the landfill gas monitoring program, the wells need to be constructed pursuant to standards contained in 27 CCR 20923 *et seq.* The proposed location and design needs to be submitted to the LEA for approval with concurrence by CalRecycle.

5-6

2. *Section 4.4.5 Sources Cited (Page 4.4-50):* The following two documents are attributed to CalRecycle:

- a. CalRecycle, 2013a. Closed Disposal Site Inspection Report (188) for the Sacramento City Landfill located at 28th and A Streets, Sacramento, 95816, July 11, 2013.
- b. CalRecycle, 2013b. Closed Disposal Site Inspection Report (188) for the Sacramento City Landfill located at 28th and A Streets, Sacramento, 95816, July 26, 2013.

5-7

Please note that both documents are inspection reports that were prepared by the County of Sacramento, Department of Environmental Management, acting as the LEA, utilizing a form developed by CalRecycle. These two documents are the product of Sacramento County and should be attributed as such.

Thank you for the opportunity to review the DEIR. Should you have any questions or comments concerning the above matter, please contact Mr. Michael Wochnick or me at (916) 341-6289 or (916) 341-6320, respectively. Alternatively, CalRecycle staff may be reached by email at michael.wochnick@calrecycle.ca.gov or wes.mindermann@calrecycle.ca.gov.

Sincerely,



Wes Mindermann, P.E.
 Supervising Waste Management Engineer
 Engineering Support Branch

Attachment

cc: Jon Lewis, Sacramento County Environmental Management Department
 John Moody, Central Valley Regional Water Quality Control Board, Sacramento
 Steve Harriman, City of Sacramento Department of General Services

ATTACHMENT

27 CCR 21190. CIWMB - Postclosure Land Use

(g) All on site construction (*sic* structures) within 1,000 feet of the boundary of any disposal area shall be designed and constructed in accordance with the following, or in accordance with an equivalent design which will prevent gas migration into the building, unless an exemption has been issued:

- (1) a geomembrane or equivalent system with low permeability to landfill gas shall be installed between the concrete floor slab of the building and subgrade;
- (2) a permeable layer of open graded material of clean aggregate with a minimum thickness of 12 inches shall be installed between the geomembrane and the subgrade or slab;
- (3) a geotextile filter shall be utilized to prevent the introduction of fines into the permeable layer;
- (4) perforated venting pipes shall be installed within the permeable layer, and shall be designed to operate without clogging;
- (5) the venting pipe shall be constructed with the ability to be connected to an induced draft exhaust system;
- (6) automatic methane gas sensors shall be installed within the permeable gas layer, and inside the building to trigger an audible alarm when methane gas concentrations are detected; and
- (7) periodic methane gas monitoring shall be conducted inside all buildings and underground utilities in accordance with Article 6, of Subchapter 4 of this chapter (section 20920 et seq.).

Letter 5: Wes Mindermann, P.E., Supervising Waste Management Engineer, Engineering Support Branch, Department of Resources Recycling and Recovery, January 9, 2014

5-1: The commenter states that it usually recommends that the property boundary of any landfill include a 1,000-foot buffer zone around the disposal area, but notes that because of development potential, especially in urban areas, this is not a likely scenario.

CEQA addresses project impacts on the environment. “[I]dentifying the [environmental] effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes.” (*Ballona Wetlands Land Trust v. City of Los Angeles*, (2011) 201 Cal.App.4th 455, 474; cert. denied 2012 Cal. LEXIS 3142 (March 12, 2012).) While the comments regarding a potential impact to the project are outside the issues to be addressed under CEQA, the following responses are provided for informational purposes only. See also Responses to Comments 31-7 and 31-8.

As the commenter notes in its letter, the referenced Title 27 regulations do not apply to property located off landfill parcels and a 1,000-foot buffer zone around disposal areas is often impracticable in urbanized areas. In addition, the commenter's recommendation is made without consideration to site specific considerations. As discussed in the Draft EIR on page 4.4-40, given the requirement that the landfill operator complies with legally enforceable obligations, impacts from the landfill are less than significant.

5-2: The commenter asserts that, if not controlled, landfill gas migration may be a hazard and the Title 27 requirements should be followed.

Given the closed 28th Street Landfill's approved Title 27-compliant closure plan and post-closure monitoring, the City's record of compliance, including in response to upset conditions, and the very low or non-detect methane concentrations at the property's perimeter, significant impacts are not foreseeable at the project site.

As documented in the Draft EIR, and elsewhere, the landfill operator has implemented and adhered to the closed 28th Street Landfill Final Closure/Post Closure Maintenance Plan (Plan). The Plan documents how the operator will comply with Title 27 requirements to maintain the closed landfill in a safe condition. Implementation of the Plan also protects the existing, proximate residential land uses (e.g., River Park neighborhood and Midtown) and would similarly protect the McKinley Village Project.

Following amendments proposed by the landfill operator, the LEA has re-reviewed and approved the Plan as late as January 2014.

As described in the Plan and in the Draft EIR, the City has implemented landfill gas control and monitoring measures, including 100 interior extraction wells, 66 perimeter extraction wells, 48 onsite monitoring wells, and 6 monitoring wells located on the northern perimeter of the project property (the "Lennane" landfill probes). The Plan also includes monitoring requirements, and contingency measures (e.g., responses to address damage caused by flood, fire, earthquake). These contingency measures are backed by financial assurances, ensuring the City has the financial resources to implement contingency measures.

In the course of approximately 64 quarterly inspections, the LEA has issued no violation or raised concern regarding any significant limitation to the landfill's monitoring program. In addition, the City of Sacramento has monitored landfill gas at the closed 28th Street Landfill and off-site at the Lennane probes on a monthly basis since the landfill was certified closed. As described in the Draft EIR on page 4.4-21, methane has only been detected a total of two times at the on-site Lennane probes. One was observed in 1994, prior to the implementation of the landfill gas control measures. The other was recorded in 2006, and reportedly resulted from the intentional build-up of landfill gas to be sold to a third party for commercial/industrial purposes. The landfill no longer collects landfill gas for sale. (DEIR, p. 4.4-21)

Moreover, as described in the Draft EIR on pages 4.4-12 and 4.4-15, independent environmental consultants in 2007 and 2013 constructed their own soil gas probes and assessed soil gas conditions on the project site, including at locations near the Lennane probes. These assessments found no soil gas proximate to the Lennane probes, and only detected landfill gas at very low levels in two locations in a limited area at the perimeter of the property. These sole detections showed concentrations eight and 32 times below the lower explosive limit (and below concentrations permitted in structures on landfill sites under Title 27). For site plan purposes only, no structures will be developed at this location. (DEIR, pp. 4.4-12 to 4.4-15)

CalRecycle recently questioned the adequacy of the existing landfill gas monitoring well network. (See CalRecycle, Letter, FR: Michael B. Worchnick, CalRecycle, TO: Lisa Jameson, Supervisor, Environmental Management Department, Country of Sacramento, City of Sacramento 28th Street Landfill, Sacramento County (34-AA-0018) Site Visit-- November 12, 2013 (December 13, 2013)). The City, as the closed 28th Street Landfill operator, and the applicant responded. (See Letter, FR: Steve Harriman, Integrated Waste General Manager, City of Sacramento, TO: Michael B.

Wochnick, CalRecycle/Closure and Technical Support Section, CalRecycle, CalRecycle Letter of December 13, 2013, Concerning Site Visit to Former 28th Street Landfill, SWIS ID# 34-AA-0018 and Proposed McKinley Village Development Property (December 20, 2013); see also, Letter FR: Nicholas Targ, TO: Michael B. Wochnick, California Integrated Waste Management Board, Concerning Former Sacramento 28th Street Landfill - November 2013 Site Visit (December 20, 2013).)

As requested by CalRecycle, the City's landfill consultant prepared a report evaluating the efficacy of the landfill gas monitoring well network and compliance status. See SCS Engineers, Landfill Gas Migration Monitoring System Evaluation City of Sacramento 28th Street Landfill Sacramento, California (Facility No. 34-AA-0018) (January 14, 2014). That report concludes,

A reasonably comprehensive LFG monitoring system has been in place at the 28th Street Landfill and a monitoring program has been ongoing for several decades under agency oversight. Results of our review of historic monitoring data and our field investigation show no evidence that combustible gas concentrations in soils at or near the site boundary exceed regulatory thresholds, or that a public safety hazard currently exists.

While a reasonably comprehensive monitoring system is in place, it was installed in accordance with previous regulatory/permit requirements and agency approvals. We consider the monitoring network to be generally in compliance with 27 CCR requirements, but not all elements of the monitoring network meet current standards. *Id.* at 10.

In particular, with respect to the Lennane probes, the report concludes that while improvements to a few of the "vault boxes" associated with several Lennane probes, should be made "[g]iven the construction details for these probes, we have no reason to question the validity of historic monitoring at the Lenane [sic] property probes, which have shown undetectable levels of methane gas]." *Id.* at 9.

Because significant landfill gas migration onto the project site is not foreseeable, given the landfill operator's existing, legally enforceable obligations and its record of compliance, no additional control measures are needed or appropriate.

5-3: The commenter cites a methane standard of 1.25%.

No applicable regulatory standard exists for methane in structures not located on landfill sites. The Draft EIR includes a full discussion of landfill gas issues, and provides substantial evidence that any impact is less than significant.

5-4: The commenter notes potential project impacts on the landfill.

No increased monitoring is anticipated as a result of the project to maintain impacts below the significance level. In addition, no migration standards that are lower than Title 27 levels are anticipated. The proposed project would be located at a distance from the closed landfill comparable to that of existing residential neighborhoods. Therefore, no material condition will be changed as a result of the location of the project. The City as landfill operator is required to take all measures to comply with regulatory approved post closure obligations.

With respect to the City's access to the landfill, as identified on page 4.4-41 of the Draft EIR, improvements to A Street will not impede the City's maintenance of the landfill.

5-5: The commenter recommends consultation with the LEA, CalRecycle, and RWQCB.

As explained in the Draft EIR, the project applicant will assist the City in obtaining any required approvals from agencies with jurisdiction over any aspect of the project.

5-6: The comment notes that the replacement soil gas monitoring wells must be constructed in accordance with standards specified in the California Code of Regulations Title 27 (CCR 20923 et seq) and the location and design are subject to approval by the LEA with concurrence by CalRecycle.

Apart from the McKinley Village Project, the landfill operator will install additional probes as recommended in the post closure monitoring network evaluation, as discussed in Response to Comment 9-3. Replacement probes will be constructed in compliance with Title 27 requirements at locations and design approved by the LEA with the concurrence of CalRecycle to the extent necessary. As indicated on page 4.4-39 of the Draft EIR, “[t]he CVRWQCB and the County, in its capacity as the LEA, shall also approve the relocation of the subject groundwater wells and soil gas probes, as part of the project.” The Draft EIR is revised to include the role of CalRecycle in the process and is revised to read:

The last sentence in the fourth paragraph on page 4.4-39 is revised as follows:

The CVRWQCB and the County, in its capacity as the LEA, shall also approve the relocation of the subject groundwater wells and soil gas probes, as part of the project with concurrence by CalRecycle.

5-7: The comment notes a correction to two sources provided on page 4.4-50. To address this correction page 4.4-50 of the Draft EIR is revised as follows:

~~CalRecycle~~Sacramento County, 2013a. Closed Disposal Site Inspection Report (188) for the Sacramento City Landfill located at 28th and A Streets, Sacramento, 95816, July 11, 2013.

~~CalRecycle~~Sacramento County, 2013b. Closed Disposal Site Inspection Report (188) for the Sacramento City Landfill located at 28th and A Streets, Sacramento, 95816, July 26, 2013.

Comment Letter 6



January 10, 2014

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Dana Allen, Associate Planner
 City of Sacramento, Community Services Department
 Environmental Planning Services
 300 Richards Boulevard, Third Floor
 Sacramento, CA 95811

Via Email: dallen@cityofsacramento.org

RE: Draft Environmental Impact Report (DEIR) for the McKinley Village Project

Dear Ms. Allen:

We have reviewed the DEIR for the McKinley Village Project and we note the discussion of the California High-Speed Rail Authority's (Authority) potential alignment for access to a high-speed rail station in downtown Sacramento in Chapter 2 "Project Description" of the report. In November 2005, the Authority certified the Final Program EIR/EIS and approved the High-Speed Train System Program for California. The statewide program included the identification and analysis of a preferred alignment for the high-speed rail service to the Sacramento station. Since that time, the Authority has discussed the proposed high-speed rail alignment alternatives with City of Sacramento representatives and has commenced analysis of potential alternatives for refined high-speed rail alignments and placement of ancillary facilities in the vicinity of the McKinley Village Project site. I would appreciate if the City would continue to keep the high-speed rail project in mind as analysis of the development project moves forward.

