

Appendix A

**Notice of Preparation and
Comments on the
Notice of Preparation**

**NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT AND SCOPING MEETING FOR THE
PANHANDLE ANNEXATION AND PLANNED UNIT DEVELOPMENT**

COMMENT PERIOD

April 27, 2016 to May 27, 2016

INTRODUCTION

The City of Sacramento ("City") is the Lead Agency for preparation of an Environmental Impact Report (EIR) for the proposed reorganization (annexation and related detachments) of the Panhandle project area and establishment of a Planned Unit Development (PUD) for a portion of the project area (proposed project). Written comments regarding the issues that should be covered in the EIR, including potential alternatives to the proposed project and the scope of the analysis are invited. The EIR for the proposed project is being prepared in compliance with the California Environmental Quality Act (CEQA).

Under CEQA, upon deciding to prepare an EIR, the City of Sacramento as Lead Agency must issue a Notice of Preparation (NOP) to inform trustee and responsible agencies, as well as the public, of its decision to prepare an EIR. The purpose of the NOP is to provide information describing the project and its potential environmental effects to those who may wish to comment regarding the scope and content of information to be included in the EIR. Agencies should comment on such information as it relates to their statutory responsibilities in connection with the proposed project.

The project description, location, and environmental issues that may be affected by development of the project are set forth below. The EIR will evaluate the project-specific and cumulative impacts, identify mitigation measures that may be feasible to lessen or avoid such impacts, and identify alternatives to the proposed project.

SUBMITTING COMMENTS

Comments and suggestions as to the appropriate scope of analysis in the EIR are invited from all interested parties. Written comments or questions concerning the EIR for the proposed project should be directed to the environmental project manager at the following address by 5:00 p.m. on May 27, 2016. Please include the contact person's full name and address in order for staff to respond appropriately:

Dana Mahaffey
City of Sacramento Community Development Department
Environmental Planning Services
300 Richards Blvd., Third Floor
Sacramento, CA 95811
Telephone: (916) 808-2762
E-mail: dmahaffey@cityofsacramento.org

SCOPING MEETING

A public scoping meeting will be held May 9, 2016 from 6:00 p.m. to 8:00 p.m. at the following location:

Sacramento City Hall
915 I Street
Sacramento, CA 95814
Room CH 1217, 1st Floor

Responsible agencies and members of the public are invited to attend and provide input on the scope of the EIR. The scoping meeting will be conducted in an open house format, so participants can attend at any point during this two-hour window. Written comments regarding relevant issues may be submitted at the meeting.

PROJECT LOCATION/SETTING

The project area comprises 589.3 acres in unincorporated Sacramento County between West Elkhorn Boulevard on the north, a segment of E. Levee Road that adjoins the Natomas East Main Drainage Canal and Sorrento Road on the east, Interstate 80 (I-80) to the south, and residential development on the west (Figure 1). The project area is within the City of Sacramento's Sphere of Influence (SOI) in the North Natomas Community Plan (NNCP) planning area. The Northern Portion is primarily vacant grassland with the exception of the East Natomas Education Complex currently under construction. The area to the south of Del Paso Road, between Del Paso and I-80, Northgate Boulevard and Gateway Park Boulevard, comprising approximately 835 acres, will also be considered for annexation. However, this area is nearly built out with light industrial, warehousing, office and commercial uses and the project does not propose any development in this area.

PROJECT DESCRIPTION

The Northern Portion of the proposed annexation area would consist of a PUD for a planned community consisting of residential, commercial, elementary school, and park uses on approximately 367 acres north of Del Paso Road. The remaining approximately 168 acres between the proposed PUD project area and extending north to West Elkhorn Boulevard ("Panhandle North") would remain designated as Planned Development (PD) to accommodate residential uses and the East Natomas Education Complex. The proposed land use map is shown in Figure 2. The table in Figure 2 provides a summary of the proposed land uses in the Northern Portion. The land use plan includes the potential for approximately 2,270 residential units in the entire Northern Portion; however, the EIR will consider the potential for those units plus an additional 10 percent to provide flexibility in the future and account for changes in market conditions that could occur over buildout of the project. No land use changes are proposed for the Southern Portion.

REQUESTED ENTITLEMENTS

The proposed project includes an amendment to the City of Sacramento 2035 General Plan; Pre-zoning to reflect the specific land use designations in the Northern Portion: Tentative Master Parcel Map; establishment of the Panhandle Planned Unit Development (PUD) Guidelines and Schematic Plan for the Northern Portion; Bikeway Master Plan Amendment; Development Agreement.

Review of the proposed project by the Planning and Design Commission would be conducted as part of the EIR review and entitlements process. The project entitlements would ultimately require approval by the City Council.

The proposed project would require annexation of the sphere of influence in project area from Sacramento County into the City of Sacramento. Approval by the Sacramento Local Agency Formation Commission (LAFCo), a responsible agency under CEQA, would be required for the proposed reorganization, (annexation and related detachments) Property Tax Exchange agreement between the City and County.

Additional information and materials relating to the proposed project are available on the City's website <http://portal.cityofsacramento.org/Community-Development/Planning/Environmental/Impact-Reports.aspx>

ENVIRONMENTAL EFFECTS AND SCOPE OF THE EIR

The EIR will analyze potentially significant impacts that could result from construction and operation of the proposed project. Pursuant to Section 15063(a) of the CEQA Guidelines, an Initial Study has not been prepared for the proposed project. The EIR will evaluate the full range of environmental issues contemplated for consideration under CEQA and the CEQA Guidelines. The environmental factors that the City has determined could potentially be affected by the proposed project include:

- Agricultural Resources
- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hazards/Hazardous Materials
- Hydrology/Water Quality
- Noise
- Public Services and Utilities
- Traffic/Transportation

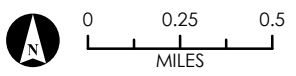
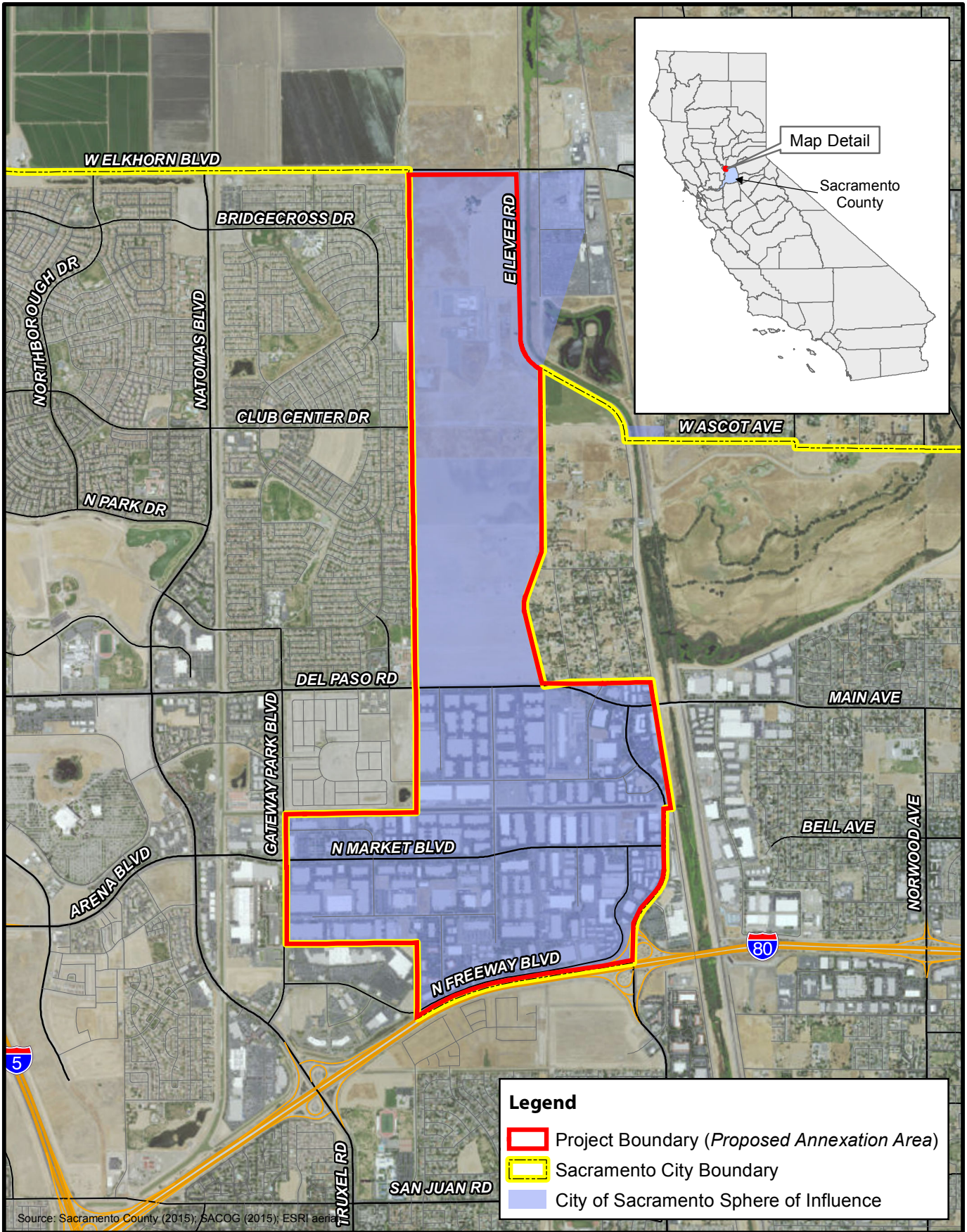
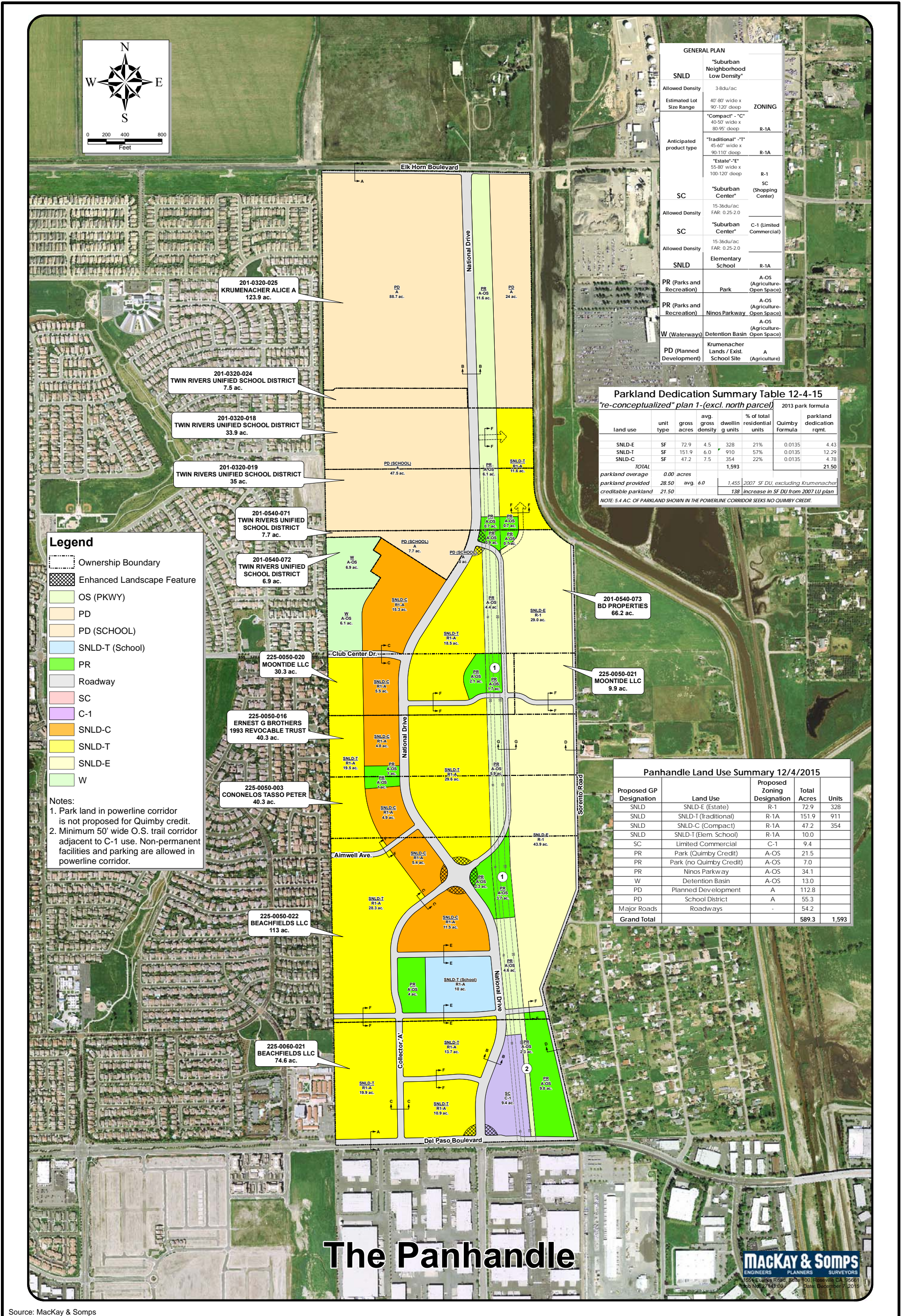


FIGURE 1
Project Location



The Panhandle



Source: MacKay & Somp

FIGURE 2
Proposed Land Uses in Northern Portion

Comment Letters

**BRIGIT S.
BARNES &
ASSOCIATES,
INC.**

A LAW CORPORATION

Brigit S. Barnes, Esq.
Annie R. Embree, Esq.
Of Counsel



Asset Preservation,
Land Use and
Environmental
Paralegal
Jaenalyn Killian

Legal Assistant
Noreen Patrignani

3262 Penryn Road
Suite 200
Loomis, CA 95650
tel: 916.660.9555
fax 916.660.9554
www.landlawbybarnes.com

June 14, 2016

Via Email and Regular Mail

City of Sacramento
Community Development Department
300 Richards Blvd., 3rd Floor
Sacramento, CA 95811

Attn: Lindsey Alagozian, Senior Planner
LAlagozian@cityofsacramento.org

Attn: Garrett Norman
GNorman@cityofsacramento.org

Re: Panhandle Annexation / Scoping Comments

Dear Ms. Alagozian and Mr. Norman:

As you know, this office represents RagingWire Data Centers, Inc. ("RagingWire").

This letter is intended to request formal clarification related to Ms. Alagozian's discussion of the nature of the Scoping Meeting held May 9, 2016. My client never received any kind of notice of the Scoping Meeting, even though the actions of the City will have a direct impact on its properties.

Ms. Alagozian told me on June 9, 2016 that the meeting had been held May 19, that no deadlines had been set, and that planned annexation was for north of the "Pan" section where my client owns properties. I emailed her on June 9, 2016, confirming what she told me, and asking that I receive notice of all matters related to the Panhandle Annexation, and the Scoping Session.

Imagine my surprise to discover today on the City's website, the notice of the Scoping Meeting, actually held May 9, not May 19, and that all comments were due June 13, 2016. Not only was the information that Ms. Alagozian provided me incorrect, but no one in her office or Mr. Norman's office informed me that her information was incorrect.

I am particularly concerned to discover that although no zoning change is anticipated for the already developed "Pan" area, the City does intend to annex this area based on the Scoping Notice attached. There is substantial confusion regarding the scope of this annexation, because City notes received pursuant to RagingWire's Public Records Act request indicate that the February 2016 Project Description showed the same 589+ acres to be annexed, but that the property south of Del Paso Blvd., which had been included in the prior 2007 application request, had been withdrawn from the current application request. Nevertheless, the City's Scoping Meeting Notice specifically states:

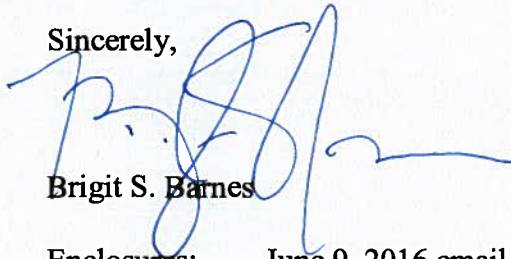
Asset Preservation	•	Commercial Real Estate	•	Environmental
General Business	•	Real Estate Financing	•	Litigation

“The area to the south of Del Paso Road, between Del Paso and I-80, Northgate Boulevard and Gateway Park Boulevard, comprising approximately 835 acres, will also be considered for annexation.”

Therefore, please ensure that among the issues considered in the draft EIR, City’s Community Development Department includes the following issues in its consideration:

- Loss of open space, including prime farm land;
- Full discussion of traffic impacts, through the Project Area and the Pan, especially plans for traffic feeding off Del Paso Blvd.;
- Analysis of the Project’s compliance with AB-32, especially in light of CBD v. Calif. Dept. Fish & Wildlife [Newhall] (2015) 62 Cal. 4th 204.
- Air Quality;
- Flooding issues, related to proposed detention plans;
- Adequacy of WWTP plan;
- Flood Plain analysis;
- Damage to wetlands, riparian issues; and
- Internal inconsistencies with annexation plan between north and south of Del Paso Blvd., especially Financial Plan issues.

Sincerely,



Brigit S. Barnes

Enclosures: June 9, 2016 email
City of Sacramento Notice of Scoping Meeting

cc: Client [Jim Lahey, Esq.]
Frank Watson, Esq.

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



*Serious drought.
Help save water!*

March 9, 2016

032016-SAC-0029
03-SAC-80 / M 4.45
P16-013

Mr. Garret Norman
Community Development
City of Sacramento
300 Richards Blvd., 3rd Floor
Sacramento, CA 95811

Panhandle Annexation – Application

Dear Mr. Norman:

Thank you for including the California Department of Transportation (Caltrans) in the application review process for the project referenced above. Caltrans' new mission, vision, and goals signal a modernization of our approach to California's transportation system. We review this local development for impacts to the State Highway System in keeping with our mission, vision and goals for sustainability/livability/economy, and safety/health. We provide these comments consistent with the State's smart mobility goals that support a vibrant economy, and build communities, not sprawl. The project is located within the North Natomas Community planning area, bounded by Elkhorn Blvd. on the north, Sorento and East Levee Roads on the east, Del Paso Road on the south, and the current City boundary on the north. The project was originally initiated via adoption of resolution by the City in September 2000, which commenced activities to annex the northern and southern sections of the Panhandle but was purposely withdrawn in 2007. Currently, with the southern portion (835-acres) of the original site already built-out, the project proposes annexation of the northern section (approximately 1,430-acres) of the Panhandle. The Panhandle's land use plans include zoning for approximately 1600 residential dwelling units, three schools, a shopping center, open spaces for two parks and a detention basin, and major roads and collector streets. Various entitlements are proposed along with annexation including a general plan amendment, pre-zoning, a tentative master parcel map, a planned unit development guidelines and schematics plan, and a development agreement. The following comments are based on the Application.

Traffic Impact Analysis

Consistent with the State's smart mobility goals, Caltrans recommends the applicant perform analysis to identify traffic impacts in terms of Vehicle Miles Traveled (VMT) for a broad project

Mr. Garret Norman / City of Sacramento, Community Development
March 9, 2016
Page 2

traffic travel area. Specifically, Caltrans would like the analysis to include any needed VMT-reducing mitigation that results from increased VMT from this project on the State Highway System. Mitigations to reduce VMT could include adjustments which make the project more travel efficient or induce mode shift opportunities such as increased infrastructure for transit, walking, bicycling, etc.

Please provide our office with copies of any further actions regarding this project. We would appreciate the opportunity to review and comment on any changes related to this development.

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,

A handwritten signature in cursive script that reads "Eric Fredericks".

ERIC FREDERICKS, Chief
Office of Transportation Planning – South Branch

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

5109 Tyler Street
Sacramento, CA 95841
(916) 348-2300
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)



May 26, 2016

File No.: 250.13760.12146.E16-010

Ms. Dana Mahaffey
City of Sacramento
300 Richards Boulevard, Third Floor
Sacramento, CA 95811

Dear Ms. Mahaffey,

The North Sacramento Area office of the California Highway Patrol (CHP) received the "Notice of Preparation" of the Environmental document for the proposed Panhandle Annexation and Planned Unit Development, State Clearing House #2016042074. After review, we have concern with this project.

Our concerns relate to the traffic in the vicinity of the project that connects the communities of Natomas and Rio Linda. The addition of 2270 residential units will increase traffic and congestion at an exponential rate to the surrounding Sacramento County freeways, including: Interstate 80, Interstate 5 and State Route 99. Likewise, the influx of traffic on the Sacramento County roadways, specifically West Elkhorn Boulevard, Northgate Boulevard and Del Paso Road, are of great concern due to the current roadway configurations and lack of additional lanes of travel. Without appropriate mitigation efforts relative to vehicular, bicycle and pedestrian traffic, the inevitable increase of calls for service for our area of responsibility will require resources that are not currently anticipated in our deployment structure.

Please be advised that these issues are our immediate concern and should not be differed to a subsequent phase of development. If you have any questions regarding this letter and our comments, please contact me or Lieutenant David Ricks at (916) 348-2300.

Sincerely,

A handwritten signature in blue ink that reads "A. T. Williams". To the right of the signature, the word "TEAM" is written in blue ink.