6-1

We look forward to continuing coordination with the City of Sacramento on our respective projects.

Please visit our website at <http://www.cahighspeedrail.ca.gov> for additional project information. Please contact me at (916) 403-6934 or mark.mcloughlin@hsr.ca.gov if you have any questions.

Sincerely,

Mark A. McLoughlin
 Director of Environmental Services

EDMUND G. BROWN JR.
 GOVERNOR




cc: Ben Tripousis, Northern California Regional Director, California High-Speed Rail Authority

770 L Street, Suite 800 Sacramento, CA 95814 • T: (916) 324-1541 • F: (916) 322-0827 • www.hsr.ca.gov

Letter 6: Mark A. McLoughlin, Director of Environmental Services, California High Speed Rail Authority, January 10, 2014

- 6-1: The letter provides information that the CHSRA has met with City representatives to discuss alignment alternatives and has commenced analysis of potential alternatives for the rail alignment and placement of ancillary facilities in the vicinity of the project site. The letter does not raise issues regarding the adequacy of the Draft EIR or information contained in the Draft EIR. No further response is required.

Comment Letter 7



REGIONALSAN
TAKING THE WASTE OUT OF WATER
Sacramento Regional County Sanitation District

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Treatment Plant
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Prabhakar Somavarapu
District Engineer

Ruben Robles
Director of Operations

Christoph Dobson
Director of Policy & Planning

Karen Stoyanowski
Director of Internal Services

Joseph Maestretti
Chief Financial Officer

Claudia Goss
Public Affairs Manager

November 14, 2013

Ms. Dana Allen
City of Sacramento - Community Development Department
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

Subject: Notice of Availability – Draft Environmental Impact Report for the McKinley Village Project (P08-086)

Dear Ms. Allen:

Sacramento Regional County Sanitation District (Regional San) has reviewed the subject document and has the following comments.

The proposed project consists of development of 328 residential units, a neighborhood recreation center, parks, and other public spaces on an approximately 48.75-acre site located in the City of Sacramento (City).

Local sewer service for the proposed project site will be provided by the City’s local sewer collection system. Ultimate conveyance to the Sacramento Regional Wastewater Treatment Plant (SRWTP) will be provided via the City Interceptor. 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.

In March 2013, the Regional San Board of Directors adopted the Wastewater Operating Agreement between Regional San and the City.

Section 3.H. Combined Wastewater Control System (CWCS) ALLOWABLE FLOW ALLOCATIONS of the Wastewater Operating Agreement states:

Regional San agrees to operate Regional San facilities as necessary to accept flows via the CITY Interceptor from CITY service areas up to the maximum instantaneous flow rates indicated in the table below:

<u>Service Area</u>	<u>Maximum Flow Rate</u>
Sump 2 and 2A	60 MGD
Sump 2, 2A, 21, 55, and 119	98 MGD
Total combined flows to City Interceptor from Sumps 2, 2A, 21, 55, 119, and five (5) trunk connections	108.5 MGD

Ms. Dana Allen
November 14, 2013
Page 2

Total flow to the City Interceptor from the five trunk connections may exceed 10.5 MGD so long as the City does not exceed the 108.5 total flow limitations set forth in the Wastewater Operating Agreement. The City and Regional San will monitor flow conditions and will coordinate operations of their respective facilities, to the extent feasible for each party, to prevent or reduce the risk of SSOs in their respective facilities.

The Regional San Board of Directors adopted the Interceptor Sequencing Study (ISS) in February 2013. The ISS updated the Regional San Master Plan 2000 and can be found on the Regional San website at <http://www.srcsd.com/interceptor-study.php>.

Regional San is not a land-use authority. Regional San sewer systems are designed using predicted wastewater flows that are dependent on land use information provided by each land use authority. Projects identified within Regional San planning documents are based on growth projections provided by land-use authorities. Sewer studies, including points of connection and phasing information will need to be completed to fully assess the impacts of any project that has the potential to increase existing or future flow demands. Onsite and offsite impacts associated with constructing sanitary sewers facilities to provide service to the subject project must be included in environmental impact reports.

The SRWTP provides secondary treatment using an activated sludge process. Incoming wastewater flows through mechanical bar screens through a primary sedimentation process. This allows most of the heavy organic solids to settle to the bottom of the tanks. These solids are later delivered to the digesters. Next, oxygen is added to the wastewater to grow naturally occurring microscopic organisms, which consume the organic particles in the wastewater. These organisms eventually settle on the bottom of the secondary clarifiers. Clean water pours off the top of these clarifiers and is chlorinated, removing any pathogens or other harmful organisms that may still exist. Chlorine disinfection occurs while the wastewater travels through a two mile "outfall" pipeline to the Sacramento River, near the town of Freeport, California. Before entering the river, sulfur dioxide is added to neutralize the chlorine. The design of the SRWTP and collection system was balanced to have SRWTP facilities accommodate some of the wet weather flows while minimizing idle SRWTP facilities during dry weather. The SRWTP was designed to accommodate some wet weather flows while the storage basins and interceptors were designed to accommodate the remaining wet weather flows.

A new NPDES Discharge Permit (Permit) was issued to Regional San by the Central Valley Regional Water Quality Control Board (Water Board) in December 2010. The Water Board amended the Permit in December 2011 to make minor changes to the Monitoring and Reporting Plan and other changes. In adopting the Permit, the Water Board required Regional San to meet significantly more restrictive treatment levels over its current levels and Regional San believes that many of these new conditions go beyond what is reasonable and necessary to protect the environment. As a result, Regional San appealed the Permit to the State Water Resources Control

Ms. Dana Allen
November 14, 2013
Page 3

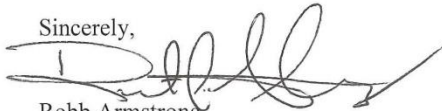
Board (State Board). The State Board adopted an Order in December 2012 essentially upholding the Water Board Permit.

Following the State Board decision Regional San filed litigation in California Superior Court. A decision on the merits of the litigation is expected in the summer of 2014. Regional San and the Water Board entered into a partial settlement agreement where Regional San agreed to implement some Permit requirements and the Water Board agreed to amend the Permit for specific conditions, while litigation on other requirements will proceed forward. In the meantime, Regional San is required to begin the necessary activities, studies and projects to meet the new Permit conditions. Some of the new treatment facilities must be completed by May 2021, while other new treatment facilities must be completed by May 2023, if Regional San is unsuccessful in its litigation.

Customers receiving service from Regional San are responsible for rates and fees outlined within the latest Regional San ordinance. Fees for connecting to the sewer system are set up to recover the capital investment of sewer and treatment facilities that serves new customers. The Regional San ordinance is located on the Regional San website at <http://www.srscsd.com/ordinances.php>.

If you have any questions regarding this letter, please feel free to contact me at (916) 876-6104 or by e-mail at armstrongro@sacsewer.com.

Sincerely,



Robb Armstrong
Regional San

RA: ra(ra)

**Letter 7: Robb Armstrong, Sacramento Regional County Sanitation District,
November 14, 2013**

The letter received from the Sacramento Regional County Sanitation District provides general information pertaining to their systems and facilities. The letter does not include any comments on the adequacy of the Draft EIR or on information contained in the Draft EIR. Therefore, no response is required.

Comment Letter 8



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 95818
(916) 321-2800
(29th St. Light Rail Station/
Bus 36,38,60,67,68)

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

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December 18, 2013

Dana Allen
Associate Planner
City of Sacramento, Community Development Department
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

NAME OF DEVELOPMENT: McKinley Village

CONTROL NUMBER: P08-086

TYPE OF DOCUMENT DEIR

The McKinley Village project proposes 328-unit residential development, a neighborhood recreation center with some retail, and parks in the Heavy Industrial (M-2) zone. The project site encompasses 48.75 acres and the community will be accessed from two main entrances; the extension of 40th Street through a new undercrossing of the UPRR on the east and on A Street to the west. There is also a proposed bike/pedestrian underpass at the northerly end of Alhambra Boulevard. The site is located south of Business 80, north of the UPRR and SPRR tracks, east of Alhambra Boulevard and west of Lanatt Street in the East Sacramento community.

Bus route 34 provides 60-minute weekday service 1/4 mile from the proposed project while Routes 67 and 68 provide 30-minute weekday and 60-minute weekend service just over 1/2 mile from the proposed project site.

Regional Transit (RT) staff has reviewed the DEIR and has the following comments:

- In Section 4.9, Transportation and Circulation, on page 4.9-15 under Transit System, the first paragraph should be adjusted as follows to clarify distances to bus stops:

“The Sacramento Regional Transit District (RT) provides transit service in the study area, including three bus routes located in the vicinity of the project site: Route 34, Route 67, and Route 68. All three of these routes have stops located to the south of the project site. However, existing bus stops are at least a quarter mile *to 1/2 mile* walking/biking distance from the three proposed site access points (the closest stop to the project site serves Route 34, and is located just over a quarter mile south of the proposed bicycle/pedestrian access point at the intersections of E Street/Alhambra Boulevard). However, with the proposed Caltrans closure of the E Street ramp, several stops on 30th Street in the project vicinity that service Routes 67 and 68 northbound will no longer be available. The closest bus stop available for Route 67/68 northbound travel will be located at L

8-1

Dana Allen

- 2 -

December 18, 2013

Street and 30th Street just under a one mile distance. Stops in the study area are marked by a posted sign. Select stops include a bus shelter or a bench located on a 4-5 foot sidewalk. Figure 4.9-5 displays existing bus routes and stop locations within the study area. Detailed descriptions of the three RT routes in the vicinity of the project site are provided below:"

↑
8-1
Cont.

Thank you for the opportunity to comment. Please send any subsequent documents and hearing notices that pertain to this project as they become available. If you have further questions regarding these recommendations, please contact me at (916) 556-0514 or cpair@sacrt.com.

Sincerely,



Chris Pair
Assistant Planner

c: RoseMary Covington, AGM Planning and Transit Systems Development, RT
Jeffrey Damon, Director, Long Range Planning, RT

From: Chris Pair <CPair@sacrt.com>
Sent: Friday, December 20, 2013 11:09 AM
To: Dana Allen; Evan Compton
Cc: RoseMary Covington
Subject: McKinley Village Project DEIR and application review

Dana,
RT has one additional comment in response to the DEIR for McKinley Village. The DEIR describes the access to existing bus service in East Sacramento (which RT provided clarification on in our comment letter). Our additional comment is:

- Considering how far away the bus stops are and the limited access points, RT requests that the developer provide way finding to the nearest bus stops from each access point.

Evan - RT would like to see this as a condition on the project please. The applicant can contact RT if they have questions or want suggestions for the way finding.

Thank you,

Chris Pair
Assistant Planner
Sacramento Regional Transit
Planning Dept
Phone (916) 556-0514
Fax (916) 456-1752

8-2

Letter 8: Chris Pair, Assistant Planner, Regional Transit, December 18, 2013 and December 20, 2013

8-1: The comment is requesting that language in the Draft EIR be corrected to more accurately describe transit facilities in the area.

To address the comment, the first paragraph under the header Transit System on page 4.9-15 is revised to read:

The Sacramento Regional Transit District (RT) provides public transit service in the study area, including three bus routes located in the vicinity of the project site: Route 34, Route 67, and Route 68. All three of these routes have stops located to the south of the project site. However, existing bus stops are at least a quarter mile to a ½ mile walking/biking distance from the three proposed site access points (the closest stop to the project site serves Route 34, and is located just over a quarter mile south of the proposed bicycle/pedestrian access point at the intersection of E Street/Alhambra Boulevard), if approved by Union Pacific and the appropriate government agencies. However, with the proposed Caltrans closure of the E Street ramp, several stops on 30th Street in the project vicinity that service Routes 67 and 69 northbound will no longer be available. The closest bus stops available for Route 67/68 northbound travel will be located at L Street and 30th Street, just under a one mile distance. Stops in the study area are marked by a posted sign. Select stops include a bus shelter or a bench located on a 4- to 5-foot sidewalk. Figure 4.9-5 displays existing bus routes and stop locations within the study area.

8-2: The follow up email provided requests that the project applicant provide way finding (signage) to the nearest bus stop from each access point.

In response to the commenter's request, the following will be a condition of approval:

The applicant shall provide way finding to the nearest bus stops from the project's western entrance near A Street and Street 1, as well as from its eastern entrance near A Street and 40th Street, and shall make provisions for any planned bus stops, shelters, etc. to the satisfaction of Regional Transit.

Comment Letter 9

Environmental Management Department
Val F. Siebal, Director



Divisions
Environmental Compliance
Environmental Health

County of Sacramento

January 8, 2014

Dana Allen
City of Sacramento Community Development Department
Environmental Planning Services
300 Richards Blvd. 3rd Floor
Sacramento, CA 95811

Dear Ms. Allen:

SUBJECT: LEA COMMENTS RE: MCKINLEY VILLAGE PROJECT DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)

Sacramento County Environmental Management Department (EMD) staff have reviewed the DEIR for the McKinley Village project. EMD acts as the Local Enforcement Agency (LEA) for the California Department of Resources, Recycling, and Recovery (CalRecycle) in Sacramento County. EMD has the authority for regulatory oversight of solid waste handling and disposal sites in the Cities and County of Sacramento.

The proposed project, which would include development of a 328-unit residential neighborhood, is to be located just to the south of the 28th Street Sanitary Landfill, separated by the Capital City Freeway.

The LEA previously provided comments on the Notice of Preparation (NOP) for this project on June 25, 2013, and on the Administrative Draft EIR on October 1, 2013. The LEA provides the following comments regarding the DEIR:

- 1) Title 27, section 21190, prescribes development standards for structures located on landfills within 1,000 feet of waste. The project site is not located within the permitted boundary of the 28th Street Landfill and is therefore, not within the LEA's jurisdiction. However, the project is located within 250' of the landfill's Waste Management Unit B. As such, there is the possibility that landfill gas could migrate from the landfill to the project site. The current status of the project site is that of an empty field through which migrating landfill gas can vent into open air. The impact of the project would include placement of structures over the field, inhibiting the venting to open air and creating the possibility of landfill gas accumulation in structures and utility corridors. The project would also have the effect of drawing a significant number of people into an environment through which landfill gas may vent or accumulate.

9-1

Given the above, the LEA recommends that as a condition of development approval, enclosed structures to be built within 1,000 feet of the landfill's waste footprint be required to comply with the measures specified in section 21190(g) to prevent gas migration into the

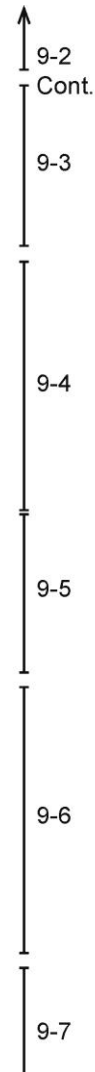
9-2

10590 Armstrong Ave. Suite A • Mather, CA 95655 • phone (916) 875-8550 • fax (916) 875-8513 • www.emd.saccounty.net

McKinley Village DEIR Comments
 January 8, 2014
 Page 2 of 3

structures. Alternatively, the project could include a setback with engineered mitigation measures to protect the entire development, as approved by CalRecycle engineering staff.

- 2) The proposed project, which would bring sensitive receptors to within 1,000' of the landfill's waste footprint, may prompt the LEA to require the landfill operator to reduce the spacing between monitoring wells along the landfill boundary opposite the project site per 27CCR sections 20925(b)(3), 20925(c)(3), and 20921(e) as necessary to protect persons and structures that could potentially be impacted by landfill gas migration in the event of a failure of the landfill gas control system. If additional gas monitoring wells are required on the landfill, it would result in the impact of additional costs to the landfill operator.
- 3) Landfill gas control systems are not always 100% effective. The DEIR notes the incident in September of 2008, when a large-scale increase in methane concentrations occurred on the landfill as a result of a surface fire that damaged the landfill's gas control system. Although exceedances of the 5% regulatory level were not noted at the probes located on the project site, exceedances well in excess of 5% were registered with the landfill boundary probes directly across the freeway from the project site. In addition, this incident occurred in the late summer when cyclical gas levels tend to be lower. The DEIR also notes that in 1994/5, there was a "methane excursion" over a two month period during which methane concentrations were detected on the project site in excess of 40%. This was before the landfill's gas control system was installed, but these conditions could be repeated in the event of a significant, extended failure of the landfill's gas control system. Also, as documented in the LEA focused inspection report dated 11/12/2013, the gas probes located on the project site do not appear to be Title 27 compliant and may not provide reliable gas monitoring information. As per the inspection report, the landfill operator should have the landfill gas monitoring network, including the probes on the project site, assessed by a professional engineer for operational condition and Title 27 compliance.
- 4) As stated in the DEIR, the six landfill gas monitoring wells (and two groundwater monitoring wells) located on the project site are proposed to be moved to new locations on the project site. The six "Lennane" gas monitoring wells are part of the landfill's gas monitoring network as indicated by their inclusion in maps and drawings of the network included with the landfill's Closure and Post-Closure Maintenance Plan amendments, updates, inspections, and related documents. The new locations, spacing, construction, and depths must be approved in advance by the LEA, CalRecycle, and the RWQCB, and comply with the requirements of Title 27 section 20925, and landfill staff must be ensured continued, unimpeded access to the well/probes in order to monitor and maintain them. Also, permits must be obtained from the EMD Well Program for destruction of old wells as well as for the construction of the new ones, pursuant to the Sacramento County Well Ordinance.
- 5) It is noted that throughout the document, the adjacent 28th Street Landfill is referred to as a "former" Landfill. This term may be construed to imply that it is no longer a landfill and has undergone "clean closure" to remove the wastes to another location. The 28th Street Landfill is a "closed landfill" that still contains landfill waste, and should be referred to as such for accuracy.



McKinley Village DEIR Comments
January 8, 2014
Page 3 of 3

- 6) Sections 1.3 and 4.4.4 state that "should waste be determined to be located beneath the road alignment that connects the A Street Bridge to 28th Street, both the LEA and the CARWQCB may be required to make modifications to the Post Closure Land Use Plan (PCLUP), the Closure/Postclosure Maintenance Plan (C/PCMP), and Corrective Action Order, respectively." Please note that the responsibility to modify the PCLUP and C/PCMP to reflect changes in post-closure land use and/or maintenance would fall upon the operator of the landfill, and not the LEA or RWQCB. 9-8

- 7) As stated in the DEIR, improvements are proposed to A Street which passes through the 28th Street Landfill, to connect the project site to 28th Street. In a meeting on October 18, 2013, representatives of the developer described to LEA and CalRecycle staff improvements to A Street that would continue to ensure landfill site security and safe, efficient access to the landfill from the road by landfill staff so that landfill maintenance activities are in no way impeded. Measures that were described included strong, attractive fencing on both sides of the road matching the fencing around the landfill's flare station and turn-outs for landfill vehicles with locking access gates with adequate room to provide for the safety of landfill staff as well as for the occupants of passing vehicles. It should be noted that should the developer fail to adequately address these issues, the city, as operator of the landfill, would be responsible for doing so. 9-9

- 8) The two closed disposal site inspection reports (July 11, and July 26, 2013) are incorrectly attributed to CalRecycle in Section 4.4.5 Sources Cited. Both reports were prepared by the Sacramento County LEA. 9-10

Sincerely,



John Lewis
Environmental Specialist III
Environmental Management Department
Solid Waste Program

JL:LJ:jm

c: Wes Mindermann, CalRecycle
Diana Nordstrom-Lamkin, CalRecycle
John Moody, RWQCB
Steve Harriman, City of Sacramento

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Letter 9: John Lewis, Environmental Specialist III, Environmental Management Department, Solid Waste Program, Sacramento County, January 8, 2014

9-1: Commenter asserts that the project site is located within 250 feet of a portion of the landfill and is not within LEA's jurisdiction, but is within an area where landfill gas could migrate from the landfill to the project site. The commenter continues and states that development of the proposed project would include placement of structures over a (currently undeveloped) field creating the possibility that landfill gas could accumulate in the structures and utility corridors where people would be present.

As an initial matter, CEQA addresses a project's impact on the environment. "[I]dentifying the [environmental] effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes." *Ballona Wetlands Land Trust v. City of Los Angeles*, (2011) 201 Cal.App.4th 455, 474; *cert. denied* 2012 Cal. LEXIS 3142 (March 12, 2012). While the comment regarding a potential impact to the project is outside of the issues addressed under CEQA, the following responses are provided for informational purposes only. Please see also Responses to Comments 31-7 and 31-8.

The distance from the northern boundary of the project site to the southern boundary of buried waste at the closed 28th Street Landfill ranges between 240 and 480 feet. (email from T. Crush, Wood Rodgers, Inc. 2/27/14). This is comparable to the distance from the landfill to existing neighborhoods, and the LEA has identified no methane concern with respect to those structures. Based on approximately 16 years of landfill gas monitoring by the City of Sacramento as the landfill operator, a high level of compliance by the City with respect to landfill post closure obligations, at least 64 site inspections by the LEA, and two independent soil gas investigations, there is substantial evidence that landfill gas does not represent a significant impact to the project.

9-2: Commenter recommends that the mitigation measures identified under Title 27 CCR 21190(g) be imposed or that a set back with a site-wide mitigation measure approved by CalRecycle be adopted.

The measures under 27 CCR 21190(g) include a suite of engineering controls imposed on structures located within a landfill parcel without regard to site specific conditions. They are not imposed on projects located off a landfill site. Here, as described in the Draft EIR on page 4.4-39, landfill gas has not been detected at the Lennane probes on the project property in more than seven years. Two independent landfill gas evaluations also found no methane proximate to the Lennane probes or

the interior of the project property. In the area where landfill gas testing showed that methane at very low-levels was present (i.e., at between 8 and 32 times lower than the low explosive limit) no structures will be built. (DEIR p. 4.4-40.)

- 9-3: The commenter identifies that it may seek to require reducing the spacing between monitoring wells and that this requirement would impose costs to the landfill operator.

The proposed project would be located at a distance from the closed landfill comparable to that of existing residential neighborhoods. Therefore, no material condition would be changed as a result of the location of the project. See Responses to Comments 5-4 and 9-1. However, the City as landfill operator is required to take all measures to comply with regulatory approved post closure obligations.

The City of Sacramento recently evaluated its landfill monitoring network. Report, *SCS Landfill Gas Migration Monitoring System Evaluation* (SCS January 2014). The report concludes, among other things, "[w]hile a reasonably comprehensive monitoring system is in place, it was installed in accordance with previous regulatory/permit requirements and agency approvals. We consider the monitoring network to be generally in compliance with 27 CCR requirements, but not all elements of the monitoring network meet current standards." *Id.* at 10. The report recommends implementing additional landfill gas monitoring probes in select locations to bring the monitoring system in compliance with current standards.

Although not required by CEQA, and apart from the McKinley Village Project, the City of Sacramento, as the landfill operator, has committed to implementing the recommendations of the report, including the installation of the additional landfill gas probes.

- 9-4: The commenter notes that two landfill gas excursions have occurred, one in 2008, which did not affect the project site, and 1994, which pre-dated closure of the 28th Street Landfill (landfill) and the installation of the engineering measures necessary to control and monitor landfill gas. The commenter asserts that another major excursion could occur, if a significant extended failure of the landfill gas control system were to occur.

The comment addresses obligations of the landfill operator to control the closed landfill in compliance with existing obligations. The landfill has a record of compliance and no notice of violation has been issued by any regulatory agency since the landfill has been in post closure status. The information provided does not raise issues regarding the adequacy of the Draft EIR or information contained in the Draft EIR.