A. T. WILLIAMS, Captain
Commander
North Sacramento Area

cc: Valley Division
Special Projects Section
State Clearing House



Partial Response 1 NOP - Panhandle
P-16-013

Catherine Hack
Environmental Coordinator
Sacramento County
827 7th Street, Room 225
Sacramento, CA. 95835

MAY 31 2016
RECEIVED

May 29, 2016

Subject: Response to Notice of Preparation (NOP) for the Natomas North Precinct Plan (NNPP), Control Number: PLNP2014-0017; State Clearinghouse Number: 2016042079.

Dear Ms. Hack:

Thank you for the opportunity to respond to the NOP for the NNPP DEIR. At this time, we would like to briefly list our areas of concern, and request that the related potential significant project-specific and cumulative adverse impacts be reviewed in the DEIR. Many of these concerns have been previously voiced over the past twenty years.

1. Water: For the last four years, and most critically in summer and fall of 2015, the Governor's Office, State Department of Water Resources, local water agencies and the Sacramento Bee reported an insufficient water supply to meet area water needs. Draconian water conservation requirements were passed and enforced. Evidence of an adequate groundwater supply, and adopted conjunctive use plans, were insufficient to prove to state regulatory agencies that adequate water was available. Therefore, high-percentage water use cutbacks remained in place. Trees and lawns in North Natomas died (tour Northgate Blvd. and North Market and view numerous dead mature trees for proof of this assertion).

The Bee often reported that there was insufficient water to meet the needs of existing, and currently approved but not yet constructed, development. This project proposes 5,600 acres of development which uses existing sources known to the state but considered inadequate by the Governor, State, and The Bee. State law requires that new development projects prove the existence of an adequate water supply. There is no new water source for this project. There will not be adequate water for future residents.

Existing agricultural operations may be affected by increased costs from Natomas Mutual Water Company's transformation to a drinking water provider, and/or the diversion of existing water supply from agriculture to urban development.

Finally, existing neighborhoods and agricultural properties on wells could lose their water source, or be forced to drill deeper wells, as this mega-project may create a Natomas cone of depression during a multi-year drought. The latter is a serious concern to the Valley View Acres neighborhood.

Additionally, we are concerned about the potential impacts of ground subsidence from pumping on the stability of the levee system, especially during high water events. This issue has not been discussed or has been minimally discussed in the South Sutter County, Greenbriar, Joint Vision/Natomas Precinct, Panhandle, and Metro Air Park project evaluations. Will 100 or 200 year flood protection be undermined by over-drafting or by the pressure of increased water levels or erosion from increased water velocities on the water side of the levees?

Additionally, the Water Forum agreement does not include water for urban development of this site; regional impacts are substantive and significantly adverse. The state has been highly critical of groundwater use especially in the past year. Even though we do not agree with this project, if it proceeds, it is best undertaken in the City of Sacramento which has a surface water supply from the American River. In fact, the Cortese Knox Hertzberg Act supports development within cities as opposed to counties. This project is outside of the County's Urban Services boundary. Counties are not intended to act as full service providers. Cities are.

2. Water Quality: The use of Steelhead Creek as a collector for polluted urban runoff will endanger Steelhead, Salmon and other fish and wildlife using the creek. Residents who play and fish in the creek will be subject to high levels of heavy metals and toxins from urban runoff. Water quality and clarity will be diminished by the addition of phosphates and nitrates. The difference between existing periodic agricultural runoff and year round urban runoff will be significant and adverse.

3. Flooding: Natomas is a deep basin; much of it was swamp or swale. More than a dozen streams emptied into it. Two of them (Dry and Robla Creeks) passed through the city near the project site; several others emptied into the project site. Natomas was so wet that it was crossed by steamboat during most months.

There have been four substantive high water years in the past 50: 1983; 1986; 1995 and 1997. Each of those events proved that the level of flood protection believed to be in place was not in place. 70 year protection was relabeled as 40; 100 as 70, etc. These events caused two subsequent flood control moratoriums in the project area. **All SAFCA and Corps of Engineer's documents indicate that the Natomas basin will eventually flood;** perhaps, only once in the next hundred years or twice, but it is projected to occur. The once in a hundred year flood event may occur next year. Natomas is a deep floodplain. It should never have been developed. 55,000 more people should not move here. It is unsafe.

The project proposes to use Steelhead Creek for drainage. In 1986, water from Steelhead Creek backed up into Rio Linda and Elverta and the Ascot area. It flooded Brashier's auto business, emptied tires from local junkyards and deposited them throughout neighborhoods. Second floors of houses were flooded. It was terrible. Refer to aerials flown by State Water Resources which show the extent of flooding. SAFCA had copies. We may still have a set.

Rio Linda and Elverta residents claimed that water pumped from the Natomas Basin into Steelhead Creek was a large cause of their flooding or at a minimum exacerbated it. (In a very tense and hostile environment, some threatened to blow up the pump north of Elkhorn or levee to protect their families and properties.) Strawberry Manor won a lawsuit which partially argued this issue. This project proposes to pump large quantities of runoff into a creek which already floods. Streams emptying into it already back-up when reaching the creek. This project has the potential to greatly increase existing flooding and associated impacts.

Certainly SAFCA's pump station will eliminate the anticipated flooding from American River water back-up. However, the floodway and pump station are inadequate to carry so much additional runoff. Levees will be stressed. Roads to the east of the project site (Sorento north of Elverta Road, as an example) experience deep flooding during high water events due to

inadequate elevation changes and back-up in Steelhead Creek. This project will exacerbate flooding in those areas.

4. Premature and Growth Inducing: SACOG, a regional agency which includes representatives from the Sacramento County Board of Supervisors and Sacramento City Council has determined that this area, and the Panhandle area to the south, are not needed for growth through 2035 and likely longer. There is already plenty of land approved for development within the city limits in N. Natomas, including Greenbriar, Delta Shores, in the County, in Rancho Cordova, South Sutter County and Isleton (see attachment A, ECOS letter to Sacramento County Board of Supervisors dated December 16, 2015.) This project could cause leapfrog development and induce growth on agricultural land in the Natomas basin. Smart and Compact growth reduces traffic and air quality impacts in a basin which regularly exceeds permitted carbon monoxide and particulate matter levels. This project undermines local, state, regional and federal air quality and traffic management goals, by enabling growth away from planned transit corridors and perimeter growth before infill is completed. Our neighborhood will suffer from the smog, noise and congestion caused by this project.

Finally, this project appears inconsistent with local, state and federal air quality attainment plans and greenhouse emissions reductions plans.

5. Agriculture and Prime Farmland: The Natomas basin contains prime agricultural land. Agriculture is the best land use for prime land in a deep floodplain (also see 4 above).

6. Traffic, Use of the Panhandle for Southerly Access. It appears the road network in the county panhandle is being designed to accommodate traffic from Natomas North precinct. When Truxel Road (now Natomas Boulevard) was extended to Elkhorn Boulevard, mitigation measures were required which ensured that southerly access from the Joint Vision/North Precinct would not be provided through the City (The project file for the extension of Truxel Road, and all public hearing transcripts and reports, are hereby incorporated by reference). The Panhandle project includes major through streets to the north. If access to Interstate 80 exits is obtained, the traffic impacts will be numerous and objectionable.

The Panhandle currently proposes to open up Sorento Road and Valley View Acres to through traffic from Elkhorn Boulevard via proposed north/south roads. The additional adverse effects of traffic from the proposed project through our neighborhood need to be assessed, especially health and safety impacts stemming from accidents on the E. Levee and Sorento Roads.

This project could undo the work of the City approved Traffic Calming Plan for Valley View Acres. The roads in Valley View Acres are long and attractive to speeders. When the North Natomas Community began to build out, traffic volumes on Sorento Road quickly escalated into the thousands. The E. Levee Road and Sorento became very dangerous with traffic fatalities on both. People drove off the levee and crashed.

Drivers lost control and drove into the yards at the Sorento curves north of Barros, and into the two poles by the curve south of Barros near the proposed Mayfield extension. SMUD had to replace poles on more than one occasion.¹ There is a hill which impedes the view of

¹In fact, a speeding youth who had been partying at the unoccupied Twin Rivers school site ran into the utility pole across from

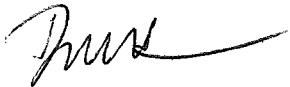
oncoming traffic and cars backing out of driveways. By the time the city acted to close Sorento to through traffic as allowed in the 1994 North Natomas Community Plan, accidents were an almost daily occurrence, with many fender benders that went unreported. It was unsafe to walk along the road, or retrieve one's mail.

There were several reports of children who while waiting for the school bus on narrow streets, especially Carey and Sorento Roads were forced to jump into ditches to avoid speeding traffic. Frantic mothers yelled at cars; one Carey Road mother followed a car to the driver's place of employment and reported an incident to the driver's employer. Friends, turning into properties along Sorento were sometimes rear-ended. Collisions occurred at the Sorento/Del Paso Road intersection. The City recognized our safety concerns and fixed the problem. [All city files pertaining to traffic issues (accidents, speeding, natural hazards, nuisance impacts) on Sorento, East Levee Road and Valley View Acres are incorporated by reference including the City staff reports and supporting documentation for City Council approvals.] If the Panhandle area is used as a southerly access with the currently proposed road network for the Panhandle proposal, significant adverse health and safety impacts will occur. A mitigation measure should be required which limits access from the Panhandle to a total of two lanes consistent with the Truxel Road extension project mitigation measure (see file).


7. Panhandle Project (City of Sacramento Control Number: P-16-013). This EIR needs to be coordinated with the EIR for the City's Panhandle project. It needs to be considered a pending project for evaluation of project specific and cumulative impacts. Also, Valley View Acres is preparing to submit a plan to reinstate its rural estates General and Community Plan designations (one acre minimum parcel designation). This should be considered an anticipated project.

8. Wildlife, Open Space, Habitat Conservation. This area is rich in wildlife and important open space. It is not included in the Natomas Habitat Conservation Plan. The County has spent more than 20 years trying to adopt a habitat conservation plan in the south county. Any mitigation requiring a habitat conservation plan needs to require that the plan be approved prior to the issuance of any grading permits or infrastructure development, including water, road and drainage.

Thank you.



David Lichman, Leader
Valley View Acres Neighbors Working Together
5000 Tunis Road, Sacramento, California 95835


Barbara Graichen
President, North Natomas Community Association
5010 Sorento Road, Sacramento, California 95835

Cc Dana Mahaffy
City of Sacramento (Panhandle Project No. P-16-013 NOP response)

5000 Sorento a few months ago. Many people were without electricity for most of the night. The Panhandle project connects Sorento to the new high school. On May 29, another speeder ran into a power pole at 5020 Sorento.



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

19 May 2016

Dana Mahaffey
City of Sacramento
300 Richards Boulevard, Third Floor
Sacramento, CA 95811

CERTIFIED MAIL
91 7199 9991 7035 8421 3124

COMMENTS TO REQUEST FOR REVIEW FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, PANHANDLE ANNEXATION AND PLANNED UNIT DEVELOPMENT PROJECT, SCH# 2016042074, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 27 April 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Draft Environment Impact Report* for the Panhandle Annexation and Planned Unit Development 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.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

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.

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 Caltrans Phase I MS4 Permit, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/caltrans.shtml.

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. 2014-0057-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

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.

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.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), 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 – Discharges to Waters of the State

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 may 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.

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board’s Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

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

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/for_growers/apply_coalition_group/index.shtml or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.
2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100.** Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently \$1,084 + \$6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

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

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.



Stephanie Tadlock
Environmental Scientist

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



ECOS
ENVIRONMENTAL
♦ COUNCIL ♦
OF SACRAMENTO



ECOS & Habitat 2020
P.O. Box 1526, Sacramento, CA 95812-1526
(916) 444-0022
office@ecosacramento.net
www.ecosacramento.net

May 27, 2016

Attn: Dana Mahaffey *SENT VIA EMAIL TO dmahaffey@cityofsacramento.org*
City of Sacramento Community Development Department
Environmental Planning Services
300 Richards Blvd, 3rd Floor
Sacramento, CA 95811

RE: Comments on Notice of Preparation of an Environmental Impact Report for the
Panhandle Annexation and Planned Unit Development

Dear Ms. Mahaffey:

This letter provides initial comments from the Environmental Council of Sacramento (ECOS) and Habitat 2020 (H2020) in response to a notice of preparation application for the proposed Panhandle Annexation and Planned Unit Development in North Natomas. ECOS' membership organizations include: 350 Sacramento, Breathe California of Sacramento-Emigrant Trails, Citizens Climate Lobby Sacramento, Friends of Stone Lakes National Wildlife Refuge, International Dark-Sky Association, Mutual Housing California, Physicians for Social Responsibility Sacramento Chapter, Sacramento Electric Vehicle Association, Sacramento Housing Alliance, Sacramento Natural Foods Co-op, Sacramento Valley Chapter of the California Native Plant Society, Sacramento Vegetarian Society, Save Our Sandhill Cranes, Save the American River Association, SEIU Local 1000 (Environmental Committee), Sierra Club Sacramento Group, and The Green Democratic Club of Sacramento.

Habitat 2020 (H2020) is a coalition of environmental organizations collaborating on common issues in and affecting, the Sacramento region. Members of Habitat 2020 include the Sacramento Audubon Society, California Native Plant Society, Friends of the Swainson's Hawk, Save the American River Association, Save Our Sandhill Cranes, Sierra Club Sacramento Group, Friends of Stone Lakes National Wildlife Refuge and the Sacramento Area Creeks Council.

Incorporate Prior Letters in Comments

ECOS was signatory to a comment letter (attached as Attachment 1) dated December 18, 2006 in response to the Panhandle Annexation and PUD DEIR of a predecessor project. In addition, James M. Pahl, an attorney representing ECOS and other concerned organizations, submitted a letter on May 31, 2007 (attached as Attachment 2) commenting on the FEIR. Many of the concerns and comments in those letters pertaining to the evaluation of that project's impacts are still relevant. These comments are incorporated herein by reference and we ask that you address

them during the preparation of the new DEIR with the objective of providing a full and complete environmental analysis that addresses deficiencies in the prior documents.

We would also like to provide the following additional comment:

Evaluate Growth Inducing Impact of Enhanced Road Connectivity

The proposed project will provide a new through road between Del Paso Road and West Elkhorn Blvd. Del Paso Blvd represents the north boundary of the Sacramento City Limit, the Sacramento City Sphere of Influence Boundary, and the Sacramento County General Plan Urban Service Boundary. The proposed road will facilitate access to land north of West Elkhorn Blvd that is not included in any adopted plan for urban development. It is essential that the DEIR address the growth inducement potential of the planned road improvements and recommend appropriate mitigation measures.

Sincerely,

A handwritten signature in cursive script that reads "Brandon Rose".

Brandon Rose, President of the Environmental Council of Sacramento (ECOS)

Attachments:

Attachment 1 - Comment letter dated December 18, 2006 in response to the Panhandle Annexation and PUD DEIR of a predecessor project

Attachment 2 - James M. Pacht's letter dated May 34, 2007 commenting on the FEIR



**915 L Street, C-425
Sacramento, Ca. 95814
916-447-4956
www.swainsonshawk.org**



**909 12th St., 100
Sacramento, Ca. 95814
916-443-1033
www.ecosacramento.org**



**1414 K Street, 500
Sacramento, Ca. 95814
916-557-1100, x 108
www.motherlode.sierraclub.org**



**Natomas Community Association
5010 Sorento Road
Sacramento, CA 95835
www.natomascommunity.org**

December 18, 2006

Jennifer Hageman
City of Sacramento
Development Services Department
Environmental Planning Services
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834
Telephone: (916) 808-5538
E-Mail: jhageman@cityofsacramento.org

Re: Panhandle Annexation and PUD DEIR Comment

Dear Ms. Hageman,

The following comments, which incorporate the attached “Panhandle Working Group Support Position for Open Space Buffer,” and accompanying Exhibits 1 – 13, are submitted on behalf of the Environmental Council of Sacramento, Natomas Community Association, Friends of the Swainson's Hawk, and Sierra Club - Mother Lode Chapter, regarding the DEIR for the proposed annexation of Panhandle, PUD, and related approvals. We also incorporate into our comments all of the comments of other individuals and organizations, and will rely on these comments as well as our own. These comments highlight some of the deficiencies of the DEIR and the project. We also request information in a Recirculated DEIR. Our organizations oppose the project, including the annexation, General Plan Amendments, rezone, PUD, and development of the project site.

Agricultural Resource

While the DEIR contains mitigation for agricultural resource lost, LAFCo is now reconsidering its mitigation policies. The final EIR should include any mitigation necessary to comply with LAFCo policies.

An agricultural buffer on the northern boundary of the project area is necessary to be consistent with the NNCP. The DEIR recommends mitigation to include this buffer and its maintenance (MM4.2.2a and MM 4.2.2b). However the funding mechanism for acquisition and maintenance of the buffer is not identified in the DEIR or other project documents. Therefore there is no evidence that implementation of this proposed mitigation measure is financially feasible, and thus no evidence supporting the finding that impacts are mitigated to less than significant. (MM 4.2.2 – see discussion, below, regarding funding for traffic mitigation measures).

The DEIR MM 4.2.1 states that the requirement to acquire land suitable to mitigate for loss of farmland shall be satisfied by acquisition of habitat mitigation land to mitigate for impacts on wildlife (ie: compliance with the NBHCP, MM 4.8.1). There is no substantial evidence that preservation of habitat mitigation land under the NBHCP will also mitigate for loss of farmland. The farmland and endangered species habitat mitigation requirements having differing goals which in some instances are incompatible. Mitigation for loss of agricultural land is intended to preserve production agriculture. By contrast the Natomas Basin Conservancy is mandated to manage its land as “high quality habitat” for covered species, notably the threatened Giant Garter Snake and the Swainson’s Hawk. Twenty-five percent of NBC land is required to be converted to managed marsh, a non-agricultural use, and another 25% managed for high quality upland habitat values, which, due to soil and agricultural market conditions, is nearly impossible to achieve in the Basin on land managed for production agriculture. Moreover, it cannot be determined whether “stacking” can succeed for Panhandle’s agricultural and habitat mitigation, because no land has been identified for the proposed mitigation of habitat and agricultural impacts of the Panhandle project.

The DEIR does not address the incompatibility of NBHCP and stacking or the risk and consequences of failing to multiple mitigation objectives with the same land easement. There is substantial risk that the multiple mitigation objectives cannot be met in perpetuity. Given the legal status of the NBHCP as a state and federal permit, it is likely the objectives of the agricultural land mitigation measure would ultimately not be met if the mitigation requirements were stacked. Therefore stacking is not an adequate CEQA mitigation measure because there is no evidence that it is capable of full implementation.

MM 4.2.1 states that agricultural protection easement may be “dedication of open/recreational space.” It is inappropriate to mitigate for loss of farmland with open space/recreational land. To mitigate for the loss, the land must be placed in an agricultural use. We would urge you to include a mitigation measure that requires at least some on site mitigation and the use of the land for organic farms serving local needs for fruit and vegetables.

Air Quality

The Panhandle DEIR Air Quality analysis is incomplete. It refers to an air quality plan for the project which is not appended. CEQA requires that all parts of a DEIR be circulated for at least 45 days for public comment. Therefore, the DEIR and project documents, including the missing Air Quality analysis, must be recirculated for at least

45 days. Moreover, though the project is conditioned with air quality mitigation measures, these are measures that apply to projects that are included in the land use base for the air quality plan. The Panhandle PUD is inconsistent with the current federal ozone attainment plan adopted by the Sacramento Metropolitan Air Quality Management District because that plan is based on a land use map that assumes Panhandle remains in agricultural land.

The Sacramento Metropolitan Air Quality Management District is presently preparing an ozone attainment plan to be submitted to state and federal regulatory agencies by June 2007. In order to be consistent with the upcoming air quality plan, the DEIR should be delayed until that plan is adopted and the DEIR should include sufficient mitigation measures to be found consistent with the new air quality plan.

The DEIR Air Quality analysis points out (4-5-10) that the transportation conformity requirement of the federal Clean Air Act:

“ The region’s transportation plan must conform and show that implementation will not harm the region’s chances of attaining the ozone standard. The SIP is tied to a “motor vehicle emissions budget” and thus, transportation planners must ensure that emissions anticipated from plans and improvement programs remain within this budget.”

However, the DEIR fails to identify the interaction between the transportation improvements required for this project and the necessary air quality plan adoption and conformity finding. What transportation mitigation measures and required transportation projects could be at risk if the necessary approvals are not obtained? Nor does the DEIR identify what additional air quality mitigation requirements will be forthcoming with the adoption of the new air quality plan.

Alternative Analysis

The DEIR should quantify the differences between alternatives in impacts rather than classify them arbitrarily as in the same category.

The DEIR at 6.0-21 makes no meaningful distinction between the project alternative and the other alternatives in terms of stormwater run-off and surface water drainage, flood risk, and groundwater quality, although the plans differ substantially in impervious surface.

The DEIR does not distinguish between the transportation maintenance, traffic and transit impacts of the various alternatives although they do differ in the acreage used to serve about the same population.

The DEIR should quantify the impacts on existing neighboring land uses and residents of the alternatives.

The DEIR should quantify the differences between alternatives in cost to municipal services to the population since the project requires a larger service area.