With respect to the potential for a major excursion, the landfill operator has developed contingency plans that are backed by financial assurances. Contingency plans are included in the 28th Street Landfill's *Final Closure/Post Closure Maintenance Plan*. Due to amendments made to the Plan, the LEA approved this Plan on January 30, 2014, including the contingency measures. Approvals from CalRecycle and the Central Valley Regional Water Quality Control Board are expected shortly. These measures address potential local and regional events that could disrupt the operation of the landfill system (e.g., flood, fire, seismic failure of slopes sections). These already-in-place plans mitigate for events that could cause excursions. For example, as noted by the commenter, a fire in 2008 substantially impacted the landfill gas collection system. However, by deploying contingency measures, repairs to the landfill gas collection system were quickly implemented, and no landfill gas excursion was detected at the Lennane probes.

- 9-5: The commenter suggests that the landfill gas probes, including those on the project site should be assessed by an engineering firm, consistent with the LEA's inspection report, which found that the landfill gas probes on the project site, the Lennane probes, did not appear to be Title 27 compliant.

The landfill operator recently hired an expert engineering firm to evaluate the closed 28th Street Landfill's landfill gas monitoring system, including the Lennane probes. See *Report, Landfill Gas Migration Monitoring System Evaluation* (SCS January 2014). The evaluation report, which has been provided to both the LEA and CalRecycle, concludes that,

[a] reasonably comprehensive LFG [(landfill gas)] monitoring system has been in place at the 28th Street Landfill and a monitoring program has been ongoing for several decades under agency oversight. Results of our review of historic monitoring data and our field investigation show no evidence that combustible gas concentrations in soils at or near the site boundary exceed regulatory thresholds, or that a public safety hazard currently exists.

While a reasonably comprehensive monitoring system is in place, it was installed in accordance with previous regulatory/permit requirements and agency approvals. We consider the monitoring network to be generally in compliance with 27 CCR requirements, but not all elements of the monitoring network meet current standards. *Id.* at 10.

The City, apart from the proposed project, has committed to undertaking the recommended enhancements identified in the evaluation. With respect to the

Lennane probes, the report states, "we have no reason to question the validity of historic monitoring at the "Lenane" [sic] property probes." Nonetheless, as described in the Draft EIR on page 2-50, and as part of the project plan the Lennane probes will be replaced and relocated on the project site.

Therefore, the recommended assessment has been performed and the landfill gas monitoring information generated by the landfill operator, generally, and specifically with respect to the Lennane probes, has been confirmed.

- 9-6: The commenter notes that the replacement of the Lennane probes and groundwater monitoring wells must be approved by the LEA and CalRecycle, and the Regional Water Quality Control Board, respectively. Commenter also notes that landfill staff must have unimpeded access to the wells and probes. Finally, commenter states that permits must be obtained from the County well program before the old wells are destroyed and the new wells are constructed.

The City, as the landfill operator, and with the assistance of the project applicant will ensure that all such approvals and access will be obtained and maintained to the extent required by the regulatory agencies.

- 9-7: The comment provides a correction to how the 28th Street Landfill is identified in the Draft EIR. The 28th Street landfill should be identified as being a "closed" landfill versus a "former" landfill as noted in the Draft EIR.

No evidence of confusion has been identified in the comments and the extensive discussion in the Draft EIR of the landfill's current condition provides a clear understanding of the landfill's status. As requested, however, the text of the EIR will be modified, such that the phrase, "former 28th Street Landfill", will be replaced with the phrase, "closed 28th Street Landfill." This change will be made throughout the Draft EIR to more accurately portray the status of the landfill.

- 9-8: The comment clarifies that if any changes are required to the Post Closure Land Use Plan or the Closure/Post Closure Maintenance Plan the responsibility to amend the plan to reflect changes in land fill use and for maintenance activities would be that of the landfill operator and not the LEA or RWQCB.

To address this clarification the Draft EIR the second full paragraph on page 4.4-41 under Impact 4.4-2 is revised as follows:

The LEA and CVRWQCB may additionally determine that the landfill operator must make landfill design modifications as part of the project improvements to A

Street from the A Street Bridge to 28th Street (e.g., related to landfill security, integrity of the landfill, and access to landfill monitoring equipment), which modifications may be required to be included in the Postclosure Land Use Plan. Further, should solid waste be determined to be located beneath the road alignment that connects the A Street Bridge to 28th Street, ~~both the LEA and the CVRWQCB~~ landfill operator may be required to make modifications to the Postclosure Land Use Plan, the Closure/Postclosure Maintenance Plan and the Postclosure Maintenance and Corrective Action Order, respectively.

- 9-9: The comment indicates that improvements to A Street that pass through the 28th Street Landfill should include fencing on both sides of the road as well as other modifications. The project applicant has met with the County LEA representatives and has agreed to include these modifications to A Street (see Chapter 2, Text Changes to the Draft EIR), per their request.

The end of the first paragraph on page 2-63 is revised as follows:

The project also includes fencing and landscaping on both sides of the roadway in compliance with current landfill regulations. Additional signage and measures, such as barriers, to ensure the security of the former 28th Landfill and protection of the public are also anticipated.

- 9-10: The comment provides a clarification to source documents.

Please see Response to Comment 5-7 that previously requested this change be made to the document.

Comment Letter 10



Larry Greene
AIR POLLUTION CONTROL OFFICER

January 3, 2014

Ms. Dana Allen
Associate Planner
City of Sacramento, Community Development Department
300 Richards Blvd., 3rd Floor
Sacramento, California 95811
916.808.2762
dallen@cityofsacramento.org

Subject: McKinley Village Draft Environmental Impact Report (November 2013)
City Project #: P06-118
SMAQMD Project #: SAC200601408

Dear Ms. Allen,

Thank you for the opportunity to comment on the McKinley Village DEIR. The Sacramento Metropolitan Air Quality Management District (SMAQMD) has worked closely with the City and project proponents for several years to ensure adequate analysis and disclosure of toxic diesel particulate matter and potential cancer risk due to locomotives and motor vehicles adjacent to the project. SMAQMD staff reviewed the draft health risk assessment (HRA, Sept 2013) (a component of the administrative draft EIR), which we found adequate for CEQA purposes. Unfortunately, the City revised the HRA and did not afford us the opportunity to review the changes prior to the DEIR's release. We noted several areas of concern with the public draft, which we conveyed to the City and project consultants via a conference call on December 19. Our comments are repeated in this letter.

To begin, we understand the difficult task that the City faces in conveying a project's advantages and disadvantages to the public and decision makers. This is especially true given the CEQA framework, where decision-makers must weigh many factors in the decision to approve or deny a project. In this case, the City is presented with two competing factors related to air quality: the potential exposure of future residents to toxic air contaminants from nearby sources, and, the overall air quality benefits from reduced vehicle miles traveled and associated motor vehicle pollutants due to its infill location and

McKinley Village DEIR
SMAQMD Comments
Sent Via Email Only

Sacramento Metropolitan Air Quality Management District
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Page 1 of 3

consistency with the 2035 Metropolitan Transportation Plan/Sustainable Communities Strategy¹. Therefore, the following comments reflect specific issues with the environmental document for this project, and not the project itself.

HRA Issues

First, the DEIR implies that risk below 276/million is considered by SMAQMD to be less than significant- which is a serious misinterpretation of our guidance: *“The HRA indicates that future residents would not be subject to a substantial increase in lifetime cancer risk as a result of exposure to TACs from mobile sources based on the SMAQMD guidance”* (4.1-51).

10-1

SMAQMD’s evaluation criterion is not a health-based significance threshold, but merely a screening tool to determine if a site specific HRA is recommended. Our guidance does not provide a threshold of significance, nor does it provide guidance on the “substantial increase” concept. We therefore recommend clarifying this statement by striking “based on the SMAQMD guidance”.

Second, and of greater concern, is the HRA’s attempt to provide perspective by deemphasizing the cancer risk results:

This Health Risk Assessment (HRA) finds that only one residence at the far eastern end of the project site would expose residents to a maximum cancer risk of approximately 120 in 1 million under a 70-year exposure scenario, which is less than SMAQMD’s evaluation criterion of 276 in 1 million. Residents in nearly all of the project site, however, would be exposed to a cancer risk of approximately 80 in 1 million or less (HRA iv).

10-2

The HRA downplays the maximally exposed receptor’s cancer risk by remarking that “only one” receptor would be exposed to that risk, and, by inappropriately pointing out that the risk is lower than our evaluation criterion. Then, the risk for the rest of the project’s receptors is downplayed via an improper comparison to the highest risk.

Our evaluation criterion is merely the point at which the screening process indicates the need for a site specific health risk assessment. It is a product of very conservative inputs, and should not be compared to the results of a refined site-specific health risk assessment.

Though the City may simply be attempting to provide perspective, risk assessment norms dictate that cancer risk be plainly stated.

In addition to cancer risk, the HRA analyzes cancer burden and chronic non-cancer health impacts, respectively. These types of analyses are more commonly seen in stationary source risk assessments and may not be appropriate in conveying near-roadway and rail health impacts.

10-3

EIR Issues

The FEIR should discuss applicable General Plan policies designed to reduce exposure to mobile-source toxic air contaminants, similar to the approach the City took in the Northwest Land Park EIR.

10-4

¹ City of Sacramento, *McKinley Village Draft Environmental Impact Report Appendix N*. McKeever, Mike. Letter to Jim McDonald. Oct 10, 2013.

To reduce pollution exposure, the FEIR and final approval documents should require high efficiency particle filtration systems for every residence within McKinley Village. The City should require filters with the highest rated Minimum Efficiency Reporting Value (MERV). To ensure that the health benefits are realized over the long term, the City or a homeowner’s association should educate residents as to their proper use and maintenance. For more information on filtration systems and their effectiveness in reducing particulate matter, please refer to the California Air Resources Board’s document entitled [Status of Research on Potential Mitigation Concepts to Reduce Exposure to Nearby Traffic Pollution](#) (August 23, 2012) (Attachment 1).

10-5

The DEIR’s requirement for redwood trees in the landscape buffer (DEIR 4.1-48) should be included in the FEIR and approval documents. Special attention should be paid to ensuring long-term viability of the trees, including planting techniques, long-term responsibility of care, and contingency measures if any tree fails to thrive or dies. We recommend working closely with the City of Sacramento’s Urban Forestry Division, the [Sacramento Tree Foundation](#), and [Breathe California of Sacramento Emigrant Trails](#) in this regard.

10-6

Finally, all projects are subject to our rules and regulations in effect at the time of construction. Please refer to Attachment 2. For a complete list, please visit our website at <http://www.airquality.org/rules/index.shtml> or call 916.874.4800.

10-7

We thank the City for the opportunity to comment. Please do not hesitate to contact me or Rachel DuBose of my staff if you have any questions or concerns. Rachel can be reached at 916.874.4876 or rdubose@airquality.org. I can be reached at 916.874.4800 or lgreene@airquality.org.

Sincerely,



Larry F. Greene
 Executive Director
 Sacramento Metropolitan Air Quality Management District

C: Larry Robinson, Sacramento Metropolitan Air Quality Management District

Attachments:

1. [Status of Research on Potential Mitigation Concepts to Reduce Exposure to Nearby Traffic Pollution](#) (August 23, 2012)
2. Rules and Regulations (March 2012)

ATTACHMENT 1

**STATUS OF RESEARCH
ON POTENTIAL MITIGATION CONCEPTS
TO REDUCE EXPOSURE TO
NEARBY TRAFFIC POLLUTION**

August 23, 2012

California Environmental Protection



Air Resources Board

Introduction

Air Resources Board (ARB) staff has prepared this document to provide information on scientific research that has been conducted on various building-related and site mitigation concepts suggested as potentially effective approaches for reducing the traffic-related exposures of those living near high traffic roadways. While it provides useful information for consideration of potential mitigation approaches, this paper is not intended as guidance for any specific project, and does not provide a methodology for determining appropriate mitigation measures for purposes of compliance with the California Environmental Quality Act. This review looked only at the current status of air pollution research, and does not address other potential community benefits of the concepts, such as the aesthetic and noise reduction benefits of adding vegetation or sound walls.

The State's current set-back requirement for schools (500 feet [ft]; PRC 21151.8) and the ARB's recommendations on siting for housing and other sensitive uses (e.g., 500 ft from major roadways and 1000 ft from busy distribution centers and rail yards; ARB 2005a) are intended to help protect the public from exposure to traffic emissions. Such emissions have been associated with a variety of serious health impacts in epidemiological studies, including exacerbation of respiratory and cardiovascular diseases and conditions, increased asthma and bronchitis in children, and increased risk of premature death. Traffic pollutant concentrations near high traffic roadways have been found to be 2 to 10 times higher than levels at a distance from the roadways. Also, recent studies have shown elevated traffic pollutant levels at greater distances from the roadway than previously measured.

ARB and the U.S. EPA continue to adopt increasingly stringent regulations limiting emissions from vehicles of all types, which have substantially reduced, and will continue to reduce, vehicle emissions. However, recently adopted regulations have compliance dates extending as far as 2025 for full implementation, and fleet turnover to zero or near-zero technologies will take 20 to 30 years. New reductions in vehicle emissions are improving regional air quality throughout California, including near roadways. As the ARB and the air districts work to reduce emissions from diesel PM and other pollutants, the impact of proximity will also be reduced. However, the differential exposure to high air pollution near high traffic roadways compared to other locations makes the siting of housing in those locations a continuing health concern. Recognizing that unhealthy levels of air pollution is a long term problem, ARB is funding research to identify advanced technologies to further reduce vehicle emissions, to better understand traffic related air pollution exposures, and to explore the benefits of high efficiency filtration in California homes.

As communities plan for more compact development, the potential health impacts of infill projects will need to be considered. Infill development can reduce urban sprawl and has other potential health and environmental benefits. It also has the potential to increase exposure to traffic pollution due to the proximity of the infill areas to established traffic routes.

Status of Research on Traffic Exposures and Health Impacts

Measurements of air pollutants near roadways show a consistent finding of elevated levels based on proximity. Black carbon, often used as an indicator of diesel exhaust, and ultrafine particles (particles less than 0.1 microns in size), which are emitted in very high numbers from vehicles, are often 2 to 10 times (or more) higher near roadways and freeways (Zhu et al., 2002a, 2002b, 2006; Kuhn et al., 2005; Westerdahl et al., 2005; Ntziachristos et al., 2007; Kozawa et al., 2009a). Concentrations of PM_{2.5} (particles 2.5 microns or less in diameter) near busy roadways can be about 20% higher than levels at a distance (Zhu et al., 2002a; Kim et al., 2004; Janssen et al., 2001). Nitrogen oxides also are elevated near roadways, usually about 2 to 3 times the levels measured at a distance from the roadway (Kim et al., 2004; Singer et al., 2004; Kozawa et al., 2009a; Durant et al., 2010).

Previous studies of near roadway pollutant levels showed that concentrations of pollutants emitted from vehicles were highest right at the roadway and decreased substantially in the first 300-500 feet from the roadway (Zhu et al., 2002b; Knape 1999). These results were consistent with health studies that showed a stronger association of health impacts for those living within 300-500 ft of the roadway compared to those living farther than 500 ft from the roadway (Brunekreef et al., 1997; Venn et al., 2001; English et al., 1999). More recent studies have shown a somewhat longer plume of increased pollutant concentrations farther from the roadway. Using data collected mostly during the day and near roadways, a meta-analysis of many studies found that for almost all pollutants, elevated levels of pollutants caused by the increased contributions from roadways returns to background levels at 160 - 570 meters (m; 525 - 1870 ft; Karner et al., 2010). The range of distances needed to reach background is usually a result of local meteorological conditions, which can vary significantly; however, a more constant observation is a steep concentration gradient observed closest to the roadway, within 500 ft, with a more gradual and extended decline at further distances. Another meta-analysis found that the "spatial extent of impact" of motor vehicles can extend up to 400 m (1312 ft) for black carbon and particles and 500 m (1640 ft) for nitrogen dioxide (NO₂; Zhou and Levy 2007). Levels of traffic pollutants near roadways vary due to many factors, including traffic type and density, wind direction and speed, local and roadway topography, and time of day and season (Zhu et al., 2004; Kuhn et al., 2005; Moore et al., 2007; Ning et al., 2007; Hu et al., 2009; Kozawa et al., 2009a, 2009b).

In a major 2008 review of the scientific literature by the Health Effects Institute (HEI), proximity to busy roadways was found to be associated with a variety of adverse health impacts, the strongest association being exacerbation of asthma, with others including asthma onset in children, impaired lung function, and increased heart disease (HEI, 2010). More recent studies have added to the list of effects and heightened concern regarding exposure to traffic emissions. Respiratory and cardiovascular effects seen in these studies include an increased risk of new-onset chronic obstructive pulmonary disease (Andersen et al., 2010), a faster progression of atherosclerosis in those living within 100 m of highways in Los Angeles (Künzli et al., 2010), increased risk of

premature death from circulatory disease (Jerrett et al., 2009), and increased incidence of new heart disease (Kan et al., 2008). Other effects include increased risk of low birth weight (Brauer et al., 2008; Llop et al., 2010) and increased risk of pre-term delivery (Wilhelm and Ritz, 2003; Wilhelm et al., 2011) for mothers living very near heavy traffic, lower immune function in post-menopausal women living within 150 m of arterial roads (Williams et al., 2009), and increased risk of Type 2 diabetes in post-menopausal women (Krämer et al., 2010).

Children appear to be particularly vulnerable to the adverse effects of traffic emissions. Epidemiological studies have found significant associations of children living near high traffic areas with decreased lung function (Brunekreef et al., 1997; Gauderman et al., 2007), increased medical visits and hospital admissions for childhood asthma (English et al., 1999; Lin et al., 2002), increased wheezing (Venn et al., 2001), and increased childhood asthma and bronchitis (Kim et al., 2004; Gauderman et al., 2005; McConnell et al., 2006), including development of new asthma cases (McConnell et al., 2010; Gehring et al., 2010). Children living near busy roadways are especially likely to experience elevated exposures because they would also play outdoors in the neighborhood and typically would attend nearby schools. Their higher breathing rates per unit of body mass relative to adults (Adams, 1993) and their developing immune, neurological, and respiratory systems make them especially susceptible to impacts from air pollution.

ARB's recommendation to avoid siting sensitive land uses such as new housing within 500 ft of busy roadways was based on the traffic exposure and health studies completed as of 2005. More recent studies confirm the relationship, and indicate that in some situations an elevated risk extends well past 500 ft. A few studies have measured elevated pollutant levels at distances well beyond 1000 ft (305 m; Karner et al., 2010; Zhou and Levy, 2007). For example, Hu and colleagues (2009) found that in the pre-dawn hours in Los Angeles, elevated ultrafine particle number concentration, nitric oxide, and particle-bound polycyclic aromatic hydrocarbons extended at least 1200 m (3937 ft) downwind of the freeway and did not reach background levels until a distance of 2600 m (8530 ft). More importantly, results from the Southern California Children's Health Study on the association of residential distance to traffic and lung function development, performed in the same general location as the Hu et al. study, found adverse health effects in children living as far as 1500 m (4921 ft) from roads (Gauderman et al., 2007). These are not unique findings; in the HEI (2010) report mentioned above, the authors noted that studies showed that people living up to 500 m (1640 ft) from heavy traffic are most at risk from the health effects of traffic pollution.

Status of Research on Mitigation Concepts

Various building and site mitigation approaches have been suggested as potential means to reduce exposure to traffic pollution near roadways. A review by ARB staff found that there has been limited study of most of these approaches. Building measures examined include high efficiency filtration for residences through either central, in-duct type filtration or portable air cleaners; and external building design

measures, such as locating the air intakes for ventilation systems on the opposite side of the building from outdoor sources, reducing the size and number of openable windows on the side of the building nearest the outdoor sources, or housing people in tall buildings. Site mitigation measures examined include the use of sound walls and vegetation as barriers. These measures are all assessed further below. Studies of elevated and below-grade roadways and freeway caps (also called freeway decks, lids or covers), which are covers over a sunken roadway that produce a road tunnel, also were reviewed, but studies were limited and results variable, and these measures are not feasible or are impractical for most new housing developments. Traffic measures such as those to reduce vehicle miles traveled also were considered; most such measures are typically integrated into roadway and community planning for regional benefits.

Building-related Measures: Filtration

No single building-related measure has been identified as adequate to reduce entry of pollutants from nearby roadways to the extent expected from set-back under common conditions. However, the use of high efficiency filtration appears to be relatively effective in most circumstances, as discussed below. It is especially appropriate for new homes because new homes in California must have mechanical ventilation systems [CCR 2008, Title 24, Section 150(o)], and those systems purposely pull outdoor air into the home that often is not filtered at all or is poorly filtered. High efficiency filtration also appears useful in existing homes without mechanical ventilation as discussed below. Mechanical ventilation systems and the Code requirement are discussed further in the Addendum at the end of this paper.

Background for Filtration

Outdoor-generated pollutants enter and leave buildings through three primary mechanisms: mechanical ventilation systems, which actively draw in outdoor air through an intake vent and distribute it throughout the building; natural ventilation (opening of doors or windows), which is the typical ventilation mode for most homes and small commercial buildings in California; and infiltration, which is the passive entry of unfiltered, outdoor air through small cracks and gaps in the building shell. Both natural ventilation and infiltration allow unfiltered air into the building and reduce the effectiveness of any filtration device.

Filter efficiency is rated using several scales, the most common of which is the Minimum Efficiency Reporting Value (MERV) rating system (ASHRAE 52.2-2007 as cited in EPA 2009). Flat fiberglass filters are the most common filters used in residential heating and air systems, and are rated at only MERV 1 to 4; they remove only a portion of the largest particles in the airstream that passes through the filter. MERV 5 to 8 filters are medium efficiency filters that remove some additional types of particles such as mold spores and cat and dog dander, but they still do not remove the finer particles produced on roadways. MERV 9 to 12 filters begin to remove particles smaller than PM_{2.5}. Higher efficiency MERV 13 to 16 filters are rated to remove a portion of the ultrafine and submicron particles emitted from vehicles. True HEPA (high efficiency particle

arrestance) filters (equivalent to MERV 17 to 20) remove 99.97% to 99.999% of particles less than 0.3 microns, but these generally have not been available for residential applications. High efficiency filters associated with central heating, ventilating and air conditioning (HVAC) systems must be carefully selected to assure the mechanical system can handle the increased airflow resistance. Additional information on MERV ratings, the size particles they remove, and typical applications are provided in Table 1 in the Addendum at the end of this paper.

High Efficiency Filtration with Mechanical Ventilation

Because mechanical ventilation has not been used in residential buildings until recently, there has been limited assessment of its impact on entry of particles and other pollutants into homes. However, a few recent studies of homes and schools have shown that high efficiency filtration in mechanical ventilation systems can be effective in reducing levels of incoming outdoor particles. In a seven-home study in northern California, Bhangar et al. (2010) found that the two homes with active filtration in a mechanical system had a notably lower portion of indoor particles from outdoors when the systems were on (filtration active) than when they were turned off (no filtration). In a modeling study of Korean residential units with mechanical ventilation, Noh and Hwang (2010) found that filters rated lower than MERV 7 were insufficient for reducing contaminants that enter through the ventilation filter, and concluded that filters should exceed MERV 11. In a school pilot study, a combination of MERV 16 filters used as a replacement for the normal panel filter in the ventilation system and in a separate filtration unit reduced indoor levels of outdoor-generated black carbon, ultrafine particles and PM_{2.5} by 87% to 96% in three southern California schools (SCAQMD, 2009). Use of the MERV 16 panel filter alone in the HVAC system achieved average particle reductions of nearly 90%. In a study of a single school in Utah, indoor submicron particle counts were reduced to just one-eighth of the outdoor levels in a building with a mechanical system using a MERV 8 filter (Parker et al., 2008). The investigators noted that the building shell and other mechanical system components appeared to play a significant role in the submicron particle removal as well.

These findings are similar to those from earlier studies of mechanically ventilated office buildings (e.g., Jamriska et al., 2000; Fisk et al., 1998). Fisk et al. (2000) concluded that use of higher efficiency filters instead of normal filters can reduce indoor numbers of submicron particles by 90% and that there is evidence of a large rate of removal of submicron indoor particles by processes (e.g., deposition) other than ventilation and filtration.

Because most of the studies discussed above were conducted in buildings with few or no indoor sources of submicron particles, the measured efficiencies of filters for reducing indoor concentrations of submicron particles from all sources may be overestimated. Many other studies have identified activities such as unvented cooking, cigarette smoking, and use of unvented gas appliances as indoor sources of submicron particles (ARB, 2005b, studies cited). These would only be removed by filtration to the extent the indoor air is re-circulated through the filters.