The DEIR should quantify the differences in impact between the alternatives on the biological resource, including nesting and foraging Swainson's Hawks, White Tailed Kites, Burrowing owls and impacts on and adjacent, wildlife corridor along Steelhead Creek and along Hansen Ranch to Placer County.

The DEIR should quantify and compare the alternatives in terms of meeting diverse housing needs. All inclusionary housing is for rent. The DEIR fails to analyze the impacts of the use of rental properties for all inclusionary housing compared with a mix of housing spread over neighborhoods and a requirement for senior housing. The project alternative lacks an institutional designation for senior independent and assisted living as compared with the community proposed plan (so-called "Trujillo" alternative).

Biological Resources

With MM 4-8-2a the DEIR states that compliance with the NBHCP will require "Payment of HCP fees or dedication of land at a ratio of 0.5 to 1." All land requirements should be met with dedication of land, not through payment of fees. Under CEQA, land acquisition requirements for mitigation must be met through land dedications because fee programs to acquire land for habitat mitigation have consistently failed in our region. (Examples are the former SWH mitigation programs of the City of Elk Grove, County of Sacramento, and County of Yolo.) Use of fees to acquire mitigation land is inconsistent with CEQA's requirement that mitigation be financially feasible and capable of being implemented.

The DEIR (Impact 4.8.1) concludes that grassland is not significantly impacted by development of 590 acres of annual grasslands: "The loss of annual grasslands and associated common wildlife is less than significant because this biological community is locally and regionally abundant and losses from this project would not result in grasslands of the region to drop below a self-sustaining level." (p. 4-8-29) The DEIR provides no evidence to support this conclusion. The DEIR at 4-8-29 states that the conclusion is based on:

"The impact assessment was based on the project description for the Panhandle annexation and PUD, information described in the existing setting (including technical biological reports prepared for the project site), and the standards of significance described above."

No technical biological reports are appended to the DEIR. The DEIR should be recirculated with the necessary appended reports.

The DEIR Violates CEQA By Failing To Make Necessary Documents Available For Public Review During the Entire 45-Day CEQA Public Comment Period (Financing Plan)

Public Resources Code § 21091(a) requires that the public review period for a Draft EIR be at least 45 days, which begins when the project documents and DEIR are complete

and Notice of Availability is given. The DEIR is incomplete because neither it nor the project documents include a financing plan to commit necessary and sufficient funding for the mitigation measures in the DEIR, and to demonstrate that proposed mitigation measures are financially feasible.

Instead, there is a "Draft Public Facilities Financing Strategy" which states that a "Panhandle Public Facilities Financing Plan" will be drafted at an unspecified time and adopted when the project is approved. Otherwise, the Draft Public Facilities Financing Strategy" only recites the various financing options which may be selected by City, contains a list of estimated costs of infrastructure, and contains no data or calculations which demonstrate how these costs will be paid. Page 5 of the "Financing Strategy" recites that project-related infrastructure and public facilities required to serve the project are similar to those of nearby projects and do not appear prohibitively high. It then concludes: "As a result, the project should be able to feasibly fund the cost of the required mitigation measures and infrastructure facilities." (*Id.*, p. 5) The DEIR contain no evidence supporting that conclusion.

CEQA requires that mitigation measures be feasible. "Feasible" includes "financially feasible." Measures which are not financially feasible are, by definition, not feasible. The public and responsible and trustee agencies in reviewing the DEIR cannot form an opinion about the feasibility of proposed mitigation measures without a financing plan which demonstrates that there will be funding adequate to pay for the mitigation measures. The DEIR is incomplete because the financing plan is a necessary element to provide mitigation for the project's impacts.

Indeed, the DEIR states that such data will be available to the decision-makers prior to their action, in the "Panhandle Public Facilities Financing Plan". However, CEQA requires that the "Panhandle PUD Public Facilities Financing Plan" also be made available to the public for the requisite 45-day public comment period, so that the public may examine the Financing Plan and form an opinion as to whether the mitigation measures to be financed by the Financing Plan are, in fact, financially feasible. The nonexistent financing plan has significant environmental impacts because it determines whether there will be funding to implement the Mitigation Measures proposed in the DEIR.

CEQA requires an agency to address specific economic considerations related to mitigation measures to determine if they are feasible or infeasible. See Public Resources Code §21081(a)(3); *Federation of Hillside and Canyon Associations v City of Los Angeles* (2000) 83 Cal. App. 4th 1252, 1259, 1260.

On point is *Ultramar, Inc. v. South Coast Air Quality Management District* ("Ultramar") (1993) 17 Cal. App. 4th 689, 700 - 701, in which the agency failed to mail out a section of an DEIR to requesting parties. The agency learned of the omission and mailed out a supplemental environmental document, but refused to extend the comment period to provide the full public review period for the supplemental document. The Court of Appeal held that failure to permit public review in the manner required by law, was a *per se* prejudicial abuse of discretion, and that no deviation from CEQA's notice and public review requirements are acceptable.

At minimum, Public Resources Code §21092.2 and CEQA Guideline 15088.5 will require recirculation of the DEIR for the statutory 45-day comment period after public notice of availability of the Finance Plan. *Sutter Sensible Planning v Board of Supervisors* (1981) 122 Cal App 3d 813.

No Evidence That Traffic Mitigation Measures Are Financially Feasible, or Will Mitigate Impacts to Less Than Significant

MM 4.4.1 states that certain traffic impacts will be mitigated by measures funded by the Panhandle PUD Finance Plan, which does not exist. There is no evidence in the DEIR or any other project documents that the Panhandle PUD Finance Plan will provide funding sufficient to implement all or any of the mitigation measures and infrastructure improvements needed to mitigate for the traffic impacts of the project.

Mitigation Measures 4.4.2.a, 4.4.2.b, 4.4.2.d, 4.4.2.f, 4.4.2.h, 4.4.7.a, and 4.4.7.b call for financing of traffic mitigation measures by the developer's payment of unspecified "fair share" of the cost of various traffic facilities and infrastructure.

CEQA requires an agency to address specific economic considerations related to mitigation measures to determine if they are feasible or infeasible. See Public Resources Code §21081(a)(3); *Federation of Hillside and Canyon Associations v City of Los Angeles* (2000) 83 Cal. App. 4th 1252, 1259, 1260.

"The commitment to pay fees without any evidence that the mitigation will actually occur is inadequate." (*Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 140, citing *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App.3d 692, 728.) Without review of the Financing Plan in conjunction with the DEIR (as was anticipated by the authors of the DEIR, see "Draft Panhandle Public Facilities Financing Strategy", p. 5), it is impossible to determine whether the promised mitigation measures will be fully implemented or at all. The public needs to be able to review the fee program in conjunction with the Mitigation Measures to determine if there is sufficient funding to pay for the infrastructure improvements relied upon by the Mitigation Measures and proposed Findings. In *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th, 342, 363-365, the court said that the EIR included information about the fees to be paid by the project and said: "Although the existing mitigation fee appears to be a reasonable attempt to have developers pay their proportionate share of the costs of needed highway improvements, and the continued use of such fees undoubtedly would be useful, it cannot reasonably be argued that the funds that the county already has raised or that it reasonably can expect to raise in the future, will be enough to mitigate the effect on traffic that will result from cumulative conditions."

In *Anderson First Coalition v City of Anderson* (2005), 130 Cal. App. 4th 1173, the Court of Appeal held that bare recitation that a project would pay "fair share" fees towards highway improvements, was too speculative to be deemed an adequate mitigation measure. (*Id.*, pp. 1193, 1194.) The Court of Appeal ruled that to be sufficient under

CEQA, a "fair share" mitigation fee measure must (1) specify the actual dollar amount based on current or projected construction costs; (2) specify the improvement projects for which the fair share fee will be used; (3) if the fair share contribution is a percentage of costs which are not yet known, then specify the percentage of costs, (4) make the fees part of a reasonable enforceable plan or program which is sufficiently tied to actual mitigation of traffic impacts at issue.

CEQA Guideline 15130(a)(3) states that an EIR may find that a project's contribution to cumulative impacts is less than significant if the project is required to implement or fund its "fair share" of mitigation measures designed to alleviate the cumulative impact. However, "The Lead Agency shall identify facts and analysis supporting its conclusion that the contribution [by the project to cumulative impacts] will be rendered less than cumulatively considerable." CEQA Guideline 15130(a)(3). The Panhandle DEIR does not identify the facts and analysis supporting its conclusions that contribution of "fair share" will render impacts less than significant. There is no evidence of the amount of money represented by "fair share," no evidence as to how "fair share" will be calculated, no evidence that the amount of "fair share" funding will be adequate to construct the infrastructure which comprise the Mitigation Measures, and no evidence that any other party or entity will contribute amounts towards their unspecified "fair shares" which are sufficient to construct the infrastructure which comprise the Mitigation Measures.

Hydrology and Water Quality

The relative costs and risks of the detention basins being located in the southwest corner of the site as opposed to the project alternative location for detention basins are not adequately analyzed in the DEIR. The sheet flow goes in the southwest direction and it will be expensive to pump it north to Country Club, west to the Main Canal, south to the C-1 canal and back east past the Panhandle to Steelhead creek. A detention basin next to Charter School, with culvert under Del Paso and larger pipe (across Pardee) accomplishes the same thing and costs much less, particularly for on-going operations. The project proposed increases flooding potential in the Main Drain by pumping uphill and west and trying to dump all the natural flow from the stubbed Dry & Robla Creek, and all runoff from Valley View to the north instead of south west as it flows naturally.

The DEIR does not address the impacts on the existing North Natomas Community residents in the event of conditions approaching or exceeding the 100 year flood condition with and without the Panhandle development.

- What is the additional risk to the existing North Natomas Community Plan area of the failure of the planned detention basin to contain run-off in high water events?
- For situations requiring emergency evacuation, what is the additional burden posed by development of the Panhandle area? The DEIR does not quantify the additional emergency services and evacuation burden posed by the proposed

project when considered in combination with all other development within the Natomas floodplain.

The DEIR does not address the alternative requested by the Environmental Council of Sacramento and the Natomas Community Association that no annexation for new development be approved until the flood risk is fully assessed and reduced to less than significant. The EIR should include as a mitigation measure that no annexation proceed until SAFCA has completed all necessary levee improvements.

The last section of this letter addresses further concerns with hydrology related specifically to flood risk.

Transportation

A number of issues very important to the existing communities are not adequately addressed in the DEIR.

- The proposed project changes the location of National Drive from that envisioned in the Community Plan. It moves National Drive east, away from the location of most homes, and the new location impacts homes in Valley View Acres. The Panhandle working group agreed that the road should stay where it was in the Community Plan or be moved to the center of the new growth area.
- The DEIR should include noise and air pollution mitigation along east side of National concurrent, or before, development to protect adjacent neighbors from noise and air pollution impacts of the proposed project.
- The DEIR fails to consider the cumulative impact of the expected development north and east of the project area on National Drive in estimating traffic counts and consequent impacts on neighbors.
- The DEIR does not adequately address the noise, nuisance, and safety impacts of the additional roads into Regency Park from the proposed and unexpected school and denser proposed project annexation. It lacks adequate mitigation for these impacts. Please note that the eastern portion of North Natomas is supposed to be less dense because of distance from light rail and employment centers and lack of adequate access to the east and south. A portion of the area immediately west of the site is already denser because the city rezoned a large portion of the once approved and now gone golf course for urban uses.
- The DEIR does not address the growth inducing impacts of proposing two full width roads with bollards that connect to the Avdis urban proposal on the north end of Valley View. They would eventually allow National to connect with Sorrento, and are growth inducing because they bring 2 roads adjacent to a 60 acre development proposed along Steelhead Creek.
- The DEIR does not address the impact of the lack of east-west off street bikeways and the absence of a ramp up the levee side in the proposed

project. These need to be added to mitigate impacts of the additional vehicle travel.

○

Other Issues

The DEIR fails to adequately address the following issues which were discussed in detail in the Panhandle Working Group.

- The exclusion of the open space in the eastern part of the Panhandle that was included in the 1994 community plan has a number of impacts not addressed in the DEIR and which are described in the attached “Panhandle Working Group Support Position for Retention of the City Council Approved WAPA/Valley View Acres/Steelhead Creek Open Space Buffer.”
- WAPA set back. The 1986 adopted NNCP EIR included an adopted mitigation measure requiring a 250 foot setback from the WAPA lines. How did the 1986 NNCP EIR envision that this mitigation measure would be funded?
- The acreage figures used in the EIR do not match the acreage figures on the May 1994 community plan map. No amendments have been made since that time. The 10 acre school site doesn't show up in the EIR as it does on the 1994 map, and the city is behaving as if the Quimby Ordinance didn't apply to the urban area. We went over this problem in the working group. Proponents claim that eliminating a portion of the open space buffer is a good thing because it means more parks scattered throughout the plan area. However about 28 acres of parks were required under the City's Quimby Ordinance requirement in addition to the open space buffer. This is akin to having \$50 in bank (Quimby) and \$150 in bank (open space buffer) and having the bank tell you they will put the \$150 in several accounts so you have greater investment variety, but taking away the \$50/Quimby. You now only have \$150 instead of \$200.
- The school site needs an underlying designation of public facility. Otherwise, these sites are appraised at urban values and the districts can't afford them or pay inflated prices. Plus, community plan has a requirement that they revert to urban with no community plan amendment after 5 years. The DEIR fails to analyze the impacts of this requirement. What we have seen in other Natomas neighborhoods is that the school sites are rezoned for profit and educational needs, and consequent transportation demand, change with negative impacts to the community.
- The negative impacts of strip commercial along Del Paso, south of Del Paso, along the north part of Northgate and other locales in combination with strip commercial on this site are not analyzed in the EIR. What are the impacts of the distribution of commercial in and adjacent to the project site for trip generation and vehicle travel demand?
- The location of higher density apartments on Del Paso Road at the edge of the project area raises a number of issues of best fit with adjoining land uses and transit service that are not addressed in the DEIR. In particular, the community

is interested in assessing the impacts of locating the apartments further east (which would be compatible with the community's proposed use of the southwest corner for detention basin.)

FLOOD HAZARD FROM POTENTIAL LEVEE FAILURE ON SACRAMENTO AND AMERICAN RIVERS, AND NATOMAS CROSS-CANAL: Revision and Recirculation of DEIR Required

1. Violations of CEQA

Information provided by the DEIR on potential flood hazard is incomplete and misleading, and lacks the level of detail and specificity required by CEQA. The DEIR fails to disclose to the public the well-documented proven inadequacy of the levees protecting Natomas Basin and the potential for catastrophic deep flooding.

A Recirculated DEIR which truthfully discloses and addresses the deficiencies of the levees surrounding the Basin and the potential effects of deep flooding, including flood depths on the high and low elevations of the project site during a 100-year and 200-year flood from the American or Sacramento Rivers, is required by Public Resources Code 21092.1 and CEQA Guideline 15088.5. Likewise, the type and extent of damage to property, (assuming that it is built out as proposed), displacement of future residents of the project, and potential loss of life, should be disclosed. Such a Recirculated DEIR must also provide the sufficient level of detail and specificity required by CEQA which is sorely lacking in the present DEIR's discussion of the flooding issue

a. The DEIR misrepresents and fails to disclose the full extent of the potential for flooding and the impacts of such flooding

The DEIR, p. 4.11-2 correctly states that in 1996, the U.S. Army Corps of Engineers determined that levee improvements along the Sacramento and American Rivers, NEMDC (Steelhead Creek), and Natomas Cross Canal "were sufficient to provide a level of protection to the project site that met or exceeded a 100-year return period event."

The DEIR, p. 4.11-9 states that SAFCA "has succeeded in achieving 100-year flood protection in the Natomas Basin." The DEIR, p. 4.11-12, in its discussion of "Flood Control Guiding Policy A", states that 100 year flood protection has been previously obtained. As shown below, those statements are patently false.

The DEIR admits that that upgrading of the levees will be needed to achieve 200-year level of flood protection (DEIR p. 4.11-5), that "risk of flooding is greater than previously assumed" (DEIR p. 4.11-5), that "the current level of flood protection is now in question in some areas," (DEIR p. 4.11-9), that the levees are "at risk of underseepage and erosion hazards during a 100-year storm event" (DEIR p. 4.11-21, -22, and that the risk of underseepage and erosion hazards in a 100-year storm event is "potentially significant." (Impact 4.11.3).

In fact, the DEIR inexcusably fails to disclose that by letter dated July 20, 2006, the U.S. Army Corps of Engineers ("Corps") formally withdrew its 1998 opinion (attached to the July 20, 2006 Corps letter) that the levees protecting the Basin were adequately constructed to withstand the FEMA 100-year flood. **(EXHIBIT ONE).**

The now-rescinded 1998 Corps opinion was the sole basis for FEMA's decision to show the Basin on the FEMA's Flood Insurance Rate Map ("FIRM") as being outside of the FEMA 100-year flood plain. FEMA's National Flood Insurance Program is primarily an insurance program which relies upon engineering determinations performed by, or reviewed by, the Corps, in its determination of those lands to include in its Flood Insurance Rate Map, ("FIRM").

In a press interview which accompanied the release of the Corps letter of July 20, 2006, a spokesman for the Corps stated that "We agree, the levees today do not meet current certification criteria" **(EXHIBIT TWO,** Sacramento Bee, "Faith in Levees Officially Downgraded", July 27, 2006).

Lester Snow, Director of the California Department of Water Resources, by letter addressed to Sacramento Mayor Heather Fargo, dated November 21, 2006, **(EXHIBIT THREE)** stated that the Natomas levee system does not meet minimum federal flood insurance program standards for 100-year flood protection, that "the area is at high risk" and that DWR was working with FEMA to have the Basin remapped into an AR or A99 Special Flood Hazard Zone. Director Snow further stated: "In the meantime it is imperative that additional measures be taken to reduce the threat to public safety and property" and that "with less than 100-year flood protection, the chance of homes flooding over the next ten years is approximately 10 percent." He recommended a number of measures which City of Sacramento should undertake "to protect the public against this higher risk," which included a "limitation on new construction until minimum flood protection is achieved." (*Id.*, p. 2)

By separate letters dated July 31, 2006, to SAFCA and to FEMA, Les Harder, Deputy Director of the California Department of Water Resources ("DWR") stated that DWR concurred with the Corps opinion; that "additional analyses are underway to develop a strategy for providing FEMA 100-year flood protection"; and that "even under the best scenario, it will take several years to make the necessary improvements." **(EXHIBITS FOUR, FIVE)**

Mr. Harder's July 31, 2006, letter to SAFCA, p. 2, stated DWR's concurrence with the Corps letter of July 29, 2006, and expressed the urgency of timely FEMA re-mapping of the Basin "to accurately depict the level of increased flood risk" because of the extent of existing and planned development. **(EXHIBIT FOUR)** In his letter to FEMA, Mr. Harder stated that "it is clear that that portions of the levees protecting the Natomas Basin do not meet the [FEMA] levee certification requirements." **(EXHIBIT FIVE.)**

The SAFCA "Executive Director's Staff Report for August 2006" to the SAFCA Board states that the Natomas levees do not meet the 100-year FEMA standards for certification, that re-mapping Natomas Basin as a flood zone is not a high priority for FEMA, and that the final FEMA flood zone maps will be completed in 2012 by which

time SAFCA anticipates completing its Natomas Levee Improvement Project. (**EXHIBIT SIX**).

The SAFCA Executive Director's report to the SAFCA Board, dated February 16, 2006, titled "Information - Natomas Levee Evaluation Study", (**EXHIBIT SEVEN**) acknowledged that less than 100-year flood protection was "**high risk**", and that greater than 100-year but less than 200 year protection was "moderate risk." (p. 1); that a study by URS in 2002 concluded that most of the levees would need "substantial additional work . . . to reach a high level of flood protection" (p. 2), and that the 2005, URS report for the Corps determined that at some locations, there was potential for subsurface permeability "that could threaten the stability of the affected levees ..." (p. 3)

Does City agree with the statements by the Director of DWR, supra, that Natomas is at high risk of flooding from the Sacramento or American Rivers due to having less than 100-year flood protection? (see **EXHIBIT THREE** p. 1.) If not, please explain why not?

Does City agree with the statements by the Executive Director of SAFCA, supra, that less than 100-year flood protection is "high risk"? (See **EXHIBIT SEVEN**, p. 1) If not, please explain why not.

Does the City contend that the Basin is not at high risk of flooding due to its present lack of 100-year flood protection? If so, please explain why City believes that the Basin is not at high risk of flooding.

There is a long history of through-seepage and underseepage of the levees protecting the Basin during high water events. The failures of the levees along the Feather and Yuba Rivers in 1986 and 1997 were caused by underseepage, during high water conditions which were well below the tops of the levees. There were significant weaknesses manifested at points along the Sacramento River levee during the 1997 high water event. During the January 1, 2006 high water event, which was much less than the 100-year flood river elevation, there were numerous boils landward of the Sacramento River levee at the RD 1000 Prichard Lake Pump Station, which were remedied by removal of the pump station and filling 800 feet of the North Drainage Canal. Major repairs at that site were authorized by SAFCA and are ongoing.