High Efficiency Portable Air Cleaning Devices

Portable or stand-alone air cleaners are generally not as capable as in-duct air cleaners and those associated with mechanical ventilation systems for cleaning large areas such as an entire home (Consumer Reports, 2007). However, when they are appropriately sized for the space to be treated, and when they use high efficiency or HEPA filters, portable air cleaners can significantly reduce particles in the treated area and serve as an adjunct to other pollutant reduction measures (Hacker and Sparrow, 2005; Shaughnessy et al., 1994; Shaughnessy and Sextro, 2006; Skulberg et al., 2005; Ward et al., 2005). In the pilot study conducted in three southern California schools (discussed above), a large stand-alone air cleaner with MERV 16 filters reduced black carbon, ultrafine particles and PM_{2.5} counts by 90% or more, and PM_{2.5} mass by 75%, when the HVAC system was not running (SCAQMD, 2009). Barn et al. (2008) found median removal efficiencies of 55% to 65% for PM_{2.5} from fires and wood burning by a HEPA air cleaner in 21 winter homes and 17 summer homes. In other work, Fisk et al. (2002) estimated an 80% reduction in outdoor fine mode particles with stand-alone air cleaners using filters in the MERV 11 to 13 range.

Because new California homes are now required to have mechanical ventilation, stand-alone air cleaners are less relevant to the assessment of measures for new California home construction. However, highly efficient portable air cleaners may be useful in reducing indoor exposure to pollutants in existing homes that do not have mechanical ventilation, and in homes that use bathroom exhaust type mechanical ventilation systems, which by their design cannot incorporate filtration of the incoming air because the supply air enters through leakage points throughout the building.

Removal of Gaseous Pollutants

There are limited options for effective removal of gaseous pollutants such as volatile organic chemicals, or VOCs, and NO₂ in central systems, and although the number and variety of technologies are increasing, there has been only limited research to date on their effectiveness. However, a few studies have examined the effectiveness of stand-alone filtration technologies intended to remove gaseous pollutants from the airstream (Shaughnessy and Sextro, 2006). The most comprehensive study was conducted by Chen et al. (2005), who tested the initial performance of 15 air cleaners with a mixture of 16 representative VOCs in a chamber study. Sorption filtration (e.g., activated carbon) removed some but not all VOCs (light and very volatile gases such as aldehydes and dichloromethane were not well removed). However, devices that included sorption media such as activated alumina impregnated with potassium permanganate showed better VOC removal efficiencies. In the schools study discussed above, the stand-alone unit used in one of the schools included charcoal sorbent for removal of gaseous pollutants; it removed 52% of the benzene indoors and 15% of total VOCs when operated with the HVAC turned off (SCAQMD, 2009). In a children's daycare center in Finland, Partti-Pellinen et al. (2000) found that up to 50% to 70% of nitrogen oxides could be removed by chemical filtration using a combination of charcoal, aluminum oxide and potassium permanganate, while another study found about 50% NO₂ removal by a HEPA air cleaner with large quantities of carbon in the adsorption bed, but little or no removal by other types of air cleaners (Shaughnessy et al., 1994).

Results from these studies show effectiveness for some technologies but are not conclusive due to their limited number and scope, including a relative lack of real world measurements. Additionally, some investigators have found that some filters re-emit VOCs that have been removed over time, or emit reaction products from the matter collected on the filter (Daisey and Hodgson, 1989; Fisk, 2007; Destailats et al., 2011; Hyttinen et al., 2006, 2007).

Limitations of High Efficiency Filtration

Although they can substantially reduce indoor concentrations of pollutants, mechanical filtration systems alone are insufficient to fully protect occupants from particles and other emissions from nearby roadways, for several reasons.

- First, most people tend to open their windows or doors at least part of each day (Offermann, 2009; Phillips et al., 1990), and such natural ventilation involves no filtration of incoming air and can diminish any pollutant reductions attained through the use of the mechanical system. The effectiveness of high efficiency filtration in homes whose occupants open their doors and windows regularly has not been quantified.
- Second, as higher MERV filters are used, greater attention must be paid to the increased air flow resistance that occurs with some filter types; mechanical system motors must be sufficiently sized to accommodate the air flow needs.
- Third, studies have shown that homeowners are not provided with sufficient information regarding use and maintenance of their central HVAC systems, or do not read and follow instructions for maintaining their filters (EPA, 2009; Offermann, 2009). Filtration is only effective if filters are well-fitted and are replaced or maintained according to the manufacturer's recommendations, and duct leakage is minimized (Thatcher et al., 2001; Wallace et al., 2004). Older (aged) filters have been associated with increased irritant health symptoms and decreased work performance in studies of filtration maintenance in workplaces (Clausen, 2004; Seppänen and Fisk, 2002; Wargocki et al., 2004).
- Finally, as discussed above, gaseous pollutants are not removed by most particle filters, and the technologies for VOC removal in residential applications are limited and still evolving.

Expected Benefits of High Efficiency Filtration

High efficiency filtration has been used in homes and schools only recently, and there is a range of highly variable building characteristics, filtration technologies, and occupant behaviors that determine the effectiveness of high efficiency filters in reducing the overall levels of pollutants indoors. Accordingly, it is difficult to accurately quantify the actual reduction in particulate matter that would be achieved by introducing high efficiency filtration on a widespread basis across the population of California homes and schools. For example, while filters with a MERV 16 rating remove more than 95% of particles from 0.3 to 3 microns in diameter, only those particles in the airstream actually passing through the filter are removed. Factors that determine the fraction of particles removed from the air in a building include the airflow rate through the unit, the amount

of time that the system is “on”, the extent to which windows and doors are opened, and other factors. While results from the studies conducted in homes and schools to date appear promising, those studies usually limited the opening of windows and doors or followed other specific protocols. Thus, although a substantial reduction in particles would be expected, the reduction that would be realized across the wide variety of conditions in California homes and schools cannot be confidently estimated.

Two kinds of programs are currently being implemented that will provide critical information needed to help confirm and quantify the effectiveness of high efficiency filtration. First, ARB is funding two key studies of high efficiency filtration in homes. Second, several local air quality management districts and school districts are implementing programs to install high efficiency filtration devices in a substantial number of schools in California, and collecting data regarding the performance of the filtration units. These are discussed below.

ARB’s Planned High Efficiency Filtration Research

ARB is funding a project entitled “Reducing In-Home Exposure to Air Pollution” to measure the exposure reduction and energy use of combinations of mechanical ventilation and filtration systems in order to identify compatible, low-energy systems that are effective at reducing indoor exposures to indoor, and incoming outdoor, pollutants. The study will be conducted by Drs. Brett Singer and Iain Walker of Lawrence Berkeley National Laboratory. The investigators plan to evaluate 15 current and new systems, and test seven of the most promising systems in a test home near a major roadway in an area with high ambient ozone and PM_{2.5} levels. They will measure fine and ultrafine particles, ozone, VOCs, NO₂ and black carbon, both indoors and outdoors, along with energy consumption and the performance of systems as filters age. This project is needed because new California homes are now required to have mechanical ventilation as discussed above, and the most widely used, low energy mechanical ventilation systems, bathroom exhaust systems, do not filter the incoming air; hence, the occupants’ indoor exposure to outdoor air pollutants can potentially increase with these systems.

ARB is also funding a second study entitled “Benefits of High Efficiency Filtration to Children with Asthma”. Dr. Deborah Bennett from the University of California at Davis will conduct this 4-year study of 200 children with asthma in Fresno and Riverside to quantify the exposure and asthma reduction benefits of high efficiency filtration in their homes. One intervention group will have high efficiency filters or filtration systems installed in their homes’ central heating and air conditioning systems. The second group will have high efficiency portable air cleaners placed in the child’s bedroom and in the main living area. Filters with a MERV rating of 15 or higher will be used. Improvements in asthma symptoms will be evaluated in a randomized cross-over design, with each participant receiving high efficiency air filtration for a year and no filtration for a year, allowing the investigators to identify the improvements related to the air filtration. During the control periods, “sham” filters with little or no particle removal capability will be used. Half of the homes with portable air cleaners will also have filters that remove ozone and VOCs. The extent to which particulate matter (PM₁₀, PM_{2.5}

and ultrafine particles), ozone, black carbon, and nitrogen oxides are reduced will be measured. Key asthma health endpoints will also be examined, including unplanned utilization of the healthcare system for asthma-related illness, short-term medication use, symptom diaries, peak exhaled flow, spirometry and exhaled nitric oxide.

Current Programs Using High Efficiency Filtration

Several programs have been completed or are underway in the State to install and/or test high efficiency filters, primarily in schools, to reduce exposures to pollutants from heavy traffic and/or port-related emissions. Since 2008, the South Coast Air Quality Management District (SCAQMD) has approved \$3 million for installation of high efficiency air filtration devices in a total of 18 schools and one community center in the Long Beach and Los Angeles Unified School Districts, San Bernardino and the Boyle Heights area (Kwon, 2012). SCAQMD also has agreed to oversee implementation of a program to utilize \$5.4 million in settlement funds to install and maintain high performance air filtration devices at about 47 schools in Wilmington and San Pedro. Installation of the filtration devices was scheduled to begin in summer 2012. Detailed site assessments of the schools are underway prior to installation in order to determine the best filtration device for each classroom and to facilitate assessment of actual improvements in classroom air.

Also, the Bay Area Air Quality Management District (BAAQMD) is conducting a school air filtration project in five schools for about \$300,000 (Smith, 2012). In 2010, a contractor completed installation of high efficiency air filtration equipment at five elementary schools located in the Bay View Hunters Point neighborhood of San Francisco. The filtration equipment is designed to reduce exposure inside the schools to particles from outdoor sources, as well as indoor-based particles such as some allergens. Initial monitoring results indicate that there has been a substantial reduction of particulate matter (up to about 50% to 75% for PM_{2.5} and higher for very small particles) inside the classrooms as a result of the newly installed high performance filters (IQAir, 2012).

To date, these programs appear successful, but overall cost, changes to the operation of the classrooms' central HVAC systems (such as running the system continuously rather than allowing it to switch on and off based on temperature needs) and other considerations (noise, drafts) may reduce the feasibility of the current technologies for use in all classrooms and require further refinements. However, because of the similarities of schools to homes with mechanical ventilation systems, one would expect comparable reductions in particle levels from high efficiency HVAC filtration in new and retrofitted homes.

Cost of High Efficiency Filtration

About a dozen companies offer high efficiency filtration devices incorporated into, or suitable for, residential mechanical ventilation systems, and most offer just one or two models. The devices are rated from MERV 11 to 16, plus several are true HEPA filters (equivalent to about MERV 17 to 20). Initial costs range from about \$200 to \$2800 for a

very high end system; however, most cost less than \$500. This range does not include installation, although in a new home the added cost over the installation of the mechanical system itself would be expected to be minimal. Annual filter replacement and/or maintenance cost ranges from about \$25 to \$255 per year, depending on MERV rating, number of filter changes needed per year, and whether the system includes a carbon filter for VOCs (which increases the cost of filter replacement, as these typically need to be replaced several times per year).

For existing homes and those that are renovated and do not have a mechanical ventilation system, either higher efficiency filters in the central heating and air system or portable high efficiency filtration devices could be used. High efficiency filters for central systems that can accept them cost about \$20. However, the increased airflow resistance may cause the central system to be less efficient. Effective, high efficiency portable units range in purchase cost from about \$200 to \$1250 depending on the size of the room or space to be treated and the specific technologies included (e.g., MERV rating and charcoal or other VOC removal filters) and would typically not involve any installation costs. Replacement filters and maintenance range from about \$75 to \$500 per year, again depending on the types of filters included and how dirty the air is, which would determine the frequency of filter changes needed. To adequately treat the living areas of most homes (e.g., bedrooms, family room, living room), two or more portable units may be needed.

External Building Design Measures

Moving Air Intakes

Research focused on assessing external building design measures is generally not readily available. Locating air intakes for mechanical ventilation systems on the opposite side of the building from the nearby outdoor source and prevailing wind direction seems logical. However, the reduction of pollutant entry in such a case would depend on the distance of the intake from the outdoor source, the consistency of the prevailing wind direction, and any local geographical or structural objects that might produce wind turbulence or eddies near the building and the air intake. One particle expert has noted that moving the intake would likely only be beneficial when the outdoor source is very near the intake and the intake is moved fairly far away; otherwise, because particles tend to disperse quickly and particle plumes “flow” around buildings, elevated particle concentrations around the building will be fairly consistent (Thatcher, 2010). This view appears at least partially substantiated by an Australian study that found that the concentration of submicron particles was consistently high and relatively undiluted around a building that was within 15 m of the roadway (Morawska et al., 1999). However, because this option has received little scientific study, and because all new California homes are required to use mechanical ventilation, which will often include a supply air intake, this option warrants further study to determine whether there are conditions under which strategic placement of air intakes might provide some benefits.

Reducing Openable Windows

Reducing the size and number of openable windows on the side of the building nearest the outdoor source would likely do little to reduce entry of particles and other pollutants into homes. Furthermore, this potential measure may not be acceptable to homeowners, who often open windows to take advantage of the breeze, from which the benefit arises primarily from opening windows on the prevailing wind side of the building. Windows opened only on the opposite side may result in little air movement in the home. In regions of the State where window opening currently replaces air conditioning in the summer evening and nighttime periods, there could be substantial energy and cost penalties for the increased use of mechanical air conditioning to cool the home. Additionally, increased indoor air stagnation and condensation may occur, which can result in mold issues. Thus, for all of these reasons, this option does not appear practical for single family dwellings. This measure might be acceptable in multi-family dwellings, depending on the specific building design and the ventilation systems used. However, inclusion of a sufficient number of windows (even if unopenable) would allow more daylight into the building, which would reduce energy use for indoor lighting and provide the satisfaction and efficiency benefits that accompany daylighting (Heschong Mahone Group, 2003a, 2003b).

Taller Buildings

Housing people in taller buildings has also been suggested as a possible exposure reduction measure. However, one of the few relevant studies of multi-story buildings near busy roadways found that vertical differences in fine and ultrafine particle concentrations outside buildings with 9 to 26 stories were not significant and can be highly variable, depending on other local sources and local meteorological conditions (Morawska et al., 1999). A second study, conducted in New York, found significant decreases for outdoor black carbon and non-volatile polycyclic aromatic hydrocarbons for floors 6 to 32 during the non-heating season only (Jung et al., 2011). Additionally, floors 3 to 5 showed the highest median outdoor concentrations for all pollutants measured, although the trend was not statistically significant and the elevated pollutants were believed to come from nearby rooftop exhausts. Thus, multi-story housing may reduce exposure in some situations but requires further research to determine conditions under which tall buildings might provide a reliable approach to reduce exposure near busy roadways.

Site-related Measures

The primary site-related measures reviewed by ARB staff were sound walls and vegetation barriers.

Sound Walls

Sound walls appear to reduce pollutant concentrations near the roadway; near-road concentrations (within 15-20 m [49-66 ft]) have shown reductions up to about 50% (Ning et al., 2010; Baldauf et al., 2008; Bowker et al., 2007; Hagler et al., 2012). However, in some studies higher levels of pollution were seen behind the barrier and at a distance from the sound walls and roadways, although in some of these studies the higher levels

appear related to other sources of pollution (Ning et al., 2010; Bowker et al., 2007; Hagler et al., 2010; Baldauf et al., 2008). In one of the few field measurement studies of sound walls, conducted along two southern California freeways, Ning et al. (2010) found that concentrations at farther distances (about 80 to 100 m from the roadway) were typically greater for the portions of the roads with sound walls, and background levels behind sound walls were not reached until 250 to 400 m as compared to 150 to 200 m without sound walls. Modeling and tracer studies (Heist et al., 2009; Finn et al., 2009) showed that barriers reduced air pollution downwind of the barrier, although in some cases trapping of pollution and increased levels on the road would occur (Hagler et al., 2011; Finn et al., 2009). Nearby buildings and structural barriers can also affect the attenuation and dispersion of pollution from roadways, but results vary with different meteorological conditions (Bowker et al., 2007; Hagler et al., 2010; Hagler et al., 2012).

Vegetation Barriers

Results for vegetation alone are more variable than those for sound walls. Vegetation can remove some gaseous pollutants by uptake or absorption, and particles are removed primarily by interception (impaction or physical adherence; Nowak et al., 2006; Fujii et al., 2008; Smith, 1990; Pardyjak et al., 2008; Baldauf et al., 2008). However, particles can be resuspended, apparently even at very low wind speeds (Fujii et al., 2008; Smith, 1990). Vegetation may restrict dispersion and increase concentrations on-road in street canyons with closer spacing of trees, particularly in low wind conditions (Gromke, 2011; Gromke and Ruck, 2007, 2009; Buccolieri et al., 2009). Another study has further shown the complexity of the effects of vegetation; investigators found different results depending on particle size and wind speed, and a non-linear increase of particle removal with increased leaf area density, which varies by tree species and season (Steffens et al., 2012). Gaps in vegetation barriers can have a significant negative impact on their effectiveness (Hagler et al., 2012), which needs to be addressed in future California research because California roadside vegetation tends to be less dense than that in the eastern U.S., where most previous field studies have been conducted. Also, some types of vegetation can trigger asthma and allergy attacks, and some emit reactive VOCs that contribute to the formation of ozone.

Sound Walls and Vegetation Combined

A combination of sound walls and vegetation appears to be more effective than either one alone. The two used together have been shown to disperse pollutants more consistently and to greater distances than either alone, with up to about a 60% reduction in near roadway levels (Baldauf et al., 2008; Bowker et al., 2007). While sound walls alone and sound walls combined with vegetation show promise, the increase in concentrations on-road and at a distance seen in some studies can increase exposures of others in the population and thus redistributes, rather than removes, pollutants. Additionally, the complexity of pollutant movement under varying conditions makes accurate prediction of exposure reduction difficult. Specific conditions under which sound walls and vegetation can reliably and consistently reduce exposures to air pollution have not been identified, especially in California.

Reduction of Indoor-generated Pollutants to Reduce Overall Exposure

Particles, NO₂ and other pollutants emitted by vehicles and other outdoor sources also have indoor sources that can produce higher indoor concentrations at times (ARB, 2005b, Section 2, and sources cited). Therefore, a reduction in indoor emissions and exposures can reduce the overall health impact of exposure to outdoor pollutants because the total exposure (indoor plus outdoor) to those pollutants experienced by the building occupants would be reduced. A number of studies have identified unvented cooking, cigarette smoking, the use of unvented gas appliances, burning of candles and incense, and woodburning as indoor sources of fine and ultrafine particles (Bhangar et al., 2010; ARB, 2005b; Fortmann et al., 2001; Wallace, 1996; Wallace, 2005; Wallace et al., 2008). High fine and ultrafine particle counts have been measured from such indoor sources. In homes with such sources, average indoor concentrations and occupants' personal exposures to fine and ultrafine PM are dominated by those indoor sources. Thus, measures to reduce indoor sources can help to significantly reduce occupants' peak and overall daily exposures to key pollutants emitted from both traffic and indoor sources.

Summary of Research Review

ARB has developed and adopted increasingly stringent regulations limiting emissions from passenger cars, trucks and buses, which have substantially reduced, and will continue to reduce, vehicle emissions. However, recently adopted regulations have compliance dates extending as far as 2025 for full implementation, and fleet turnover to zero or near-zero technologies will take 20 to 30 years. The set-back of buildings from high traffic roadways remains the most certain approach for preventing the residual health risk from traffic pollution exposures for those living closest to the roadways because it distances them from the highest pollutant concentrations. Research conducted since the publication of ARB's recommendations in 2005 further supports the use of set-back.

There are two mitigation measures that can be effective for exposure reduction. Increased filtration of air and reduction of indoor pollution sources potentially can reduce the overall pollution burden in homes. These measures warrant consideration especially in light of recent studies showing that the pollutant plumes at times can extend beyond 1000 ft (305 m) from the roadway. For most residential applications near busy roadways, high efficiency (MERV 13 to 16, or higher) pleated particle filters would generally be considered the most effective approach to filtration because they can remove the very small particles emitted by motor vehicles without emitting ozone, formaldehyde, or other harmful byproducts. Based on a limited number of studies, such high efficiency filtration has been shown to reduce indoor PM_{2.5} and ultrafine particle levels by up to 90% relative to incoming outdoor levels when doors and windows are kept mostly closed. Purchase costs for high efficiency filtration devices or systems that are compatible with residential mechanical ventilation systems (which are now required

in new residential construction in California) range from \$200 up to \$2800, but most are available for under \$500. Because Title 24 now requires mechanical ventilation for new residential construction, enhanced filtration can help avoid increased exposures to outdoor pollutants that may occur. The use of high efficiency air filters in central heating and air systems or stand-alone air cleaning devices can also reduce exposures in existing homes and homes that use certain types of mechanical ventilation systems that cannot accommodate central filtration.

While research shows that high efficiency filtration can be effective, it has several limitations. Filtration cannot remove all incoming outdoor pollutants because of normal building leakage and the fact that most people open windows and doors at least a portion of the day, allowing entry of unfiltered air. Additionally, not all pollutants are filtered by the filter media. Moreover, studies show irregular homeowner maintenance of filters and central systems, and regular maintenance is critical for effective removal of pollutants. ARB is funding two studies that should help further identify the approximate reduction in exposure that high efficiency filtration can provide in homes. High efficiency filtration is already being used or is planned for use in over 70 schools in California; these programs should provide comparable information for high efficiency filtration in classrooms.

The benefits are less clear for most of the other potential mitigation measures examined. Studies have shown that the use of sound walls alone, or sound walls and vegetation together, can reduce near roadway concentrations by about 50% and 60%, respectively. However, the extent of exposure reduction is quite variable under different conditions of meteorology and topography, and increased levels of pollutants can occur on-road and at a distance from the roadway. Thus, unlike the situation with filtration, pollutants are primarily redistributed rather than removed; while individuals living near the roadway would benefit, those traveling on the road or living at a distance could experience elevated exposures at times. The effectiveness of vegetation alone is even more variable, and has not been well-quantified. Furthermore, vegetation with low allergenic potential and low reactive VOC formation needs to be identified and tested, and other limitations of vegetation as a pollution barrier need to be better understood. Research is needed that identifies the specific conditions under which sound walls and vegetation can consistently provide a reliable exposure reduction benefit with limited disbenefits. In particular, California field studies are needed because of the significant differences in California meteorology, building practices, and flora from those of the eastern U.S.

The limited studies conducted to date on other potential mitigation concepts are not promising, although further research may identify situations in which they are generally effective. Placement of air intakes on the side of the building opposite the roadway may make little difference in terms of exposure, due to rapid particle movement around buildings. Locating windows only on the side of the building opposite the roadway reduces indoor daylighting, air circulation and cooling, and may do little to reduce exposure. Finally, taller buildings do not necessarily experience substantially reduced pollutant levels at higher floor levels, depending on local meteorology and other nearby

sources of pollution. However, further research on placement of air intakes and housing in taller buildings may identify conditions under which these measures reliably reduce exposures. Research is warranted on these measures and the measures discussed above as effective or showing promise in order to further identify cumulative measures that together can assure sufficient exposure reduction and health protection for those living near busy roadways.

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ADDENDUM

Current California Building Code Requirements

Section 150(o) of Title 24 of the California Code of Regulations (CCR 2008) requires mechanical ventilation in all new residential construction in California built after January 1, 2010. Section 150(o) allows the requirement to be met through a variety of system types (CEC 2010). "Exhaust only" type systems increase the entry of unfiltered outdoor air through leakage points in the building shell and can result in negative pressure indoors, thus increasing the possibility of backdrafting of combustion emissions from gas water heaters, fireplaces and other combustion appliances. These are the most widely used systems in California. "Supply systems" typically use a small motor to bring outdoor air in through a ducted supply and can include high efficiency filters to filter the air as it is brought in, prior to circulation of the air throughout the home. Combination (supply and exhaust) systems are available, with some linked to the central heating and air system; these include filtration of incoming outdoor air. However, the Code requires only a MERV 6 air filter (an increase to MERV 8 is proposed in the 2012 revisions to Title 24), which does not remove the smaller particles emitted by vehicles which are the particles of greatest concern. In future construction, the type of mechanical system used in new homes will have a major impact on the entry of outdoor pollutants indoors – if filtration is not included or is weak, indoor exposures to outdoor pollutants likely will increase.