Well before release of the DEIR in November 2006, geotechnical engineering studies and soil borings performed for the Corps in 2000-2001 (see EXHIBIT EIGHT) circular for the Corps and SAFCA distributed to public meetings, July 2002) and 2005 ("Final Geotechnical Report For Sacramento River East Levee and Natomas Cross Canal South Levee" November 2005, by URS Engineering for the Corps), and the Draft and Final SAFCA Levee Evaluation Report, March 2006 and July 14, 2006, (**EXHIBIT NINE**) and exhaustive geotechnical engineering studies, released in March 2005, (see EXHIBITS TEN, ELEVEN, TWELVE), technical charts omitted but available at SAFCA office) and designated as Appendices of Draft and Final SAFCA Reports, disclosed extensive subsurface soil permeability and vulnerability to serious underseepage in numerous locations along the levees of the Sacramento and American Rivers and the Natomas Cross-Canal protecting the Basin, that failed to meet Corps standards for the 100 and 200-year water surface event and could cause levee collapse during high water events occurring more frequently than the 100-year event (i.e.: the levees did not provide 100-

year flood protection.) The DEIR spoke generally about studies and planned improvements but failed to disclose the identity of these documents or list them as references in the DEIR, except for the Draft SAFCA Draft Levee Evaluation Report.

Exhaustive engineering studies designated as Appendices of SAFCA's Draft and Final Natomas Levee Evaluation Study Reports disclose numerous reaches of levee which do not meet U.S. Army Corps ("ACE") underseepage guidelines for the 100-year Water Surface Elevation (WSE.) See (1) "Problem Identification Report, Sacramento River East Levee Natomas Basin Evaluation," February 1, 2006, **EXHIBIT TEN**, pp. 12, 22, 30, 33, 35, 40, 46, 50, 54-55, 58, 62; "Problem Identification Report, American River North Levee Natomas Basin Evaluation," February 1, 2006, **EXHIBIT ELEVEN**, (failure to meet Corps guidelines for through seepage) pp. 16, 21, 25, 27; and (3) "Problem Identification Report, Natomas Cross Canal Levee Natomas Basin Evaluation," March 14, 2006, **EXHIBIT TWELVE**, pp. 24, 27, 29, 32, 34, 37, 39. The reports recommend construction of deep slurry walls, to depths ranging from 50 to 110 feet deep through and beneath much of the levee system on the Sacramento and American Rivers to attain compliance with Corps standards. A map showing the location of recommended slurry walls is in SAFCA's Draft and Final Natomas Levee Evaluation Study Reports.

Please review **EXHIBIT THIRTEEN**, letter of Jay Punia, General Manager, California State Reclamation Board, September 5, 2006, commenting on City's Greenbriar DEIR, which is applicable to Panhandle and any other project in the Basin. Mr. Punia correctly states that the current FEMA FIRM designation, that Natomas is outside the 100-year flood plain, "is an outdated regulatory designation, which is not supported by the present best available information regarding the integrity of the Natomas levee system." (*Id.*, p 2).

All of the reports and documents cited above, except for the DWR letter dated November 21, 2006, were in City's possession and known to City staff and the project consultant prior to issuance of this DEIR in November 2006. Indeed, our organizations raised these very same issues, and cited the very same documents in our letter to City and LAFCo dated September 5, 2006, commenting on the DEIR for the Greenbriar project, yet City's DEIR for this Panhandle project failed to disclose most of these documents or the information contained therein, and only hinted at the existing flood hazard. A reasonable person can only conclude that City is systematically engaged in a pattern of deliberate deception and concealment of the true condition of the levees protecting the Basin.

It is increasing apparent that the City and Applicant are fast-tracking the Panhandle project for expedited approval, hoping for land use entitlements and start of construction before FEMA issues new a Floodplain Insurance Rate Map ("FIRM") which recognizes that the Natomas Basin, including much or all of the Panhandle project area, is a flood plain with less than 100-year flood protection. Such a designation by FEMA would require City to impose very strong restrictions on new development within the Natomas flood plain, including Panhandle, as a condition of retaining the community's eligibility for FEMA Flood Insurance.

The DEIR, at pp.4.11-5 and 4.11-23, mistakenly asserts that the necessary levee upgrades "are anticipated to be constructed within the next 2 to 5 years." In fact, SAFCA's own

Natomas Levee Evaluation Study, Final Report, July 14, 2006, "Final Report Summary" states that 2012 is the targeted date of completion, assuming that the first construction contract is executed in 2007. See also Table FR-1 of the "Final Report Summary", *supra*.

Does City disagree with SAFCA's estimate of the date of completion of levee improvements (2012)? If so, please explain why.

Does City contend that SAFCA will be able to achieve 100-year flood protection, under current Corps and FEMA criteria, prior to 2012? If so, please explain why.

Does City contend that the levees protecting the Basin meet the current FEMA standards for 100-year flood protection? If so, please explain in detail how the levees protecting the Basin meet current FEMA and Corps standards for certification as providing 100-year flood protection, and please disclose all documents and engineering reports supporting such a contention. Such discussion should consider all of the documents referenced above which state that portions of the levees do not meet current Corps criteria for 100-year flood protection.

What is the likelihood, expressed in percentage of occurrence of a flood event occurrence equal to, or exceeding, the FEMA 100-year flood event occurring during any one-year period? What is the mathematical likelihood of such an event during a 30-year period? Please provide documentation and calculations which support the answer.

Using current Corps of Engineers hydrologic engineering criteria, please disclose the estimated water surface elevation and flood depths estimated to occur at the highest and lowest present elevations of the Panhandle project during both a 100-year flood event and a 200-year flood event on the Sacramento River, and, alternatively, the American River.

Please describe the anticipated physical impact, upon persons and property, of flooding of the project site in the event of levee failure during estimated 100-year and 200-year flood events.

The DEIR, pg. 4.11-5 erroneously asserts that the Natomas Levee Evaluation Report estimate that the required levee improvements would cost approximately \$270,000,000. The Recirculated DEIR should state that SAFCA's Levee Evaluation Report, July 14, 2006, "Final Report Summary" states that the "fully funded cost of the project, assuming a annual 10% escalation rate, could rise to \$414 million, " assuming that the project starts in 2007 and is completed during 2012.

Please identify the amount and sources of all funding which has been approved, authorized and appropriated, or is actually available now or is committed to being available when needed, to pay for the upgrades necessary to provide FEMA 100-year and 200-year levels of protection. Please identify and provide supporting documentation.

Please disclose and identify anticipated sources of funding which have not yet been approved or committed. Please disclose why City believes that that such funding will be approved?

Please describe what the City has done to fund the future upgrading of the levees protecting the Natomas Basin. How much money has City contributed, or has committed to contribute, to efforts to upgrade the levees, since January 2005?

What actions is City undertaking to comply with the request of the Director of the California Department of Water Resources (**EXHIBIT THREE** p. 2) to limit new construction in Natomas Basin until the levees are upgraded and re-certified by the Corps as providing adequate protection against the FEMA 100-year flood event?

Does the City intend to comply with the request of the California Department of Water Resources (**EXHIBIT THREE**, p. 2) to limit new construction in the Basin "until minimum flood protection is achieved"?

If the City does not intend to comply with his request, please explain why.

b. Mitigation Measures

Proposed Mitigation Measure 4.11.3, states that if FEMA decertifies the levees , the applicant shall implement one of the following mitigation measures, to be terminated upon re-certification by FEMA: either (a) raise building pads high enough to remove structures from the 100-year floodplain as identified by FEMA in its decertification, , or; (b) developer would participate in a regional mechanism for funding the upgrade of levees to the FEMA 100-year level of protection. However, neither measure would be applicable to construction started prior to FEMA's de-certification, thereby leaving the residents of those homes vulnerable to deep flooding. The regional funding mechanism hypothesized by MM 4.11.3 does not exist.

These Mitigation Measures obviously fail to mitigate for impacts of flooding as to those structures built prior to FEMA's re-mapping of Natomas Basin as a flood plain. Moreover, the regional funding mechanism hypothesized by MM 4.11.3 even if implemented, provides no mitigation until the levees are upgraded and certified by the Corps as adequate to protect the Basin against the FEMA 100-year flood event, or such greater level of protection that the Corps may deem adequate to provide a safe level of flood protection for an urban area. Mere payment of money to a levee repair fund (if one then exists) as required by MM 4.11.3 provides no flood protection. Flood protection is only provided by upgraded levees.

Does the levee repair fund described in MM 4.11.3 presently exist? If so, please describe.

Until necessary levee upgrades are completed and certified by the Corps as adequate to protect the Basin against the FEMA 100-year flood event, will the City require that Panhandle landowners, developers and their successors-in-interest, employees, and agents, including real estate brokers, provide written disclosure to all prospective buyers, lenders, bond, and insurers of property within Panhandle of (1) the Corps determination that levees surrounding the Basin may fail during high water events which are less than the FEMA 100-year flood; and (2) the anticipated flood depths at

Panhandle, as estimated by the Corps, in the event of levee failure during 100-year FEMA flood event, and also during a 200-year FEMA flood event?

If the City will not require such written disclosures, explain why not.

Will the City provide such written disclosures? If not, please explain why not.

If the City will not require such written disclosures, will the developer applicants provide such disclosures? If not, please explain why not.

Will City require all owners of residential and commercial property in Panhandle to buy and maintain FEMA flood insurance, until the levees are re-certified by the Corps? If not, please explain why.

The letter of Lester Snow, Director of California Department of Water Resources, to Mayor Fargo, November 21, 2006, recommends that the City undertake a number of actions to protect the public against the current high risk of flooding, pending completion of the levee upgrades. (**EXHIBIT THREE**, p. 2).

For each measure listed by Director Snow, please state (1) whether City will implement those measures, and (2) if the City will not implement any of these measures, please explain why not.

We suggest the following alternatives:

(a) Consideration of annexation, and development be deferred until levee upgrades are complete, and the Corps has certified that the levees meet the FEMA and Corps of Engineers criteria for 200-year flood protection. If the annexation is approved by LAFCO, it should be subject to the above conditions, which should be enforceable by LAFCO and citizen suits.

(b) If LAFCO approves the annexation without conditioning development upon completion and certification of levee upgrades as meeting the FEMA and Corps criteria for 100 or 200-year flood protection, then LAFCO should require, as conditions of approval, that all structures be built at least 3 feet above the 100-year flood elevation, as determined by the Corps, that flood insurance be required, that City undertake those measures recommended by Lester Snow, Director of California Department of Water Resources, in his letter to Mayor Fargo, dated November 21, 2006 (**EXHIBIT THREE**) and that the City develop an evacuation plan for Natomas Basin, to be implemented in the event of levee breach.

c. The DEIR failed to consider effect of global warming in its analysis of flood hazards threatening the Natomas Basin

The DEIR fails to disclose, analyze or consider the possible effect of global warming on the frequency and elevation of high water conditions in the Sacramento or American Rivers, and thus the potential for flooding of Natomas Basin. A Recirculated DEIR should do so.

It is now generally recognized that global warming will, among other things, lead to (1) sea level rise, and (2) generally warmer winters in California. See, for example, California Dept. of Water Resources, "Progress on Incorporating Climate Change Into Planning and Management of California's Water Resources: Technical Memorandum," July 2006. Sufficient modeling data now exists to permit estimates of risk in future years.

The elevation and flow of the Sacramento and American Rivers adjacent to Natomas Basin, are affected by the level of the sea and tidal action, particularly during winter and spring, when the tides are the highest and when the flows of the Sacramento and American Rivers are the greatest. The juxtaposition of high tide and high river flows led to the near-overtopping of the Sacramento River east levee, at Sacramento, in 1987. It is logical to conclude that the predicted rise in sea level, accompanied by a correlating rise in the elevation of the tides, may affect the influence of high tides on the surface elevation and flow of the Sacramento River. A probable consequence would be to increase the river's surface elevation beyond what it is under today's tidal conditions.

Assuming, hypothetically, that winter and spring precipitation remains the same, and that the prediction of generally warmer winters is accurate, then a larger proportion of the winter and spring precipitation on the Sacramento and American River watersheds will be in the form of rainfall, which drains to the Sacramento and American Rivers, and a lesser proportion will be retained as snowpack, which melt more gradually in the spring. This phenomenon has already been observed occurring in recent years, as northern California's winter snowline shifts to higher elevation, and rains more frequently fall onto snowpack during winter.

The scenario of sea level rise and warmer winters during the lifetime of the Panhandle project have potential to lead to increased volume and surface elevation of the 100-year flood event, and more frequent occurrence of what is recognized by the Corps today as the 100-year flood event under present conditions.

Thus, the Recirculated DEIR should base its analysis of flood hazard not only on the present flows of the Sacramento Rivers, but also on the projected future flows and surface elevations during the lifetime of the project which take into account climate change, including the effects of (1) rising sea level, and (2) a higher proportion of winter precipitation being in the form of rainfall, possibly leading to increased rate and volume of runoff during the winter and early spring. Recent scientific studies regarding the effect of global warming on California's future climate and water regime are readily available from the State of California global climate change website.

Climate change in the near future which will affect sea level and flows of the Central Valley rivers is now recognized as something that will happen, and cannot be dismissed as too speculative for analysis and consideration in an EIR for a project which is protected from deep flooding by levees which the Corps has determined do not meet even the FEMA standards for protection against the 100-year flood event.

- d. **Exposure Of City And Possibly LAFCO To Legal Liability For Consequences Of Flooding Of Project Approved With Knowledge That Project Was Exposed To Hazard Of Flooding**

The *Paterno* decision found the State of California liable for damages to persons and property arising from a 1986 levee breach because the State knew that a levee section was defective and did not make repairs. The full scope of governmental legal liability for damages due to flooding have not yet been determined. The City does not address the issue of liability for approving development in areas that are not safe. The City exposes itself to future court or legislative action that will extend liability to local government, such as the City of Sacramento when it exercises its discretion to approve a project in a floodplain with full knowledge that engineers and the Corps have determined that the project site has less than 100-year flood protection. Despite SAFCA's plans for upgrading the levees, which are not yet funded and which cannot be implemented until fully funded, the project site and the entire Natomas Basin, will be remain exposed to unreasonable flood hazard until the levees are upgraded to a level sufficient to protect against flood hazard.

Be assured that if there is a levee breach, and massive damage therefrom, the City will be one of the defendants named in the resulting lawsuits.

The cost of defending litigation and paying awards of damages may significantly impact the environment to the extent that City's ability to perform those functions which would benefit the environment (e.g.: trash collection, parks) may be impeded by the diversion of resources to defending litigation and paying damages. The DEIR should address the potential for such impacts.

LAFCO should also consider that its approval of this annexation, with full knowledge of City's intention to permit residential development of the Panhandle without adequate flood protection, may carry the possibility of exposing LAFCO to potential liability in the event of levee breach and flooding.

2. Development of the Panhandle Would Violate Sacramento General Plan Section 8, Health and Safety, Goal A, Policy One (Flood Hazards)

Development on the Panhandle site prior to upgrade of the levees to 100-year level of flood protection (current FEMA and Corps standards) would be inconsistent with Sacramento City General Plan Section 8, Goal A, Policy One, Flood Hazards, which states:

"Prohibit development of areas subject to unreasonable risk of flooding unless measures can be implemented to eliminate or reduce the risk of flooding." (DEIR p. 4.11-10.)

DEIR p. 4.11-10 states that the project is consistent because "it is currently located in FEMA Zone X, designating areas protected from 100-year flood by levees." As stated above, the Corps, DWR, and SAFCA have determined that Natomas Basin, including the Panhandle, is not protected from flooding at the 100-year level. The current designation of Natomas Basin as being in FEMA Zone X is outdated and is based on a Corps opinion which was formally withdrawn.

Lester Snow, Director of DWR, in his letter dated November 21, 2006, **EXHIBIT THREE**, p. 2, first paragraph, states that "with less than 100-year flood protection, the chance of homes [in Natomas Basin] flooding over the next 10 years is approximately 10 percent."

The Director of the California Department of Water Resources has stated that Natomas is at high risk of flooding from the Sacramento or American Rivers due to having less than 100-year flood protection. (see **EXHIBIT THREE** p. 1.) The Executive Director of SAFCA, *supra*, has stated that less than 100-year flood protection is "high risk"? (See **EXHIBIT SEVEN**, p. 1) If not, please explain why not.

Does City believe that the expert opinions of the Directors of DWR and SAFCA is conclusive evidence that there is "unreasonable risk of flooding", which requires prohibition of development in the Basin under General Plan Section 8, Goal A, Policy One (Flood Hazards), *supra*?

If not, please explain why City believes that there is not unreasonable risk of flooding which triggers the prohibition against development in the Basin pursuant to General Plan Section 8, Goal A, Policy One (Flood Hazards).

Isn't new development Panhandle project site inconsistent with this General Plan policy?

If City believes that new development on the Panhandle project site, prior to upgrading of the levees to 100-yr level of flood protection as determined by current Corps standards, is consistent with General Plan Policy One, Flood Hazards, please explain why.

3. Development of the Panhandle Would Violate the North Natomas Community Plan Flood Control Policy Guiding Policy A

Development on the Panhandle site prior to upgrade of the levees to 100-year level of flood protection (current FEMA and Corps standards) would be inconsistent with the North Natomas Community Plan Flood Control Guiding Policy A, which states:

"One hundred year flood protection must be obtained prior to any new residential development in the North Natomas Community." (DEIR p. 4.11-12.)

The DEIR, p. 4.11-12, states that "this level of flood protection has been previously obtained", which was once believed to be true. Per the documents and reports cited and discussed above, it is now known that the Basin does not have 100-year flood protection, which is known to City. City's assertion in this DEIR that the Basin currently has 100-year flood protection is dishonest.

City cannot rely upon the fact that FEMA's Flood Insurance Rate Map (FIRM) still shows the Basin as outside the 100-year flood plain. Per the documents cited above, the Basin clearly does not have 100-year flood protection.

4. Flood Hazard for the Basin Has Increased Since 1997 Due to Levee Improvements On the Feather and Yuba Rivers Upstream of Sacramento

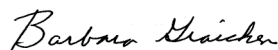
The DEIR, p. 4.11-2, references the "demonstrated ability of the applicable levees to withstand high flows in the Sacramento and American Rivers during the storms of 1997.

The DEIR fails to disclose that the east levee of the Feather River failed in the 1997 storms, thereby causing the diversion of a large volume of water into the Middle American Basin, between Yuba City and the Bear River, and its temporary detention during the remainder of the flood. Had the Feather River levee held, this volume of water would have passed by Sacramento at the height of the 1997 event. Whether the Sacramento River levee would have held if the Feather River levee had not failed in 1997 is unknown. The same situation occurred in the 1986 flood event.

During the past two years, those parts of the Feather and Yuba River levees which failed in 1986 and 1997, and other vulnerable portions of the Feather-Yuba-Bear River levees have been upgraded. Consequently, it is much less likely that the Feather-Yuba-Bear River levees will fail during a future major storm event. Consequently, the DEIR should re-examine its assessment of the likelihood of flooding in light of the fact that the area east of the Feather River upstream of Sacramento is much less likely to provide a de fact "detention basin" during future major storm events.

We hope these comments are helpful in clarifying community concerns about the proposed Panhandle project area development.

Sincerely,




Barbara Graichen, President
Natomas Community Association
916-991-2177



Janis Heple, Chair
Sacramento Group, Sierra Club



Andy Sawyer, President
Environmental Council of Sacramento
916-442-4215



Jude Lamare, President
Friends of the Swainson's Hawk
916-447-4956

James P. Pachl
Attorney at Law
717 K Street, Suite 534
Sacramento, California, 95814
Tel: (916) 446-3978
Fax: (916) 447-8689

jpachl@sbcglobal.net

May 24, 2007

Chair and Members
Sacramento City Planning Commission
915 I Street
Sacramento, Ca. 95814

Re: M05-031/P05-077 Northgate 880/Panhandle

Dear Joseph Yee, Chair, and Members of the Commission,

I represent Sierra Club, ECOS - The Environmental Council of Sacramento and Friends of the Swainson's Hawk. We filed extensive comments on the DEIR. We learned about the hearing earlier this week and are requesting more time to be able to review the FEIR and comment in detail. Staff did not mail notices of availability of the FEIR, nor the FEIR, to us. Staff also advises that it did not send notice of this hearing to us, although it appears that a notice of hearing but not notice of availability of the FEIR was sent to ECOS. We understand that other parties received copies of the FEIR on Saturday May 19, which leaves much too little time for review of an FEIR for a project with controversial issues.

We object to the approval of the project as presented.

1. Certification of EIR. CEQA Guidelines § 15025(b) and (c) prohibit certification of an EIR by the Planning Commission in projects where the Planning Commission sits as an advisory body to make a recommendation on the project to a decision-making body (Board of Supervisors).

CEQA Guideline § 15025 (b)(1) states:

"(b) The **decision-making body** of a public agency **shall NOT delegate** the following functions:

(1) Reviewing and considering a Final EIR or approving a Negative Declaration prior to approving a project."

CEQA Guideline § 15025 (c) states:

"(c) Where an advisory body such as a planning commission is required to make a recommendation on a project to the decision-making body, the advisory body shall also review and consider the EIR or negative declaration in draft or final form."

Guideline 15025, like many of the CEQA Guidelines, is followed by Discussion by the drafters intended to provide interpretation of the Guideline (c) says (attached.):

"Subsection (c) reflects an administrative interpretation **which applies the requirements of CEQA to advisory bodies. Such bodies** need not and **may not certify an EIR**, but they should consider the effects of a project in making their decisions."

Here the Commission is only advisory to the Council on most aspects of the project approval, including key elements such as application for annexation and amendment of the General Plan. The decisions proposed for the Commission to approve cannot be implemented without the Council approval of all of the other elements of the staff recommendation.

2) Definition of Flood Hazard Safety Measures. The FEIR and staff report recommend that the project mitigate placing new houses in a flood hazard area by compliance with those conditions that will be imposed by FEMA which are predicted to be in the AE Zone, AR Zone and/or A99 Zone. However, the FEIR and staff recommendation fail to disclose what levels of safety are required by each FEMA zone. A 99 zone, for instance, requires no protections at all. CEQA requires information like this to be disclosed to the public and decision makers so that informed opinions based on fact can be developed before making decisions about approvals.

The environmental community and community associations in Natomas have asked the City to adopt a moratorium on further development entitlements in the Natomas Basin until the levees are repaired. This proposed project approval and accompanying EIR fail to adequately disclose the full consequences of improving more development now, and the EIR does not respond adequately to the request for a moratorium on growth approvals in the face of very high uncertainty about future flood protection.

3) Open Space Buffer. The SACOG Blueprint principles do not justify eliminating the open space buffer from the community plan as claimed by staff. The EIR fails to respond to our comments on the importance of maintaining the open space buffer as originally planned. The Staff recommendation refers to Smart Growth Principles that do not address transitions between urban uses and rural and natural conservation areas. Moreover, the EIR alternative that includes the Open Space Buffer on the east side of the project area has higher density land uses and is very compatible with the Blueprint principles.

4) Finance Plans. As we pointed out in the DEIR, the Finance Plan should be circulated for a 45 day review period. That has not been done. Moreover, the mitigation program now refers to two financing plans, including a future finance plan for all park, trails, open space/parkway or other open space areas:

Finance Plan: The Applicant shall provide a Finance Plan for the project prior to final map approval that includes the development of all designated park facilities, trails, open space/parkway or other open space areas anticipated to be maintained by the City of Sacramento Department of Parks and Recreation. The Plan shall include all improvements costs associated with the designated park facilities, trails, open space/parkway or other open space areas along with ongoing maintenance and operation costs for these facilities in perpetuity.

The public has a right to review of any Finance Plan as an integral feature of the mitigation program. The public and decision makers cannot form an opinion on the feasibility of the trails, open space and parks without an opportunity to review and comment upon the financing plan prior to project approval. To postpone the financing plan until after project approval is a violation of CEQA.

5. Agricultural Land Impacts Not Mitigated. The project has significant direct and cumulative impacts on preservation of agricultural lands. Mitigation Measure 4.2.1 proposes to "stack" mitigation of loss of agricultural land onto the mitigation requirement established by the Natomas Basin Habitat Conservation Plan for protection of threatened species.

Mitigation Measure 4.2.1 (From MMP). The Applicant shall protect one acre of existing farmland of equal or higher quality for each acre of Prime Farmland or Farmland of Statewide Importance that would be converted to non-agricultural uses in the Panhandle PUD. This protection may consist of the establishment of farmland easements or other appropriate mechanisms. The farmland to be preserved shall be located within the County. This mitigation measure may be satisfied by compliance with other mitigation requirements involving the permanent conservation of agricultural lands and habitat.

This impact is significant and unavoidable.

As we have stated previously in comments on the DEIR, it is not appropriate to use habitat lands to mitigate for agricultural impacts.

"There is no substantial evidence that preservation of habitat mitigation land under the NBHCP will also mitigate for loss of farmland. The farmland and endangered species habitat mitigation requirements having differing goals which in some instances are incompatible. Mitigation for loss of agricultural land is intended to preserve production agriculture. By contrast the Natomas Basin Conservancy is mandated to manage its land as "high quality habitat" for covered species, notably the threatened Giant Garter Snake and the Swainson's Hawk. Twenty-five percent of NBC land is required to be converted to managed marsh, a non-agricultural use, and another 25% managed for high quality upland habitat values, which, due to soil and agricultural market conditions, is nearly impossible to achieve in the Basin on land managed for production agriculture. Moreover, it cannot be determined whether "stacking" can succeed for Panhandle's agricultural and habitat mitigation, because no land has been identified for the proposed mitigation of habitat and agricultural impacts of the Panhandle project."

Very Truly Yours,



JAMES P. PACHL, Attorney

TEXT OF CEQA GUIDELINE SECTION 15025

15025. Delegation of Responsibilities

(a) A public agency may assign specific functions to its staff to assist in administering CEQA. Functions which may be delegated include but are not limited to:

- (1) Determining whether a project is exempt.
- (2) Conducting an Initial Study and deciding whether to prepare a draft EIR or Negative Declaration.
- (3) Preparing a Negative Declaration or EIR.
- (4) Determining that a Negative Declaration has been completed within a period of 180 days.
- (5) Preparing responses to comments on environmental documents.
- (6) Filing of notices.

(b) The decision-making body of a public agency shall not delegate the following functions:

(1) Reviewing and considering a final EIR or approving a Negative Declaration prior to approving a project.

(2) The making of findings as required by Sections 15091 and 15093.

(c) Where an advisory body such as a planning commission is required to make a recommendation on a project to the decision-making body, the advisory body shall also review and consider the EIR or Negative Declaration in draft or final form.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Section 21082, 21100.2 and 21151.5, Public Resources Code; *Kleist v. City of Glendale*, (1976) 56 Cal. App. 3d 770.

Discussion: This section is a recodification of former Section 15055 with one additional feature. The section is necessary in order to identify functions in the CEQA process that a decision-making body can delegate to other parts of the Lead Agency. The agency can operate more efficiently when many functions are delegated to the staff rather than requiring the decision-making body to perform all the functions.

Subsection (b) codifies the holding in *Kleist v. City of Glendale* by identifying the functions that cannot be delegated. The functions of considering the environmental document and making findings in response to significant effects identified in a final EIR are fundamental to the CEQA process. These steps bring together the environmental evaluation and the decision on the project. This section is intended to assure that the environmental analysis of a project is brought to bear on the actual decision on the project. The section also serves to guide agencies away from practices that have been ruled invalid.

Subsection (c) reflects an administrative interpretation which applies the requirements of CEQA to advisory bodies. Such bodies need not and **may not** certify an EIR, but they should consider the effects of a project in making their recommendations. This section also suggests that advisory bodies may consider a draft EIR.
(Underlining added for emphasis/ jpp)

From: [Garrett Norman](#)
To: [Lindsey Alagozian](#); [Dana Mahaffey](#); [Samar Hajeer](#); [Aelita Milatzo](#); [Scott Tobey](#)
Subject: FW: letters on Panhandle annexation/tentative map
Date: Thursday, May 05, 2016 4:09:28 PM
Attachments: [Panhpud-ECOSetal.5.07.doc](#)
[panhandle12.18.06final.pdf](#)

FYI

Garrett Norman

Assistant Planner

City of Sacramento | Community Development Department

300 Richards Boulevard, 3rd Floor

Sacramento, California 95811

Phone: (916) 808-7934

gnorman@cityofsacramento.org

From: Judith Lamare [<mailto:swainsonshawk@sbcglobal.net>]
Sent: Thursday, May 05, 2016 11:16 AM
To: Garrett Norman
Subject: letters on Panhandle annexation/tentative map

Dear Mr. Norman

Friends of the Swainson's Hawk represented ECOS in the Panhandle working group and commented on various issues, along with partner environmental groups -- issues that are still relevant to the shape of the tentative map for the panhandle area. Of particular concern is the preservation of an open space corridor on the east side of the power lines, an important raptor foraging area and wildlife corridor for natural areas to the north and east. Also we are concerned about any urban planning that has negative impacts on the remaining agricultural and habitat areas preserved in North Natomas. Care should be taken to avoid any urban impacts north of the project area.

Here are environmental group letters December, 2006 and May 2007.

Judith Lamare, President
Friends of the Swainson's Hawk
www.swainsonshawk.org
swainsonshawk@sbcglobal.net
916 769 2857



**915 L Street, C-425
Sacramento, Ca. 95814
916-447-4956
www.swainsonshawk.org**



**909 12th St., 100
Sacramento, Ca. 95814
916-443-1033
www.ecosacramento.org**



**1414 K Street, 500
Sacramento, Ca. 95814
916-557-1100, x 108
www.motherlode.sierraclub.org**



**Natomas Community Association
5010 Sorento Road
Sacramento, CA 95835
www.natomascommunity.org**

December 18, 2006

Jennifer Hageman
City of Sacramento
Development Services Department
Environmental Planning Services
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834
Telephone: (916) 808-5538
E-Mail: jhageman@cityofsacramento.org

Re: Panhandle Annexation and PUD DEIR Comment

Dear Ms. Hageman,

The following comments, which incorporate the attached “Panhandle Working Group Support Position for Open Space Buffer,” and accompanying Exhibits 1 – 13, are submitted on behalf of the Environmental Council of Sacramento, Natomas Community Association, Friends of the Swainson's Hawk, and Sierra Club - Mother Lode Chapter, regarding the DEIR for the proposed annexation of Panhandle, PUD, and related approvals. We also incorporate into our comments all of the comments of other individuals and organizations, and will rely on these comments as well as our own. These comments highlight some of the deficiencies of the DEIR and the project. We also request information in a Recirculated DEIR. Our organizations oppose the project, including the annexation, General Plan Amendments, rezone, PUD, and development of the project site.

Agricultural Resource

While the DEIR contains mitigation for agricultural resource lost, LAFCo is now reconsidering its mitigation policies. The final EIR should include any mitigation necessary to comply with LAFCo policies.

An agricultural buffer on the northern boundary of the project area is necessary to be consistent with the NNCP. The DEIR recommends mitigation to include this buffer and its maintenance (MM4.2.2a and MM 4.2.2b). However the funding mechanism for acquisition and maintenance of the buffer is not identified in the DEIR or other project documents. Therefore there is no evidence that implementation of this proposed mitigation measure is financially feasible, and thus no evidence supporting the finding that impacts are mitigated to less than significant. (MM 4.2.2 – see discussion, below, regarding funding for traffic mitigation measures).

The DEIR MM 4.2.1 states that the requirement to acquire land suitable to mitigate for loss of farmland shall be satisfied by acquisition of habitat mitigation land to mitigate for impacts on wildlife (ie: compliance with the NBHCP, MM 4.8.1). There is no substantial evidence that preservation of habitat mitigation land under the NBHCP will also mitigate for loss of farmland. The farmland and endangered species habitat mitigation requirements having differing goals which in some instances are incompatible. Mitigation for loss of agricultural land is intended to preserve production agriculture. By contrast the Natomas Basin Conservancy is mandated to manage its land as “high quality habitat” for covered species, notably the threatened Giant Garter Snake and the Swainson’s Hawk. Twenty-five percent of NBC land is required to be converted to managed marsh, a non-agricultural use, and another 25% managed for high quality upland habitat values, which, due to soil and agricultural market conditions, is nearly impossible to achieve in the Basin on land managed for production agriculture. Moreover, it cannot be determined whether “stacking” can succeed for Panhandle’s agricultural and habitat mitigation, because no land has been identified for the proposed mitigation of habitat and agricultural impacts of the Panhandle project.

The DEIR does not address the incompatibility of NBHCP and stacking or the risk and consequences of failing to multiple mitigation objectives with the same land easement. There is substantial risk that the multiple mitigation objectives cannot be met in perpetuity. Given the legal status of the NBHCP as a state and federal permit, it is likely the objectives of the agricultural land mitigation measure would ultimately not be met if the mitigation requirements were stacked. Therefore stacking is not an adequate CEQA mitigation measure because there is no evidence that it is capable of full implementation.

MM 4.2.1 states that agricultural protection easement may be “dedication of open/recreational space.” It is inappropriate to mitigate for loss of farmland with open space/recreational land. To mitigate for the loss, the land must be placed in an agricultural use. We would urge you to include a mitigation measure that requires at least some on site mitigation and the use of the land for organic farms serving local needs for fruit and vegetables.

Air Quality

The Panhandle DEIR Air Quality analysis is incomplete. It refers to an air quality plan for the project which is not appended. CEQA requires that all parts of a DEIR be circulated for at least 45 days for public comment. Therefore, the DEIR and project documents, including the missing Air Quality analysis, must be recirculated for at least

45 days. Moreover, though the project is conditioned with air quality mitigation measures, these are measures that apply to projects that are included in the land use base for the air quality plan. The Panhandle PUD is inconsistent with the current federal ozone attainment plan adopted by the Sacramento Metropolitan Air Quality Management District because that plan is based on a land use map that assumes Panhandle remains in agricultural land.

The Sacramento Metropolitan Air Quality Management District is presently preparing an ozone attainment plan to be submitted to state and federal regulatory agencies by June 2007. In order to be consistent with the upcoming air quality plan, the DEIR should be delayed until that plan is adopted and the DEIR should include sufficient mitigation measures to be found consistent with the new air quality plan.

The DEIR Air Quality analysis points out (4-5-10) that the transportation conformity requirement of the federal Clean Air Act:

“ The region’s transportation plan must conform and show that implementation will not harm the region’s chances of attaining the ozone standard. The SIP is tied to a “motor vehicle emissions budget” and thus, transportation planners must ensure that emissions anticipated from plans and improvement programs remain within this budget.”

However, the DEIR fails to identify the interaction between the transportation improvements required for this project and the necessary air quality plan adoption and conformity finding. What transportation mitigation measures and required transportation projects could be at risk if the necessary approvals are not obtained? Nor does the DEIR identify what additional air quality mitigation requirements will be forthcoming with the adoption of the new air quality plan.

Alternative Analysis

The DEIR should quantify the differences between alternatives in impacts rather than classify them arbitrarily as in the same category.

The DEIR at 6.0-21 makes no meaningful distinction between the project alternative and the other alternatives in terms of stormwater run-off and surface water drainage, flood risk, and groundwater quality, although the plans differ substantially in impervious surface.

The DEIR does not distinguish between the transportation maintenance, traffic and transit impacts of the various alternatives although they do differ in the acreage used to serve about the same population.

The DEIR should quantify the impacts on existing neighboring land uses and residents of the alternatives.

The DEIR should quantify the differences between alternatives in cost to municipal services to the population since the project requires a larger service area.

The DEIR should quantify the differences in impact between the alternatives on the biological resource, including nesting and foraging Swainson's Hawks, White Tailed Kites, Burrowing owls and impacts on and adjacent, wildlife corridor along Steelhead Creek and along Hansen Ranch to Placer County.

The DEIR should quantify and compare the alternatives in terms of meeting diverse housing needs. All inclusionary housing is for rent. The DEIR fails to analyze the impacts of the use of rental properties for all inclusionary housing compared with a mix of housing spread over neighborhoods and a requirement for senior housing. The project alternative lacks an institutional designation for senior independent and assisted living as compared with the community proposed plan (so-called "Trujillo" alternative).

Biological Resources

With MM 4-8-2a the DEIR states that compliance with the NBHCP will require "Payment of HCP fees or dedication of land at a ratio of 0.5 to 1." All land requirements should be met with dedication of land, not through payment of fees. Under CEQA, land acquisition requirements for mitigation must be met through land dedications because fee programs to acquire land for habitat mitigation have consistently failed in our region. (Examples are the former SWH mitigation programs of the City of Elk Grove, County of Sacramento, and County of Yolo.) Use of fees to acquire mitigation land is inconsistent with CEQA's requirement that mitigation be financially feasible and capable of being implemented.

The DEIR (Impact 4.8.1) concludes that grassland is not significantly impacted by development of 590 acres of annual grasslands: "The loss of annual grasslands and associated common wildlife is less than significant because this biological community is locally and regionally abundant and losses from this project would not result in grasslands of the region to drop below a self-sustaining level." (p. 4-8-29) The DEIR provides no evidence to support this conclusion. The DEIR at 4-8-29 states that the conclusion is based on:

"The impact assessment was based on the project description for the Panhandle annexation and PUD, information described in the existing setting (including technical biological reports prepared for the project site), and the standards of significance described above."

No technical biological reports are appended to the DEIR. The DEIR should be recirculated with the necessary appended reports.

The DEIR Violates CEQA By Failing To Make Necessary Documents Available For Public Review During the Entire 45-Day CEQA Public Comment Period (Financing Plan)

Public Resources Code § 21091(a) requires that the public review period for a Draft EIR be at least 45 days, which begins when the project documents and DEIR are complete

and Notice of Availability is given. The DEIR is incomplete because neither it nor the project documents include a financing plan to commit necessary and sufficient funding for the mitigation measures in the DEIR, and to demonstrate that proposed mitigation measures are financially feasible.

Instead, there is a "Draft Public Facilities Financing Strategy" which states that a "Panhandle Public Facilities Financing Plan" will be drafted at an unspecified time and adopted when the project is approved. Otherwise, the Draft Public Facilities Financing Strategy" only recites the various financing options which may be selected by City, contains a list of estimated costs of infrastructure, and contains no data or calculations which demonstrate how these costs will be paid. Page 5 of the "Financing Strategy" recites that project-related infrastructure and public facilities required to serve the project are similar to those of nearby projects and do not appear prohibitively high. It then concludes: "As a result, the project should be able to feasibly fund the cost of the required mitigation measures and infrastructure facilities." (*Id.*, p. 5) The DEIR contain no evidence supporting that conclusion.

CEQA requires that mitigation measures be feasible. "Feasible" includes "financially feasible." Measures which are not financially feasible are, by definition, not feasible. The public and responsible and trustee agencies in reviewing the DEIR cannot form an opinion about the feasibility of proposed mitigation measures without a financing plan which demonstrates that there will be funding adequate to pay for the mitigation measures. The DEIR is incomplete because the financing plan is a necessary element to provide mitigation for the project's impacts.

Indeed, the DEIR states that such data will be available to the decision-makers prior to their action, in the "Panhandle Public Facilities Financing Plan". However, CEQA requires that the "Panhandle PUD Public Facilities Financing Plan" also be made available to the public for the requisite 45-day public comment period, so that the public may examine the Financing Plan and form an opinion as to whether the mitigation measures to be financed by the Financing Plan are, in fact, financially feasible. The nonexistent financing plan has significant environmental impacts because it determines whether there will be funding to implement the Mitigation Measures proposed in the DEIR.

CEQA requires an agency to address specific economic considerations related to mitigation measures to determine if they are feasible or infeasible. See Public Resources Code §21081(a)(3); *Federation of Hillside and Canyon Associations v City of Los Angeles* (2000) 83 Cal. App. 4th 1252, 1259, 1260.

On point is *Ultramar, Inc. v. South Coast Air Quality Management District* ("Ultramar") (1993) 17 Cal. App. 4th 689, 700 - 701, in which the agency failed to mail out a section of an DEIR to requesting parties. The agency learned of the omission and mailed out a supplemental environmental document, but refused to extend the comment period to provide the full public review period for the supplemental document. The Court of Appeal held that failure to permit public review in the manner required by law, was a *per se* prejudicial abuse of discretion, and that no deviation from CEQA's notice and public review requirements are acceptable.

At minimum, Public Resources Code §21092.2 and CEQA Guideline 15088.5 will require recirculation of the DEIR for the statutory 45-day comment period after public notice of availability of the Finance Plan. *Sutter Sensible Planning v Board of Supervisors* (1981) 122 Cal App 3d 813.

No Evidence That Traffic Mitigation Measures Are Financially Feasible, or Will Mitigate Impacts to Less Than Significant

MM 4.4.1 states that certain traffic impacts will be mitigated by measures funded by the Panhandle PUD Finance Plan, which does not exist. There is no evidence in the DEIR or any other project documents that the Panhandle PUD Finance Plan will provide funding sufficient to implement all or any of the mitigation measures and infrastructure improvements needed to mitigate for the traffic impacts of the project.

Mitigation Measures 4.4.2.a, 4.4.2.b, 4.4.2.d, 4.4.2.f, 4.4.2.h, 4.4.7.a, and 4.4.7.b call for financing of traffic mitigation measures by the developer's payment of unspecified "fair share" of the cost of various traffic facilities and infrastructure.

CEQA requires an agency to address specific economic considerations related to mitigation measures to determine if they are feasible or infeasible. See Public Resources Code §21081(a)(3); *Federation of Hillside and Canyon Associations v City of Los Angeles* (2000) 83 Cal. App. 4th 1252, 1259, 1260.

"The commitment to pay fees without any evidence that the mitigation will actually occur is inadequate." (*Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 140, citing *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App.3d 692, 728.) Without review of the Financing Plan in conjunction with the DEIR (as was anticipated by the authors of the DEIR, see "Draft Panhandle Public Facilities Financing Strategy", p. 5), it is impossible to determine whether the promised mitigation measures will be fully implemented or at all. The public needs to be able to review the fee program in conjunction with the Mitigation Measures to determine if there is sufficient funding to pay for the infrastructure improvements relied upon by the Mitigation Measures and proposed Findings. In *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th, 342, 363-365, the court said that the EIR included information about the fees to be paid by the project and said: "Although the existing mitigation fee appears to be a reasonable attempt to have developers pay their proportionate share of the costs of needed highway improvements, and the continued use of such fees undoubtedly would be useful, it cannot reasonably be argued that the funds that the county already has raised or that it reasonably can expect to raise in the future, will be enough to mitigate the effect on traffic that will result from cumulative conditions."