Table 1. MERV Ratings*					
MERV Rating	Average Particle Size Efficiency (PSE), microns – % Removal			Typical Controlled Contaminant or Material Sources (ASHRAE 52.2)	Typical Building Applications
	0.3-1.0	1.0-3.0	3.0-10.0		
1-4			<20%	> 10 Microns Textile Fibers Dust Mites, Dust, Pollen	Window AC units Common Residential Minimal Filtration
5			20-35	3.0 to 10.0 Microns Cement Dust, Mold Spores, Dusting Aids	Industrial Workplace Better Residential Commercial
8			>70		
9		<50	>85	1.0 to 3.0 Microns Legionella, Some Auto Emissions, Humidifier Dust	Hospital Laboratories Better Commercial Superior Residential
12		>80	>90		
13	<75	>90	>90	0.3 to 1.0 Microns Bacteria, Droplet Nuclei (sneeze), Most Tobacco Smoke, Insecticide Dust	Superior Commercial Smoking Lounge Hospital Care General Surgery
16	>95	>95	>95		
17**	≥ 99.97				
18**	≥ 99.99			<0.3 Microns (HEPA/ULPA filters)** Viruses, Carbon Dust, Fine Combustion Smoke	Clean Rooms Carcinogenic & Radioactive Matis., Orthopedic Surgery
19, 20**	≥ 99.999				

* Adapted from EPA 2009; originally from ANSI/ASHRAE Standard 52.2-2007.
 ** Not part of the official ASHRAE Standard 52.2 test, but added by ASHRAE for comparison purposes.

ATTACHMENT 2

SMAQMD Rules & Regulations Statement (revised 3/12)

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 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 SMAQMD 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. Other general types of uses that require a permit include, but are not limited to dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.

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

Rule 414: Water Heaters, Boilers and Process Heaters Rated Less Than 1,000,000 BTU PER Hour. The developer or contractor is required to install water heaters (including residence water heaters), boilers or process heaters that comply with the emission limits specified in the rule.

Rule 417: Wood Burning Appliances. 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 460: Adhesives and Sealants. The developer or contractor is required to use adhesives and sealants 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.

Naturally Occurring Asbestos: The developer or contractor is required to notify SMAQMD of earth moving projects, greater than 1 acre in size in areas "Moderately Likely to Contain Asbestos" within eastern Sacramento County. Asbestos Airborne Toxic Control Measures, Section 93105 & 93106 contain specific requirements for surveying, notification, and handling soil that contains naturally occurring asbestos.

Letter 10: Larry Greene, Executive Director, Sacramento Metropolitan Air Quality District, January 3, 2014

10-1: The commenter asserts that the Draft EIR improperly implies the SMAQMD evaluation criterion (cancer risk of 276 in 1 million) is a health-based significance threshold; commenter clarifies the SMAQMD protocol is “merely a screening tool to determine if a site specific Health Risk Assessment (HRA) is recommended. Our guidance does not provide a threshold of significance.” The comment also recommends clarifying language in the Draft EIR.

In asserting that the Draft EIR improperly uses the SMAQMD evaluation criterion as a threshold, the commenter cites to a partial paragraph in the Draft EIR. The complete paragraph clearly states the 276 in 1 million criterion was not treated as a significance threshold, and also identifies the City’s selected threshold. The Draft EIR provides as follows:

“The SMAQMD makes it clear their guidance is not a CEQA threshold, for the purposes of determining cancer risk of placing residences in proximity to DPM sources. The City’s selected threshold for the purposes of determining cancer risk of placing residences in proximity to DPM sources is whether lifetime cancer risks are substantially increased as a result of exposure to TACs from mobile sources. The HRA indicates that future residents would not be subject to a substantial increase in lifetime cancer risk as a result of exposure to TACs from mobile sources based on the SMAQMD guidance.” (DEIR, pp. 4.1-51 to 4.1-52.)

In addition, the City’s toxic air contaminant (TAC) threshold is presented on page 4.1-35 of the Draft EIR, as follows:

“Ambient air quality standards have not been established for TACs. The City has determined TAC exposure is deemed to be significant if:

TAC exposures create a lifetime cancer risk exceeding 10 in 1 million for stationary sources, or substantially increase the lifetime cancer risk as a result of increased exposure to TACs from mobile sources.”

The Draft EIR clearly establishes that the City’s threshold for TACs is not based upon the SMAQMD evaluation criterion. The intent of the EIR text was that the methodology in the SMAQMD guidance was used to conduct the HRA, not that the guidance was used as a threshold.

To clarify the Draft EIR, the following revision is made to Section 4.1, Air Quality of the Draft EIR. The revision does not alter the conclusions of the Draft EIR.

The third sentence on page 4.1-51 of the Draft EIR is revised as follows:

The HRA indicates that future residents would not be subject to a substantial increase in lifetime cancer risk as a result of exposure to TACs from mobile sources ~~based on the SMAQMD guidance~~. It is important to note that all residents of the City and County are exposed to some risk of cancer due to DPM just by virtue of living in an urban environment.

- 10-2: The commenter asserts that the HRA attempts to “deemphasize” the cancer risk results by disclosing that only one receptor within the project site would be exposed to a maximum cancer risk of 120 in 1 million and the remainder of the site would be exposed to a cancer risk of 80 in 1 million or less.

The HRA’s conclusions regarding the project’s cancer risks of 120 in 1 million and 80 in 1 million are supported by the HRA’s dispersion model and health effect calculations that convert the modeled concentrations to cancer risk. As shown in Figure 4.1-1, Modeled Cancer Risk Due to DPM Emissions, one residence would be exposed to a cancer risk of approximately 120 in 1 million, and residents in nearly all of the project site would be exposed to a lower cancer risk of approximately 80 in 1 million or less. In other words, the text of the HRA and the EIR simply reports the results of the modeling. Nonetheless, the HRA is revised to restate the results more clearly, particularly that the maximum modeled cancer risk is 120 in 1 million without reference to the number of affected residences. Please see Chapter 2, Text Changes to the Draft EIR for revisions to the HRA.

The commenter states that the HRA “inappropriately point[s] out that the risk [at the project site] is lower than our evaluation criterion.” Commenter cites the following language from page iv of the HRA:

“This [HRA] finds that only one residence at the far eastern end of the project site would expose residents to a maximum cancer risk of approximately 120 in 1 million under a 70-year exposure scenario, which is less than SMAQMD’s evaluation criterion of 276 in 1 million.” (HRA, p. iv, emphasis added.)

As explained in Response to Comment 10-1, the Draft EIR did not use SMAQMD’s evaluation criterion as a significance threshold. The Draft EIR’s notation that the risk at the project site is less than the evaluation criterion is a matter of fact, and is not used in the context of comparing a project risk to an established threshold.

- 10-3: The commenter states that in addition to cancer risk the HRA analyzes noncancer health impacts, which are more commonly addressed in stationary source assessments and may not be appropriate when looking at impacts from mobile sources (roadway and trains).

The analysis of cancer burden and noncancer health impacts was provided in the interest of full disclosure. Noncancer health impacts were specifically analyzed in response to public comments on the NOP citing concerns regarding cancer and noncancer risks. Similar comments were also submitted on the Draft EIR, further evidencing the public's concern on this issue (see Comment Letter 27). As indicated in the Roadway Protocol and the CARB *Air Quality and Land Use Handbook*, there are noncancer health effects associated with sensitive receptors living near high-traffic roadways. The Roadway Protocol, with its focus on cancer risk due to diesel particulate matter (DPM) emissions, does not address noncancer health effects. The Draft EIR, however, analyzed noncancer health impacts as part of the analysis of potential impacts from TACs in response to public comments.

Moreover, in light of the City's non-numerical threshold of significance ("...substantially increase the lifetime cancer risk as a result of increased exposure to TACs from mobile sources"), the use of cancer burden was intended to provide perspective as to whether the modeled cancer risk would result in a substantial exposure to the residents of the proposed project. At the advice of SMAQMD staff, a 10 in 1 million threshold was not used and because the Roadway Protocol's evaluation criterion is not a health-based significance threshold, there was not an obvious cancer risk threshold to apply. Cancer burden, which estimates the number of cancer cases that could result in an exposed population, provides a numerical basis for helping to put this impact in perspective. While it is not a conventional metric in many health risk assessments for CEQA documents, it is a concept included in the Office of Environmental Health Hazard Assessment's risk assessment guidelines and incorporated in several air district rules for TACs.

- 10-4: The commenter requests that the Final EIR include a discussion of "applicable General Plan policies designed to reduce exposure to toxic air contaminants, similar to the approach the City took in the Northwest Land Park EIR."

General Plan policies addressing TACs are addressed on pages 4.1-30 and 31 of the Draft EIR, including the following:

- **Policy ER 6.1.4 Protect all Residents Equally.** The City shall ensure that all land use decisions are made in an equitable fashion in order to protect

residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.

- **Policy ER 6.1.5 Development near TAC Sources.** The City shall ensure that new development with sensitive uses located adjacent to toxic air contaminant sources, as identified by the California Air Resources Board (CARB), minimizes potential health risks. In its review of these new development projects, the City shall consider current guidance provided by and consult with CARB and SMAQMD.
- **Policy ER 6.1.6 Sensitive Uses.** The City shall require new development with sensitive uses located adjacent to mobile and stationary toxic air contaminants (TAC) be designed with consideration of site and building orientation, location of trees, and incorporation of appropriate technology for improved air quality (i.e., ventilation and filtration) to lessen any potential health risks. In addition, the City shall require preparation of a health risk assessment, if recommended by Sacramento Metropolitan Air Quality Management District, to identify health issues, reduce exposure to sensitive receptors, and/or to implement alternative approached to development that reduces exposure to TAC sources
- **Policy ER 6.1.11 Coordination with SMAQMD.** The City shall coordinate with SMAQMD to ensure projects incorporate feasible mitigation measures if not already provided for through project design.

The same policies are identified in the Northwest Land Park Draft EIR, starting on page 5.1-9. It is unclear what additional policies the commenter would like addressed.

To address the request by the SMAQMD, the Draft EIR has been revised as follows to reference the applicable policies within the impact discussion addressing TACs.

The first sentence in the first paragraph on page 4.1-33 is revised to read:

In accordance with General Plan Policy ER 6.1.5 and Policy ER 6.1.6 as well as NOP commenters asking to evaluate the potential health effects on sensitive receptors, a Health Risk Assessment (HRA) was prepared for the project.

- 10-5: The commenter requests that the Final EIR and final approval documents require “high efficiency particle filtration systems for every residence within McKinley Village.”

As discussed in the Draft EIR, impacts from TACs were determined to be less than significant. Thus, a requirement to install filters would not be warranted. Under

CEQA, no mitigation measures are required for impacts that are less than significant. (CEQA Guidelines, Section 15126.4, subd. (a)(3).) (DEIR, pp. 4.1-46 to 51)

The above notwithstanding, the project applicant has voluntarily agreed to a condition of project approval requiring the project to install MERV 13 or equivalent filters on all residences within the project.

- 10-6: The commenter states “[t]he DEIR’s requirement for redwood trees in the landscape buffer should be included in the FEIR and approval documents.”

The redwood trees are included as a project element, but are not required as mitigation because the impacts from TACs were determined to be less than significant. Under CEQA, no mitigation measures are required for impacts that are less than significant. (CEQA Guidelines, Section 15126.4, subd. (a)(3).) (DEIR, pp. 4.1-46 to 51)

As explained in the Draft EIR: “[w]hile not required to reduce impacts from TACs, the project includes planting of redwood trees in the landscape buffer area adjacent to the freeway in order to further reduce toxic exposure from DPM.” In other words, the project applicant has already expressed a commitment to plant redwood trees.

The above notwithstanding, the project applicant has agreed to include the planting of redwood trees as a condition of project approval.

- 10-7: The comment provides a citation to district rules and regulations and states the project will be subject to the rules in effect at the time of construction. The comment does not raise issues regarding the adequacy of the Draft EIR or information contained in the Draft EIR. No further response is required.