In *Anderson First Coalition v City of Anderson* (2005), 130 Cal. App. 4th 1173, the Court of Appeal held that bare recitation that a project would pay "fair share" fees towards highway improvements, was too speculative to be deemed an adequate mitigation measure. (*Id.*, pp. 1193, 1194.) The Court of Appeal ruled that to be sufficient under

CEQA, a "fair share" mitigation fee measure must (1) specify the actual dollar amount based on current or projected construction costs; (2) specify the improvement projects for which the fair share fee will be used; (3) if the fair share contribution is a percentage of costs which are not yet known, then specify the percentage of costs, (4) make the fees part of a reasonable enforceable plan or program which is sufficiently tied to actual mitigation of traffic impacts at issue.

CEQA Guideline 15130(a)(3) states that an EIR may find that a project's contribution to cumulative impacts is less than significant if the project is required to implement or fund its "fair share" of mitigation measures designed to alleviate the cumulative impact. However, "The Lead Agency shall identify facts and analysis supporting its conclusion that the contribution [by the project to cumulative impacts] will be rendered less than cumulatively considerable." CEQA Guideline 15130(a)(3). The Panhandle DEIR does not identify the facts and analysis supporting its conclusions that contribution of "fair share" will render impacts less than significant. There is no evidence of the amount of money represented by "fair share," no evidence as to how "fair share" will be calculated, no evidence that the amount of "fair share" funding will be adequate to construct the infrastructure which comprise the Mitigation Measures, and no evidence that any other party or entity will contribute amounts towards their unspecified "fair shares" which are sufficient to construct the infrastructure which comprise the Mitigation Measures.

Hydrology and Water Quality

The relative costs and risks of the detention basins being located in the southwest corner of the site as opposed to the project alternative location for detention basins are not adequately analyzed in the DEIR. The sheet flow goes in the southwest direction and it will be expensive to pump it north to Country Club, west to the Main Canal, south to the C-1 canal and back east past the Panhandle to Steelhead creek. A detention basin next to Charter School, with culvert under Del Paso and larger pipe (across Pardee) accomplishes the same thing and costs much less, particularly for on-going operations. The project proposed increases flooding potential in the Main Drain by pumping uphill and west and trying to dump all the natural flow from the stubbed Dry & Robla Creek, and all runoff from Valley View to the north instead of south west as it flows naturally.

The DEIR does not address the impacts on the existing North Natomas Community residents in the event of conditions approaching or exceeding the 100 year flood condition with and without the Panhandle development.

- What is the additional risk to the existing North Natomas Community Plan area of the failure of the planned detention basin to contain run-off in high water events?
- For situations requiring emergency evacuation, what is the additional burden posed by development of the Panhandle area? The DEIR does not quantify the additional emergency services and evacuation burden posed by the proposed

project when considered in combination with all other development within the Natomas floodplain.

The DEIR does not address the alternative requested by the Environmental Council of Sacramento and the Natomas Community Association that no annexation for new development be approved until the flood risk is fully assessed and reduced to less than significant. The EIR should include as a mitigation measure that no annexation proceed until SAFCA has completed all necessary levee improvements.

The last section of this letter addresses further concerns with hydrology related specifically to flood risk.

Transportation

A number of issues very important to the existing communities are not adequately addressed in the DEIR.

- The proposed project changes the location of National Drive from that envisioned in the Community Plan. It moves National Drive east, away from the location of most homes, and the new location impacts homes in Valley View Acres. The Panhandle working group agreed that the road should stay where it was in the Community Plan or be moved to the center of the new growth area.
- The DEIR should include noise and air pollution mitigation along east side of National concurrent, or before, development to protect adjacent neighbors from noise and air pollution impacts of the proposed project.
- The DEIR fails to consider the cumulative impact of the expected development north and east of the project area on National Drive in estimating traffic counts and consequent impacts on neighbors.
- The DEIR does not adequately address the noise, nuisance, and safety impacts of the additional roads into Regency Park from the proposed and unexpected school and denser proposed project annexation. It lacks adequate mitigation for these impacts. Please note that the eastern portion of North Natomas is supposed to be less dense because of distance from light rail and employment centers and lack of adequate access to the east and south. A portion of the area immediately west of the site is already denser because the city rezoned a large portion of the once approved and now gone golf course for urban uses.
- The DEIR does not address the growth inducing impacts of proposing two full width roads with bollards that connect to the Avdis urban proposal on the north end of Valley View. They would eventually allow National to connect with Sorrento, and are growth inducing because they bring 2 roads adjacent to a 60 acre development proposed along Steelhead Creek.
- The DEIR does not address the impact of the lack of east-west off street bikeways and the absence of a ramp up the levee side in the proposed

project. These need to be added to mitigate impacts of the additional vehicle travel.

○

Other Issues

The DEIR fails to adequately address the following issues which were discussed in detail in the Panhandle Working Group.

- The exclusion of the open space in the eastern part of the Panhandle that was included in the 1994 community plan has a number of impacts not addressed in the DEIR and which are described in the attached “Panhandle Working Group Support Position for Retention of the City Council Approved WAPA/Valley View Acres/Steelhead Creek Open Space Buffer.”
- WAPA set back. The 1986 adopted NNCP EIR included an adopted mitigation measure requiring a 250 foot setback from the WAPA lines. How did the 1986 NNCP EIR envision that this mitigation measure would be funded?
- The acreage figures used in the EIR do not match the acreage figures on the May 1994 community plan map. No amendments have been made since that time. The 10 acre school site doesn't show up in the EIR as it does on the 1994 map, and the city is behaving as if the Quimby Ordinance didn't apply to the urban area. We went over this problem in the working group. Proponents claim that eliminating a portion of the open space buffer is a good thing because it means more parks scattered throughout the plan area. However about 28 acres of parks were required under the City's Quimby Ordinance requirement in addition to the open space buffer. This is akin to having \$50 in bank (Quimby) and \$150 in bank (open space buffer) and having the bank tell you they will put the \$150 in several accounts so you have greater investment variety, but taking away the \$50/Quimby. You now only have \$150 instead of \$200.
- The school site needs an underlying designation of public facility. Otherwise, these sites are appraised at urban values and the districts can't afford them or pay inflated prices. Plus, community plan has a requirement that they revert to urban with no community plan amendment after 5 years. The DEIR fails to analyze the impacts of this requirement. What we have seen in other Natomas neighborhoods is that the school sites are rezoned for profit and educational needs, and consequent transportation demand, change with negative impacts to the community.
- The negative impacts of strip commercial along Del Paso, south of Del Paso, along the north part of Northgate and other locales in combination with strip commercial on this site are not analyzed in the EIR. What are the impacts of the distribution of commercial in and adjacent to the project site for trip generation and vehicle travel demand?
- The location of higher density apartments on Del Paso Road at the edge of the project area raises a number of issues of best fit with adjoining land uses and transit service that are not addressed in the DEIR. In particular, the community

is interested in assessing the impacts of locating the apartments further east (which would be compatible with the community's proposed use of the southwest corner for detention basin.)

FLOOD HAZARD FROM POTENTIAL LEVEE FAILURE ON SACRAMENTO AND AMERICAN RIVERS, AND NATOMAS CROSS-CANAL: Revision and Recirculation of DEIR Required

1. Violations of CEQA

Information provided by the DEIR on potential flood hazard is incomplete and misleading, and lacks the level of detail and specificity required by CEQA. The DEIR fails to disclose to the public the well-documented proven inadequacy of the levees protecting Natomas Basin and the potential for catastrophic deep flooding.

A Recirculated DEIR which truthfully discloses and addresses the deficiencies of the levees surrounding the Basin and the potential effects of deep flooding, including flood depths on the high and low elevations of the project site during a 100-year and 200-year flood from the American or Sacramento Rivers, is required by Public Resources Code 21092.1 and CEQA Guideline 15088.5. Likewise, the type and extent of damage to property, (assuming that it is built out as proposed), displacement of future residents of the project, and potential loss of life, should be disclosed. Such a Recirculated DEIR must also provide the sufficient level of detail and specificity required by CEQA which is sorely lacking in the present DEIR's discussion of the flooding issue

a. The DEIR misrepresents and fails to disclose the full extent of the potential for flooding and the impacts of such flooding

The DEIR, p. 4.11-2 correctly states that in 1996, the U.S. Army Corps of Engineers determined that levee improvements along the Sacramento and American Rivers, NEMDC (Steelhead Creek), and Natomas Cross Canal "were sufficient to provide a level of protection to the project site that met or exceeded a 100-year return period event."

The DEIR, p. 4.11-9 states that SAFCA "has succeeded in achieving 100-year flood protection in the Natomas Basin." The DEIR, p. 4.11-12, in its discussion of "Flood Control Guiding Policy A", states that 100 year flood protection has been previously obtained. As shown below, those statements are patently false.

The DEIR admits that that upgrading of the levees will be needed to achieve 200-year level of flood protection (DEIR p. 4.11-5), that "risk of flooding is greater than previously assumed" (DEIR p. 4.11-5), that "the current level of flood protection is now in question in some areas," (DEIR p. 4.11-9), that the levees are "at risk of underseepage and erosion hazards during a 100-year storm event" (DEIR p. 4.11-21, -22, and that the risk of underseepage and erosion hazards in a 100-year storm event is "potentially significant." (Impact 4.11.3).

In fact, the DEIR inexcusably fails to disclose that by letter dated July 20, 2006, the U.S. Army Corps of Engineers ("Corps") formally withdrew its 1998 opinion (attached to the July 20, 2006 Corps letter) that the levees protecting the Basin were adequately constructed to withstand the FEMA 100-year flood. **(EXHIBIT ONE).**

The now-rescinded 1998 Corps opinion was the sole basis for FEMA's decision to show the Basin on the FEMA's Flood Insurance Rate Map ("FIRM") as being outside of the FEMA 100-year flood plain. FEMA's National Flood Insurance Program is primarily an insurance program which relies upon engineering determinations performed by, or reviewed by, the Corps, in its determination of those lands to include in its Flood Insurance Rate Map, ("FIRM").

In a press interview which accompanied the release of the Corps letter of July 20, 2006, a spokesman for the Corps stated that "We agree, the levees today do not meet current certification criteria" **(EXHIBIT TWO,** Sacramento Bee, "Faith in Levees Officially Downgraded", July 27, 2006).

Lester Snow, Director of the California Department of Water Resources, by letter addressed to Sacramento Mayor Heather Fargo, dated November 21, 2006, **(EXHIBIT THREE)** stated that the Natomas levee system does not meet minimum federal flood insurance program standards for 100-year flood protection, that "the area is at high risk" and that DWR was working with FEMA to have the Basin remapped into an AR or A99 Special Flood Hazard Zone. Director Snow further stated: "In the meantime it is imperative that additional measures be taken to reduce the threat to public safety and property" and that "with less than 100-year flood protection, the chance of homes flooding over the next ten years is approximately 10 percent." He recommended a number of measures which City of Sacramento should undertake "to protect the public against this higher risk," which included a "limitation on new construction until minimum flood protection is achieved." (*Id.*, p. 2)

By separate letters dated July 31, 2006, to SAFCA and to FEMA, Les Harder, Deputy Director of the California Department of Water Resources ("DWR") stated that DWR concurred with the Corps opinion; that "additional analyses are underway to develop a strategy for providing FEMA 100-year flood protection"; and that "even under the best scenario, it will take several years to make the necessary improvements." **(EXHIBITS FOUR, FIVE)**

Mr. Harder's July 31, 2006, letter to SAFCA, p. 2, stated DWR's concurrence with the Corps letter of July 29, 2006, and expressed the urgency of timely FEMA re-mapping of the Basin "to accurately depict the level of increased flood risk" because of the extent of existing and planned development. **(EXHIBIT FOUR)** In his letter to FEMA, Mr. Harder stated that "it is clear that that portions of the levees protecting the Natomas Basin do not meet the [FEMA] levee certification requirements." **(EXHIBIT FIVE.)**

The SAFCA "Executive Director's Staff Report for August 2006" to the SAFCA Board states that the Natomas levees do not meet the 100-year FEMA standards for certification, that re-mapping Natomas Basin as a flood zone is not a high priority for FEMA, and that the final FEMA flood zone maps will be completed in 2012 by which

time SAFCA anticipates completing its Natomas Levee Improvement Project. (**EXHIBIT SIX**).

The SAFCA Executive Director's report to the SAFCA Board, dated February 16, 2006, titled "Information - Natomas Levee Evaluation Study", (**EXHIBIT SEVEN**) acknowledged that less than 100-year flood protection was "**high risk**", and that greater than 100-year but less than 200 year protection was "moderate risk." (p. 1); that a study by URS in 2002 concluded that most of the levees would need "substantial additional work . . . to reach a high level of flood protection" (p. 2), and that the 2005, URS report for the Corps determined that at some locations, there was potential for subsurface permeability "that could threaten the stability of the affected levees ..." (p. 3)

Does City agree with the statements by the Director of DWR, supra, that Natomas is at high risk of flooding from the Sacramento or American Rivers due to having less than 100-year flood protection? (see **EXHIBIT THREE** p. 1.) If not, please explain why not?

Does City agree with the statements by the Executive Director of SAFCA, supra, that less than 100-year flood protection is "high risk"? (See **EXHIBIT SEVEN**, p. 1) If not, please explain why not.

Does the City contend that the Basin is not at high risk of flooding due to its present lack of 100-year flood protection? If so, please explain why City believes that the Basin is not at high risk of flooding.

There is a long history of through-seepage and underseepage of the levees protecting the Basin during high water events. The failures of the levees along the Feather and Yuba Rivers in 1986 and 1997 were caused by underseepage, during high water conditions which were well below the tops of the levees. There were significant weaknesses manifested at points along the Sacramento River levee during the 1997 high water event. During the January 1, 2006 high water event, which was much less than the 100-year flood river elevation, there were numerous boils landward of the Sacramento River levee at the RD 1000 Prichard Lake Pump Station, which were remedied by removal of the pump station and filling 800 feet of the North Drainage Canal. Major repairs at that site were authorized by SAFCA and are ongoing.

Well before release of the DEIR in November 2006, geotechnical engineering studies and soil borings performed for the Corps in 2000-2001 (see EXHIBIT EIGHT) circular for the Corps and SAFCA distributed to public meetings, July 2002) and 2005 ("Final Geotechnical Report For Sacramento River East Levee and Natomas Cross Canal South Levee" November 2005, by URS Engineering for the Corps), and the Draft and Final SAFCA Levee Evaluation Report, March 2006 and July 14, 2006, (**EXHIBIT NINE**) and exhaustive geotechnical engineering studies, released in March 2005, (see EXHIBITS TEN, ELEVEN, TWELVE), technical charts omitted but available at SAFCA office) and designated as Appendices of Draft and Final SAFCA Reports, disclosed extensive subsurface soil permeability and vulnerability to serious underseepage in numerous locations along the levees of the Sacramento and American Rivers and the Natomas Cross-Canal protecting the Basin, that failed to meet Corps standards for the 100 and 200-year water surface event and could cause levee collapse during high water events occurring more frequently than the 100-year event (i.e.: the levees did not provide 100-

year flood protection.) The DEIR spoke generally about studies and planned improvements but failed to disclose the identity of these documents or list them as references in the DEIR, except for the Draft SAFCA Draft Levee Evaluation Report.

Exhaustive engineering studies designated as Appendices of SAFCA's Draft and Final Natomas Levee Evaluation Study Reports disclose numerous reaches of levee which do not meet U.S. Army Corps ("ACE") underseepage guidelines for the 100-year Water Surface Elevation (WSE.) See (1) "Problem Identification Report, Sacramento River East Levee Natomas Basin Evaluation," February 1, 2006, **EXHIBIT TEN**, pp. 12, 22, 30, 33, 35, 40, 46, 50, 54-55, 58, 62; "Problem Identification Report, American River North Levee Natomas Basin Evaluation," February 1, 2006, **EXHIBIT ELEVEN**, (failure to meet Corps guidelines for through seepage) pp. 16, 21, 25, 27; and (3) "Problem Identification Report, Natomas Cross Canal Levee Natomas Basin Evaluation," March 14, 2006, **EXHIBIT TWELVE**, pp. 24, 27, 29, 32, 34, 37, 39. The reports recommend construction of deep slurry walls, to depths ranging from 50 to 110 feet deep through and beneath much of the levee system on the Sacramento and American Rivers to attain compliance with Corps standards. A map showing the location of recommended slurry walls is in SAFCA's Draft and Final Natomas Levee Evaluation Study Reports.

Please review **EXHIBIT THIRTEEN**, letter of Jay Punia, General Manager, California State Reclamation Board, September 5, 2006, commenting on City's Greenbriar DEIR, which is applicable to Panhandle and any other project in the Basin. Mr. Punia correctly states that the current FEMA FIRM designation, that Natomas is outside the 100-year flood plain, "is an outdated regulatory designation, which is not supported by the present best available information regarding the integrity of the Natomas levee system." (*Id.*, p 2).

All of the reports and documents cited above, except for the DWR letter dated November 21, 2006, were in City's possession and known to City staff and the project consultant prior to issuance of this DEIR in November 2006. Indeed, our organizations raised these very same issues, and cited the very same documents in our letter to City and LAFCo dated September 5, 2006, commenting on the DEIR for the Greenbriar project, yet City's DEIR for this Panhandle project failed to disclose most of these documents or the information contained therein, and only hinted at the existing flood hazard. A reasonable person can only conclude that City is systematically engaged in a pattern of deliberate deception and concealment of the true condition of the levees protecting the Basin.

It is increasing apparent that the City and Applicant are fast-tracking the Panhandle project for expedited approval, hoping for land use entitlements and start of construction before FEMA issues new a Floodplain Insurance Rate Map ("FIRM") which recognizes that the Natomas Basin, including much or all of the Panhandle project area, is a flood plain with less than 100-year flood protection. Such a designation by FEMA would require City to impose very strong restrictions on new development within the Natomas flood plain, including Panhandle, as a condition of retaining the community's eligibility for FEMA Flood Insurance.

The DEIR, at pp.4.11-5 and 4.11-23, mistakenly asserts that the necessary levee upgrades "are anticipated to be constructed within the next 2 to 5 years." In fact, SAFCA's own

Natomas Levee Evaluation Study, Final Report, July 14, 2006, "Final Report Summary" states that 2012 is the targeted date of completion, assuming that the first construction contract is executed in 2007. See also Table FR-1 of the "Final Report Summary", *supra*.

Does City disagree with SAFCA's estimate of the date of completion of levee improvements (2012)? If so, please explain why.

Does City contend that SAFCA will be able to achieve 100-year flood protection, under current Corps and FEMA criteria, prior to 2012? If so, please explain why.

Does City contend that the levees protecting the Basin meet the current FEMA standards for 100-year flood protection? If so, please explain in detail how the levees protecting the Basin meet current FEMA and Corps standards for certification as providing 100-year flood protection, and please disclose all documents and engineering reports supporting such a contention. Such discussion should consider all of the documents referenced above which state that portions of the levees do not meet current Corps criteria for 100-year flood protection.

What is the likelihood, expressed in percentage of occurrence of a flood event occurrence equal to, or exceeding, the FEMA 100-year flood event occurring during any one-year period? What is the mathematical likelihood of such an event during a 30-year period? Please provide documentation and calculations which support the answer.

Using current Corps of Engineers hydrologic engineering criteria, please disclose the estimated water surface elevation and flood depths estimated to occur at the highest and lowest present elevations of the Panhandle project during both a 100-year flood event and a 200-year flood event on the Sacramento River, and, alternatively, the American River.

Please describe the anticipated physical impact, upon persons and property, of flooding of the project site in the event of levee failure during estimated 100-year and 200-year flood events.

The DEIR, pg. 4.11-5 erroneously asserts that the Natomas Levee Evaluation Report estimate that the required levee improvements would cost approximately \$270,000,000. The Recirculated DEIR should state that SAFCA's Levee Evaluation Report, July 14, 2006, "Final Report Summary" states that the "fully funded cost of the project, assuming a annual 10% escalation rate, could rise to \$414 million, " assuming that the project starts in 2007 and is completed during 2012.

Please identify the amount and sources of all funding which has been approved, authorized and appropriated, or is actually available now or is committed to being available when needed, to pay for the upgrades necessary to provide FEMA 100-year and 200-year levels of protection. Please identify and provide supporting documentation.

Please disclose and identify anticipated sources of funding which have not yet been approved or committed. Please disclose why City believes that that such funding will be approved?

Please describe what the City has done to fund the future upgrading of the levees protecting the Natomas Basin. How much money has City contributed, or has committed to contribute, to efforts to upgrade the levees, since January 2005?

What actions is City undertaking to comply with the request of the Director of the California Department of Water Resources (**EXHIBIT THREE** p. 2) to limit new construction in Natomas Basin until the levees are upgraded and re-certified by the Corps as providing adequate protection against the FEMA 100-year flood event?

Does the City intend to comply with the request of the California Department of Water Resources (**EXHIBIT THREE**, p. 2) to limit new construction in the Basin "until minimum flood protection is achieved"?

If the City does not intend to comply with his request, please explain why.

b. Mitigation Measures

Proposed Mitigation Measure 4.11.3, states that if FEMA decertifies the levees , the applicant shall implement one of the following mitigation measures, to be terminated upon re-certification by FEMA: either (a) raise building pads high enough to remove structures from the 100-year floodplain as identified by FEMA in its decertification, , or; (b) developer would participate in a regional mechanism for funding the upgrade of levees to the FEMA 100-year level of protection. However, neither measure would be applicable to construction started prior to FEMA's de-certification, thereby leaving the residents of those homes vulnerable to deep flooding. The regional funding mechanism hypothesized by MM 4.11.3 does not exist.

These Mitigation Measures obviously fail to mitigate for impacts of flooding as to those structures built prior to FEMA's re-mapping of Natomas Basin as a flood plain. Moreover, the regional funding mechanism hypothesized by MM 4.11.3 even if implemented, provides no mitigation until the levees are upgraded and certified by the Corps as adequate to protect the Basin against the FEMA 100-year flood event, or such greater level of protection that the Corps may deem adequate to provide a safe level of flood protection for an urban area. Mere payment of money to a levee repair fund (if one then exists) as required by MM 4.11.3 provides no flood protection. Flood protection is only provided by upgraded levees.

Does the levee repair fund described in MM 4.11.3 presently exist? If so, please describe.

Until necessary levee upgrades are completed and certified by the Corps as adequate to protect the Basin against the FEMA 100-year flood event, will the City require that Panhandle landowners, developers and their successors-in-interest, employees, and agents, including real estate brokers, provide written disclosure to all prospective buyers, lenders, bond, and insurers of property within Panhandle of (1) the Corps determination that levees surrounding the Basin may fail during high water events which are less than the FEMA 100-year flood; and (2) the anticipated flood depths at

Panhandle, as estimated by the Corps, in the event of levee failure during 100-year FEMA flood event, and also during a 200-year FEMA flood event?

If the City will not require such written disclosures, explain why not.

Will the City provide such written disclosures? If not, please explain why not.

If the City will not require such written disclosures, will the developer applicants provide such disclosures? If not, please explain why not.

Will City require all owners of residential and commercial property in Panhandle to buy and maintain FEMA flood insurance, until the levees are re-certified by the Corps? If not, please explain why.

The letter of Lester Snow, Director of California Department of Water Resources, to Mayor Fargo, November 21, 2006, recommends that the City undertake a number of actions to protect the public against the current high risk of flooding, pending completion of the levee upgrades. (**EXHIBIT THREE**, p. 2).

For each measure listed by Director Snow, please state (1) whether City will implement those measures, and (2) if the City will not implement any of these measures, please explain why not.

We suggest the following alternatives:

(a) Consideration of annexation, and development be deferred until levee upgrades are complete, and the Corps has certified that the levees meet the FEMA and Corps of Engineers criteria for 200-year flood protection. If the annexation is approved by LAFCO, it should be subject to the above conditions, which should be enforceable by LAFCO and citizen suits.

(b) If LAFCO approves the annexation without conditioning development upon completion and certification of levee upgrades as meeting the FEMA and Corps criteria for 100 or 200-year flood protection, then LAFCO should require, as conditions of approval, that all structures be built at least 3 feet above the 100-year flood elevation, as determined by the Corps, that flood insurance be required, that City undertake those measures recommended by Lester Snow, Director of California Department of Water Resources, in his letter to Mayor Fargo, dated November 21, 2006 (**EXHIBIT THREE**) and that the City develop an evacuation plan for Natomas Basin, to be implemented in the event of levee breach.

c. The DEIR failed to consider effect of global warming in its analysis of flood hazards threatening the Natomas Basin

The DEIR fails to disclose, analyze or consider the possible effect of global warming on the frequency and elevation of high water conditions in the Sacramento or American Rivers, and thus the potential for flooding of Natomas Basin. A Recirculated DEIR should do so.

It is now generally recognized that global warming will, among other things, lead to (1) sea level rise, and (2) generally warmer winters in California. See, for example, California Dept. of Water Resources, "Progress on Incorporating Climate Change Into Planning and Management of California's Water Resources: Technical Memorandum," July 2006. Sufficient modeling data now exists to permit estimates of risk in future years.

The elevation and flow of the Sacramento and American Rivers adjacent to Natomas Basin, are affected by the level of the sea and tidal action, particularly during winter and spring, when the tides are the highest and when the flows of the Sacramento and American Rivers are the greatest. The juxtaposition of high tide and high river flows led to the near-overtopping of the Sacramento River east levee, at Sacramento, in 1987. It is logical to conclude that the predicted rise in sea level, accompanied by a correlating rise in the elevation of the tides, may affect the influence of high tides on the surface elevation and flow of the Sacramento River. A probable consequence would be to increase the river's surface elevation beyond what it is under today's tidal conditions.

Assuming, hypothetically, that winter and spring precipitation remains the same, and that the prediction of generally warmer winters is accurate, then a larger proportion of the winter and spring precipitation on the Sacramento and American River watersheds will be in the form of rainfall, which drains to the Sacramento and American Rivers, and a lesser proportion will be retained as snowpack, which melt more gradually in the spring. This phenomenon has already been observed occurring in recent years, as northern California's winter snowline shifts to higher elevation, and rains more frequently fall onto snowpack during winter.

The scenario of sea level rise and warmer winters during the lifetime of the Panhandle project have potential to lead to increased volume and surface elevation of the 100-year flood event, and more frequent occurrence of what is recognized by the Corps today as the 100-year flood event under present conditions.

Thus, the Recirculated DEIR should base its analysis of flood hazard not only on the present flows of the Sacramento Rivers, but also on the projected future flows and surface elevations during the lifetime of the project which take into account climate change, including the effects of (1) rising sea level, and (2) a higher proportion of winter precipitation being in the form of rainfall, possibly leading to increased rate and volume of runoff during the winter and early spring. Recent scientific studies regarding the effect of global warming on California's future climate and water regime are readily available from the State of California global climate change website.

Climate change in the near future which will affect sea level and flows of the Central Valley rivers is now recognized as something that will happen, and cannot be dismissed as too speculative for analysis and consideration in an EIR for a project which is protected from deep flooding by levees which the Corps has determined do not meet even the FEMA standards for protection against the 100-year flood event.

- d. **Exposure Of City And Possibly LAFCO To Legal Liability For Consequences Of Flooding Of Project Approved With Knowledge That Project Was Exposed To Hazard Of Flooding**

The *Paterno* decision found the State of California liable for damages to persons and property arising from a 1986 levee breach because the State knew that a levee section was defective and did not make repairs. The full scope of governmental legal liability for damages due to flooding have not yet been determined. The City does not address the issue of liability for approving development in areas that are not safe. The City exposes itself to future court or legislative action that will extend liability to local government, such as the City of Sacramento when it exercises its discretion to approve a project in a floodplain with full knowledge that engineers and the Corps have determined that the project site has less than 100-year flood protection. Despite SAFCA's plans for upgrading the levees, which are not yet funded and which cannot be implemented until fully funded, the project site and the entire Natomas Basin, will be remain exposed to unreasonable flood hazard until the levees are upgraded to a level sufficient to protect against flood hazard.

Be assured that if there is a levee breach, and massive damage therefrom, the City will be one of the defendants named in the resulting lawsuits.

The cost of defending litigation and paying awards of damages may significantly impact the environment to the extent that City's ability to perform those functions which would benefit the environment (e.g.: trash collection, parks) may be impeded by the diversion of resources to defending litigation and paying damages. The DEIR should address the potential for such impacts.

LAFCO should also consider that its approval of this annexation, with full knowledge of City's intention to permit residential development of the Panhandle without adequate flood protection, may carry the possibility of exposing LAFCO to potential liability in the event of levee breach and flooding.

2. Development of the Panhandle Would Violate Sacramento General Plan Section 8, Health and Safety, Goal A, Policy One (Flood Hazards)

Development on the Panhandle site prior to upgrade of the levees to 100-year level of flood protection (current FEMA and Corps standards) would be inconsistent with Sacramento City General Plan Section 8, Goal A, Policy One, Flood Hazards, which states:

"Prohibit development of areas subject to unreasonable risk of flooding unless measures can be implemented to eliminate or reduce the risk of flooding." (DEIR p. 4.11-10.)

DEIR p. 4.11-10 states that the project is consistent because "it is currently located in FEMA Zone X, designating areas protected from 100-year flood by levees." As stated above, the Corps, DWR, and SAFCA have determined that Natomas Basin, including the Panhandle, is not protected from flooding at the 100-year level. The current designation of Natomas Basin as being in FEMA Zone X is outdated and is based on a Corps opinion which was formally withdrawn.

Lester Snow, Director of DWR, in his letter dated November 21, 2006, **EXHIBIT THREE**, p. 2, first paragraph, states that "with less than 100-year flood protection, the chance of homes [in Natomas Basin] flooding over the next 10 years is approximately 10 percent."

The Director of the California Department of Water Resources has stated that Natomas is at high risk of flooding from the Sacramento or American Rivers due to having less than 100-year flood protection. (see **EXHIBIT THREE** p. 1.) The Executive Director of SAFCA, *supra*, has stated that less than 100-year flood protection is "high risk"? (See **EXHIBIT SEVEN**, p. 1) If not, please explain why not.

Does City believe that the expert opinions of the Directors of DWR and SAFCA is conclusive evidence that there is "unreasonable risk of flooding", which requires prohibition of development in the Basin under General Plan Section 8, Goal A, Policy One (Flood Hazards), *supra*?

If not, please explain why City believes that there is not unreasonable risk of flooding which triggers the prohibition against development in the Basin pursuant to General Plan Section 8, Goal A, Policy One (Flood Hazards).

Isn't new development Panhandle project site inconsistent with this General Plan policy?

If City believes that new development on the Panhandle project site, prior to upgrading of the levees to 100-yr level of flood protection as determined by current Corps standards, is consistent with General Plan Policy One, Flood Hazards, please explain why.

3. Development of the Panhandle Would Violate the North Natomas Community Plan Flood Control Policy Guiding Policy A

Development on the Panhandle site prior to upgrade of the levees to 100-year level of flood protection (current FEMA and Corps standards) would be inconsistent with the North Natomas Community Plan Flood Control Guiding Policy A, which states:

"One hundred year flood protection must be obtained prior to any new residential development in the North Natomas Community." (DEIR p. 4.11-12.)

The DEIR, p. 4.11-12, states that "this level of flood protection has been previously obtained", which was once believed to be true. Per the documents and reports cited and discussed above, it is now known that the Basin does not have 100-year flood protection, which is known to City. City's assertion in this DEIR that the Basin currently has 100-year flood protection is dishonest.

City cannot rely upon the fact that FEMA's Flood Insurance Rate Map (FIRM) still shows the Basin as outside the 100-year flood plain. Per the documents cited above, the Basin clearly does not have 100-year flood protection.

4. Flood Hazard for the Basin Has Increased Since 1997 Due to Levee Improvements On the Feather and Yuba Rivers Upstream of Sacramento

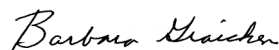
The DEIR, p. 4.11-2, references the "demonstrated ability of the applicable levees to withstand high flows in the Sacramento and American Rivers during the storms of 1997.

The DEIR fails to disclose that the east levee of the Feather River failed in the 1997 storms, thereby causing the diversion of a large volume of water into the Middle American Basin, between Yuba City and the Bear River, and its temporary detention during the remainder of the flood. Had the Feather River levee held, this volume of water would have passed by Sacramento at the height of the 1997 event. Whether the Sacramento River levee would have held if the Feather River levee had not failed in 1997 is unknown. The same situation occurred in the 1986 flood event.

During the past two years, those parts of the Feather and Yuba River levees which failed in 1986 and 1997, and other vulnerable portions of the Feather-Yuba-Bear River levees have been upgraded. Consequently, it is much less likely that the Feather-Yuba-Bear River levees will fail during a future major storm event. Consequently, the DEIR should re-examine its assessment of the likelihood of flooding in light of the fact that the area east of the Feather River upstream of Sacramento is much less likely to provide a de fact "detention basin" during future major storm events.

We hope these comments are helpful in clarifying community concerns about the proposed Panhandle project area development.


Sincerely,



Barbara Graichen, President
Natomas Community Association
916-991-2177



Janis Heple, Chair
Sacramento Group, Sierra Club



Andy Sawyer, President
Environmental Council of Sacramento
916-442-4215



Jude Lamare, President
Friends of the Swainson's Hawk
916-447-4956

James P. Pachl
Attorney at Law
717 K Street, Suite 534
Sacramento, California, 95814
Tel: (916) 446-3978
Fax: (916) 447-8689

jpachl@sbcglobal.net

May 24, 2007

Chair and Members
Sacramento City Planning Commission
915 I Street
Sacramento, Ca. 95814

Re: M05-031/P05-077 Northgate 880/Panhandle

Dear Joseph Yee, Chair, and Members of the Commission,

I represent Sierra Club, ECOS - The Environmental Council of Sacramento and Friends of the Swainson's Hawk. We filed extensive comments on the DEIR. We learned about the hearing earlier this week and are requesting more time to be able to review the FEIR and comment in detail. Staff did not mail notices of availability of the FEIR, nor the FEIR, to us. Staff also advises that it did not send notice of this hearing to us, although it appears that a notice of hearing but not notice of availability of the FEIR was sent to ECOS. We understand that other parties received copies of the FEIR on Saturday May 19, which leaves much too little time for review of an FEIR for a project with controversial issues.

We object to the approval of the project as presented.

1. Certification of EIR. CEQA Guidelines § 15025(b) and (c) prohibit certification of an EIR by the Planning Commission in projects where the Planning Commission sits as an advisory body to make a recommendation on the project to a decision-making body (Board of Supervisors).

CEQA Guideline § 15025 (b)(1) states:

"(b) The **decision-making body** of a public agency **shall NOT delegate** the following functions:

(1) Reviewing and considering a Final EIR or approving a Negative Declaration prior to approving a project."

CEQA Guideline § 15025 (c) states:

"(c) Where an advisory body such as a planning commission is required to make a recommendation on a project to the decision-making body, the advisory body shall also review and consider the EIR or negative declaration in draft or final form."

Guideline 15025, like many of the CEQA Guidelines, is followed by Discussion by the drafters intended to provide interpretation of the Guideline (c) says (attached.):

"Subsection (c) reflects an administrative interpretation **which applies the requirements of CEQA to advisory bodies. Such bodies** need not and **may not certify an EIR**, but they should consider the effects of a project in making their decisions."

Here the Commission is only advisory to the Council on most aspects of the project approval, including key elements such as application for annexation and amendment of the General Plan. The decisions proposed for the Commission to approve cannot be implemented without the Council approval of all of the other elements of the staff recommendation.

2) Definition of Flood Hazard Safety Measures. The FEIR and staff report recommend that the project mitigate placing new houses in a flood hazard area by compliance with those conditions that will be imposed by FEMA which are predicted to be in the AE Zone, AR Zone and/or A99 Zone. However, the FEIR and staff recommendation fail to disclose what levels of safety are required by each FEMA zone. A 99 zone, for instance, requires no protections at all. CEQA requires information like this to be disclosed to the public and decision makers so that informed opinions based on fact can be developed before making decisions about approvals.

The environmental community and community associations in Natomas have asked the City to adopt a moratorium on further development entitlements in the Natomas Basin until the levees are repaired. This proposed project approval and accompanying EIR fail to adequately disclose the full consequences of improving more development now, and the EIR does not respond adequately to the request for a moratorium on growth approvals in the face of very high uncertainty about future flood protection.

3) Open Space Buffer. The SACOG Blueprint principles do not justify eliminating the open space buffer from the community plan as claimed by staff. The EIR fails to respond to our comments on the importance of maintaining the open space buffer as originally planned. The Staff recommendation refers to Smart Growth Principles that do not address transitions between urban uses and rural and natural conservation areas. Moreover, the EIR alternative that includes the Open Space Buffer on the east side of the project area has higher density land uses and is very compatible with the Blueprint principles.

4) Finance Plans. As we pointed out in the DEIR, the Finance Plan should be circulated for a 45 day review period. That has not been done. Moreover, the mitigation program now refers to two financing plans, including a future finance plan for all park, trails, open space/parkway or other open space areas:

Finance Plan: The Applicant shall provide a Finance Plan for the project prior to final map approval that includes the development of all designated park facilities, trails, open space/parkway or other open space areas anticipated to be maintained by the City of Sacramento Department of Parks and Recreation. The Plan shall include all improvements costs associated with the designated park facilities, trails, open space/parkway or other open space areas along with ongoing maintenance and operation costs for these facilities in perpetuity.

The public has a right to review of any Finance Plan as an integral feature of the mitigation program. The public and decision makers cannot form an opinion on the feasibility of the trails, open space and parks without an opportunity to review and comment upon the financing plan prior to project approval. To postpone the financing plan until after project approval is a violation of CEQA.

5. Agricultural Land Impacts Not Mitigated. The project has significant direct and cumulative impacts on preservation of agricultural lands. Mitigation Measure 4.2.1 proposes to "stack" mitigation of loss of agricultural land onto the mitigation requirement established by the Natomas Basin Habitat Conservation Plan for protection of threatened species.

Mitigation Measure 4.2.1 (From MMP). The Applicant shall protect one acre of existing farmland of equal or higher quality for each acre of Prime Farmland or Farmland of Statewide Importance that would be converted to non-agricultural uses in the Panhandle PUD. This protection may consist of the establishment of farmland easements or other appropriate mechanisms. The farmland to be preserved shall be located within the County. This mitigation measure may be satisfied by compliance with other mitigation requirements involving the permanent conservation of agricultural lands and habitat.

This impact is significant and unavoidable.

As we have stated previously in comments on the DEIR, it is not appropriate to use habitat lands to mitigate for agricultural impacts.

"There is no substantial evidence that preservation of habitat mitigation land under the NBHCP will also mitigate for loss of farmland. The farmland and endangered species habitat mitigation requirements having differing goals which in some instances are incompatible. Mitigation for loss of agricultural land is intended to preserve production agriculture. By contrast the Natomas Basin Conservancy is mandated to manage its land as "high quality habitat" for covered species, notably the threatened Giant Garter Snake and the Swainson's Hawk. Twenty-five percent of NBC land is required to be converted to managed marsh, a non-agricultural use, and another 25% managed for high quality upland habitat values, which, due to soil and agricultural market conditions, is nearly impossible to achieve in the Basin on land managed for production agriculture. Moreover, it cannot be determined whether "stacking" can succeed for Panhandle's agricultural and habitat mitigation, because no land has been identified for the proposed mitigation of habitat and agricultural impacts of the Panhandle project."

Very Truly Yours,



JAMES P. PACHL, Attorney

TEXT OF CEQA GUIDELINE SECTION 15025

15025. Delegation of Responsibilities

(a) A public agency may assign specific functions to its staff to assist in administering CEQA. Functions which may be delegated include but are not limited to:

- (1) Determining whether a project is exempt.
- (2) Conducting an Initial Study and deciding whether to prepare a draft EIR or Negative Declaration.
- (3) Preparing a Negative Declaration or EIR.
- (4) Determining that a Negative Declaration has been completed within a period of 180 days.
- (5) Preparing responses to comments on environmental documents.
- (6) Filing of notices.

(b) The decision-making body of a public agency shall not delegate the following functions:

(1) Reviewing and considering a final EIR or approving a Negative Declaration prior to approving a project.

(2) The making of findings as required by Sections 15091 and 15093.

(c) Where an advisory body such as a planning commission is required to make a recommendation on a project to the decision-making body, the advisory body shall also review and consider the EIR or Negative Declaration in draft or final form.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Section 21082, 21100.2 and 21151.5, Public Resources Code; *Kleist v. City of Glendale*, (1976) 56 Cal. App. 3d 770.

Discussion: This section is a recodification of former Section 15055 with one additional feature. The section is necessary in order to identify functions in the CEQA process that a decision-making body can delegate to other parts of the Lead Agency. The agency can operate more efficiently when many functions are delegated to the staff rather than requiring the decision-making body to perform all the functions.

Subsection (b) codifies the holding in *Kleist v. City of Glendale* by identifying the functions that cannot be delegated. The functions of considering the environmental document and making findings in response to significant effects identified in a final EIR are fundamental to the CEQA process. These steps bring together the environmental evaluation and the decision on the project. This section is intended to assure that the environmental analysis of a project is brought to bear on the actual decision on the project. The section also serves to guide agencies away from practices that have been ruled invalid.

Subsection (c) reflects an administrative interpretation which applies the requirements of CEQA to advisory bodies. Such bodies need not and **may not** certify an EIR, but they should consider the effects of a project in making their recommendations. This section also suggests that advisory bodies may consider a draft EIR.
(Underlining added for emphasis/ jpp)

From: [Steve Letterly](#)
To: [Dana Mahaffey](#)
Cc: "[demetercorp@sbcglobal.net](#)"; "[margiec@sparetimeinc.com](#)"; "[john.norman@brookfieldrp.com](#)"; "[francesknight07@comcast.net](#)"; "[George Phillips \(gphillips@phillipslandlaw.com\)](#)"; [Gregory Thatch](#); "[John OFarrell \(ofarrellj@comcast.net\)](#)"
Subject: Natomas North Precinct Landowners Comments on Panhandle Annexation and Planned Unit Development Notice of Preparation
Date: Friday, May 27, 2016 11:56:44 AM

The following comments are submitted on behalf of the Natomas North Precinct Landowners (Landowners). The Landowners are the project applicant for the Natomas North Precinct Master Plan.

The Natomas North Precinct Master Plan (Master Plan) is a ±5,699.3-acre mixed-use project located in the Natomas community of unincorporated northwestern Sacramento County, south of Sutter County and southwest of Placer County, east of Highway 99, and north of the City of Sacramento. The Master Plan includes a broad range of residential land uses, as well as commercial and employment land uses and schools, parks and open space to support the residential land uses. The Master Plan will amend the Sacramento County General Plan Land Use Diagram to change the land use designations within the Plan Area (± 5,699.3 acres) from Agricultural Cropland (±5,699.3 acres) to Low Density Residential (±2,560.6 acres), Medium Density Residential (±265.7 acres), Commercial & Office (±703.3 acres), Public/Quasi-Public (±241.9 acres), and Recreation (±1,927.9 acres).

The Master Plan is situated adjacent to the Panhandle Annexation and Planned Unit Development (Panhandle) immediately north of Elkhorn Boulevard. The County of Sacramento issued a Notice of Preparation for the Master Plan on April 28, 2016. Thus, the Master Plan must be considered in the cumulative impact analysis for the Panhandle. In addition, we would appreciate the opportunity to coordinate with the City and Panhandle applicant on the scope of work for the traffic impact analysis and other technical studies that have potential interrelationships between the two projects, including but not limited to noise and hydrology.

Thank you for your consideration and we look forward to coordinating with you as these two projects proceed through the CEQA evaluation phase.

Sincerely,

Steve Letterly
Natomas North Precinct Project Manager
Letterly Environmental & Land Planning Management
1278 Glenneyre St. #130
Laguna Beach, CA 92651-3103
sletterly@letterlymgmt.com
Cell 949-422-2860

From: David Lichman [<mailto:dlichman@me.com>]

Sent: Monday, June 20, 2016 6:35 PM

To: Dana Mahaffey

Cc: Barbara Graichen; Nancy

Subject: Re: Response to Notice of Preparation (NOP) for the Panhandle Annexation and Planned Unit Development (City of Sacramento Control Number: P-16-013)

Hi Dana,

Thank you so much for the helpful suggestions. The main points that our neighborhood wants evaluated per this submission are:

- 1) A buffer along the west side of Sorento, to resolve land use compatibility issues with the existing 1-acre lot horse properties and the rural lifestyle on the other side of the street.
- 2) No connecting roads from the Panhandle project into Sorento Road. Our comments from North Natomas Community Association and Valley View Acres Neighbors Working Together have a full discussion of this issue.
- 3) We welcome bicycle, equestrian and pedestrian access, but not motor vehicle except for emergency access.
- 4) No connection to City sewer services, water, lighting, sidewalks etc., as they are not compatible with our rural lifestyle.

We feel that the VVACA letter does not reflect these views, which are supported by 95% of the residents and property owners who signed our petition.

It's important to us that the planners see that Mr. Avdis apologized for representing those views as a consensus. (See Below)

Thanks!!

David Lichman
(916) 205-1092 (cell)

On Jun 20, 2016, at 2:31 PM, Dana Mahaffey <DMahaffey@cityofsacramento.org> wrote:

Hi David,

I'm willing to add your comment since we added Mr. Avdis' a week after the deadline, but I want to make a recommendation. Please clarify your points as it relates to the EIR for the project. I am just thinking it would be clearer to have a more direct letter stating your points on the project's potential impacts directed to staff (me) and not to Mr. Avdis. Does that make sense? Feel free to call me.

Thanks,

Dana Mahaffey
Associate Planner, Environmental Planning Services
Community Development Department
City of Sacramento
300 Richards Blvd. 3rd Floor
Sacramento, CA 95811
(916) 808-2762

From: David Lichman [<mailto:dlichman@me.com>]

Sent: Monday, June 20, 2016 2:09 PM

To: Dana Mahaffey

Cc: Barbara Graichen; Nancy

Subject: Response to Notice of Preparation (NOP) for the Panhandle Annexation and Planned Unit Development (City of Sacramento Control Number: P-16-013)

Hi Dana,

Nick Avdis sent this "amendment" to his letter dated March 21, 2016 which commented on the Panhandle Application on behalf of Valley View Acres Community Association (VVACA). I had several issues with the letter, as I do not believe it represents the views of the vast majority of our neighbors.

The VVACA letter got filed as part of the comments to the NOP, but I would appreciate having this email submitted to the public record as well. It outlines the items the neighbors strongly disagree with, and clarifies that the original letter was created based on the opinion of only the few board members without consulting the community as promised.

Thanks!

David Lichman
(916) 205-1092 (cell)

5000 Tunis Rd.
Sacramento, CA 95835

Begin forwarded message:

d

On Mar 22, 2016, at 4:15 PM, Nick Avdis <navdis@gmail.com> wrote:

Mr. Norman, please see the correspondence below from Mr. Lichman.

The Valley View Acres Association Board of Directors voted unanimously on the language of the letter submitted on behalf of the association. We did so as long time residents and participants in our neighborhood association and did so based on our belief in what is in the best interests of our neighborhood -- our home.

Mr. Lichman is free to submit his own opinions on this project. It is unfortunate this is viewed as an adversarial relationship.

Those of us on the Board of Directors stand by our letter, however, I want you and the City to be aware that there are those that disagree strongly with the position of the Board.

However, please note there are many who disagree strongly with Mr. Lichman, we too are equally entitled to our position and our opinion.

Thank you and my apologies in advance.

Nick Avdis

On Tue, Mar 22, 2016 at 3:51 PM, David Lichman <dlichman@me.com> wrote:

Dear Nick,

Please help me to understand the latest board action. I am confused and deeply disappointed in the letter submitted to the planners. I object that the board made a decision in a closed meeting on Saturday to accept this letter on behalf of the residents/members who were never polled. Especially when a majority of attendees at our March meeting expressed a different opinion.. I further object that the letter implies our neighborhood is in total agreement on this issue.

I *seriously* object to the following phrases in your letter, as you specifically do NOT have a consensus on these issues, a fact even you clearly expressed at the March meeting:

most, if not all of us agree that this is neither realistic nor practical

*we would urge the City and the project applicant to **relocate** the current two roadway connections to Sorento*

***Our general consensus** is that density immediately adjacent Sorento....
be on the lower end of the 3 to 8 units range.*

At the meeting you indicated that you would be personally writing with your thoughts and recommendations, and that everyone is welcome to do that at any time as there was not enough time to gather the opinions of all the neighbors/members. Then at the next meeting we were discuss how the Community Association would comment with a voice representing *everyone's* opinion. You indicated that there was no sense of urgency, and yet you felt it was urgent enough to call a special meeting?

In point of fact, Garrett Norman has already given us an extension for comments - it was his suggestion that we ask for it.

Having the board claim to have a **consensus** without polling the neighborhood is just wrong.

You are an attorney. Surely you must realize that this is an adversarial process. You are giving away the farm with this letter before negotiations have even begun. There is no consensus. It doesn't even represent a majority. A *majority* of neighbors are asking for, at a *minimum*, matching size lots (Rural Estates or Buffer Zone) on the west side of Sorento and no connecting roads. Our petition has over 75 signatures and we have only begun to circulate it.

The residents that our board represents do not want our neighborhood to be connected to the urban areas to the west. This is a 33 year-old position, and after polling more than 60 properties, your neighbors still agree with it. There is certainly no consensus for the opposing view.

Since you have shared Shannon's support letter, I would appreciate it if you would also share this email with the VVACA list. I have not, as yet, expressed this opinion to Garrett Norman or any other city planner. However, since you already told him you have a consensus - I would appreciate it if you would let him know that perhaps you spoke too soon. He will see soon enough when the petition is submitted, and it is better for everyone if you show him the board is trying to be representative of the neighborhood view, rather than acting on its own.

Thank you,
David & Nancy Lichman

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: <http://www.nahc.ca.gov>
Twitter: @CA_NAHC



May 16, 2016

Dana Mahaffey
City of Sacramento
300 Richards Blvd, Third Floor
Sacramento, CA 95811

RE: SCH#2016042074, Panhandle Annexation and Planned Unit Development

Dear Ms. Mahaffey:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit. 14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b))). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1))). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- a. A brief description of the project.
 - b. The lead agency contact information.
 - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
 - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).
2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
- a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).
3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
- a. Alternatives to the project.
 - b. Recommended mitigation measures.
 - c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).
4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
- a. Type of environmental review necessary.
 - b. Significance of the tribal cultural resources.
 - c. Significance of the project's impacts on tribal cultural resources.
 - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).
5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).
6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
- a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
 - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).
7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
- a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).
8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation

monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).
10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
 - a. Avoidance and preservation of the resources in place, including, but not limited to:
 - i. Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i. Protecting the cultural character and integrity of the resource.
 - ii. Protecting the traditional use of the resource.
 - iii. Protecting the confidentiality of the resource.
 - c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
 - e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
 - f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).
11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
 - a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
 - b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

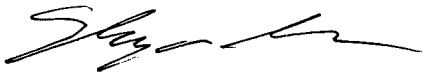
SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
 - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions, please contact me at my email address: sharaya.souza@nahc.ca.gov.

Sincerely,



Sharaya Souza
Staff Services Analyst
cc: State Clearinghouse

Date: June 8, 2016

To: Dana Mahaffey, Assistant Planner, City of Sacramento Community Development Department, Environmental Planning Services, 300 Richards Blvd., Third Floor Sacramento, CA 95811

Subject: EIR Comments Submittal, Panhandle Annexation & Project (P16-013)

Dear Ms. Mahaffey:

I am writing this letter on behalf of the North Natomas Community Coalition (NNCC). We are a community-based group consisting of residents from many HOAs and Community Associations in the North Natomas Area. Our goal is to analyze any new projects in our area and determine how they may or may not benefit our area. Since the Panhandle will have a significant impact on the future of North Natomas, it is our intention to work very closely with the City and the applicant to ensure it will be a benefit for all of North Natomas. The Panhandle is one of few prime locations for move-up and executive-type housing in our community, something North Natomas lacks and desperately wants. While we see many positives with this project, we do wish to provide a few comments for purposes of consideration during the environmental review process:

Traffic and Circulation

Though we support improved connectivity, the EIR should adequately analyze the impacts of new traffic trips generated from the project to existing North Natomas streets and how impacts to existing streets and neighborhoods will be mitigated. We'd like to better understand impacts of the project at buildout, and partial build-out, especially impacts to Club Center Dr. and Del Paso Blvd. We'd also like to better understand the circumstances upon which National Drive will be completed through to Elkhorn Blvd. We are concerned about Sorento being used as a primary access to the ENEC site, it is a rural road that was not designed to accommodate that level of traffic. Related to this, we'd like to understand what traffic calming measures can be incorporated into existing Sorento Road to mitigate speed and volume of traffic concerns from vehicle trips originating from the project. We will note that Elkhorn Blvd. has become a major cross-region thoroughfare that already has significant traffic.

Additionally, we'd like to better understand transit options that will be provided for, including RT and/or the North Natomas TMA. We are very interested in understanding and partnering with the City and the project applicant on ensuring responsible traffic flows into, out of, and around the project area.

Land Use

The EIR should also look at whether providing a community center within the project site would reduce traffic or provide other benefits to the project and surrounding neighborhoods. We feel strongly that a community center needs to be planned in the project, preferably in a central location. Additionally, we'd like to better understand pedestrian and bicycle connectivity internally in the project as well as to surrounding neighborhoods and the Ueda Parkway.

Additionally, we would like the project to consider smaller parks, spread throughout the project that could be amenities for adjacent neighborhoods. Residents prefer smaller, more local neighborhood parks to play in near their homes.

Public Services

We request the EIR look at impacts of the project to facilities financed by the existing North Natomas Finance Plan and if necessary, ensure it provides a fair share contribution to those facilities that will benefit future residents of the project.

The EIR should also look at how to best provide for fire and police services to existing neighborhoods, either by providing emergency vehicle routes and/or an additional facility in the project. Impacts from future plans for the high power lines need to also be carefully assessed.

Schools

The boundaries of the Panhandle Development will be divided among different school districts. Having differing school districts in a community has created issues in North Natomas already with students trying to attend certain schools vs others. Additionally, within the North Natomas portion of the Twin Rivers school district, there are no existing facilities or near-term opportunities for middle and high school student facilities. We are concerned that there is no plan to open a TRUSD high school or middle school at any time in the next 12 years because the East Natomas Education Complex (ENEC) has been mothballed. Given the geographical proximity of the Natomas Unified School District (NUSD), we request the EIR evaluate project alternatives to provide these schools quickly, including moving the project into the NUSD,

Flood Control & Drainage

We request the EIR review the drainage plan considering the existing problem of flooding during storm events at Del Paso and Sorrento Roads. We also request flood evacuation routes be evaluated considering surrounding communities as well.

Again, thank you for the opportunity to comment on this project. As time goes on, I know we will have additional questions. We look forward to working with both the City and the applicant as this application progresses.

Best regards,

Chris Paros

Chris Paros
President, North Natomas Community Coalition



RECLAMATION
DISTRICT 1000

June 13, 2016

Dana Mahaffey
City of Sacramento Community Development Department
Environmental Planning Services
300 Richards Blvd., Third Floor
Sacramento, CA 95811

RE: Proposed Panhandle Development Project Notice of Preparation

Dear Dana;

We recently met with representatives of the City Utilities and Planning Department along with staff from the Sacramento Area Flood Control Agency (SAFCA) to discuss the proposed Panhandle development project adjacent to the Natomas East Main Drain Canal (NEMDC) levee. As the agencies responsible for the future levee improvements at this location as well as the operations and maintenance of the system, both our District and SAFCA recommend specific setbacks from the existing levee and other considerations for future O&M of the improved levee system.

In particular, we recommend any new development be set back a reasonable distance from the toe of the existing levee to allow for anticipated levee improvements necessary to meet the 200-year flood protection required by the State's Urban Levee of Flood Protection and Urban Levee Design Criteria and reasonable levee safety considerations given the Natomas Basin's flood risk. We are developing a conceptual sketch of the anticipated levee improvements for this reach and reasonable levee safety setbacks to recommend a specific setback distance. This area could include public ownership use such as open space, parks or transportation features with restrictions to insure development of this area does not compromise the flood protection provided by the adjacent levee and to allow for potential future flood control improvements should standards change or new flood risks be identified.

In addition, we recommend the existing public roadway on top of the levee (East Levee Road) be relocated to the landside of the levee to allow the crown to be used for levee operations and maintenance activities including emergency flood response if necessary. Again, limited public recreational improvements consistent with flood operations and maintenance could be incorporated into the levee design.

Finally, in addition to the levee issues raised above, the District will require a drainage study for the proposed development to identify impacts on our interior drainage system and develop a

plan to mitigate the impacts to the satisfaction of the District. Also, we have recently adopted a Development Impact Fee that would apply to this development.

We would be glad to meet with you and representatives of the developer to discuss our recommendations and share our concerns in more detail. Thank you for the opportunity to review and provide comments on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Devereux". The signature is fluid and cursive, with a long horizontal stroke at the end.

Paul Devereux

General Manager/District Engineer

cc Pete Ghelfi (SAFCA)



May 27, 2016

Dana Mahaffey
City of Sacramento, Community Development Department
Environmental Planning Services
300 Richards Boulevard, Third Floor
Sacramento, CA 95811-0218
dmahaffey@cityofsacramento.org

Subject: NOP of an EIR for the Panhandle Annexation and Planned Unit Development (P16-013)

Dear Ms. Mahaffey:

Thank you for the opportunity to comment on the scope of the subject EIR. Rationalizing the City's northern boundary makes implementing a continuous bicycle network much simpler. Once this proposal is decided, we hope the City will consider the same idea for the City's southern/southeastern boundary.

For the EIR analysis, the proposed annexation and Planned Unit Development will have a significant adverse impact on bicycling if it "fails to adequately provide for access by bicycle." A failure to provide adequate access for bicyclists will occur if the project does not have these elements:

- An internal bikeway network that is safe, comfortable, and continuous for riders of all ages and abilities (i.e. a low-traffic-stress network as defined in Mekuria et al., 2012), and
- Connections between the internal bikeway network and important destinations in surrounding neighborhoods.

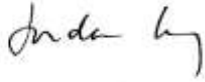
Internal Bikeway Network. We request that the EIR describe all proposed bikeway facilities, their types (e.g. separated pathway, on-street bike lane, shared roadway, or protected bike lane), and the internal destinations to which they connect. Specifically, the EIR should report expected traffic volumes and speeds on streets planned for on-street bike lanes or shared roadways. The low-traffic-stress bikeway network should connect to the school site and to the commercial area in the southern area of the project. The bikeway facilities to these destinations should be suitable for parents riding with children, given the abundance of residences in the surrounding portions of the project area.

External Bikeway Connections. We request that the EIR describe how the internal bikeway network will connect with the City's existing and proposed bikeway facilities in surrounding City neighborhoods. For example, the project bikeway network should connect with safe and comfortable bikeways to the separated bikeways along Natomas Boulevard, the East Drainage Canal, and the East Main Drainage Canal. Connections to the external network should provide biking access to nearby shopping areas, schools, and employment centers.

SABA works to ensure that bicycling is safe, convenient, and desirable for everyday transportation. Bicycling is the healthiest, cleanest, cheapest, quietest, most energy efficient, and least congesting form of transportation.

Thank you for considering our comments.

Sincerely,

A handwritten signature in black ink that reads "Jordan Lang". The signature is written in a cursive, slightly slanted style.

Jordan Lang
Project Analyst

CCs: Paul Philley, SMAQMD (pphilley@airquality.org)
Jennifer Donlon Wyant, Sacramento Active Transportation Program Specialist
(jwyant@cityofsacramento.org)

Citation: Mekuria, Maaza, Peter Furth, and Hilary Nixon. *Low-stress bicycling and network connectivity*. Mineta Transportation Institute, San Jose State University. May 2012. Report 11-19.

Department of
Community Development
Michael J. Penrose,
Acting Director



Divisions
Administrative Services
Building Permits & Inspection
Code Enforcement
County Engineering
Economic Development & Marketing
Planning & Environmental Review

June 13, 2016

Dana Mahaffey
City of Sacramento
Community Development Department
Environmental Planning Services
300 Richards Boulevard, Third Floor
Sacramento, CA 95811

Subject: Comments on Notice of Preparation of a Draft Environmental Impact Report for the Panhandle Annexation and Planned Unit Development

Dear Ms. Mahaffey:

Thank you for the opportunity to review the Notice of Preparation for the Panhandle Annexation and Planned Unit Development Project (Project). Sacramento County's interests in the proposed Project relate to the ongoing County application process for the Natomas North Precinct Master Plan project (County Control Number PLNP2014-00172) which is located on the north side of Elkhorn Boulevard adjacent to the Project. The NOP for the Natomas North Precinct Master Plan is attached for reference.

The Northern Portion of the proposed annexation area would consist of a PUD for a planned community consisting of residential, commercial, elementary school, and park uses on approximately 367 acres north of Del Paso Road. The remaining approximately 168 acres between the proposed PUD project area and extending north to West Elkhorn Boulevard ("Panhandle North") would remain designated as Planned Development (PD) to accommodate residential uses and the East Natomas Education Complex. The land use plan includes the potential for approximately 2,270 residential units in the entire Northern Portion; however, the EIR will consider the potential for those units plus an additional 10 percent to provide flexibility in the future and account for changes in market conditions that could occur over buildout of the project. No land use changes are proposed for the Southern Portion.

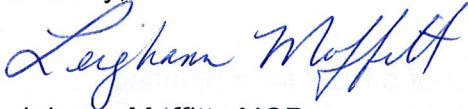
CEQA requires that an EIR discuss cumulative impacts when they are significant and the project's incremental contribution is "cumulatively considerable" (CEQA Guidelines Section 15130(a)). A project's incremental contribution is cumulatively considerable if the incremental effects of the project are significant "when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA Guidelines Section 15065(a)(3)). Given the proximity of the Project to the Natomas North Precinct Master Plan, the transportation analysis for the Project should include the land use and circulation assumptions for the Natomas North Precinct

Master Plan in the cumulative plus project scenario. Below are specific comments on the transportation analysis scope previously provided by Sacramento County Department of Transportation:

- Add the roadway segment, Del Paso Road (Gateway Park Blvd – Black Rock Drive).
- Add Elkhorn Blvd and 16th Street intersection.
- Should the project need a second point of access to Elkhorn Blvd, additional roadway segments and intersections along Elkhorn Blvd. may need to be included in the traffic analysis.
- Mayfield Street is proposed to be a residential street with no bike lanes that traverses east-west across the entire width of the project. An elementary school and a park are proposed on Mayfield Street which will become a destination within the project and beyond. The westerly portion of the Mayfield Street connects to an existing neighborhood with minor street connectivity. Mayfield Street has the potential for a cut through route that may negatively affect the existing neighborhood. The traffic study may want to evaluate and substantiate the impacts at this location.
- The school and park site would be better served with a larger street such as cross section “C” that has bike lanes. Club Center Drive may be more suitable location for the school and park site as it has bike lanes, is a collector roadway, and has a more appropriate connectivity to the existing neighborhood to the west.

Thank you for the opportunity to submit these comments. We look forward to further dialogue on the proposed Project. County staff are available to meet and discuss these comments and our interests should the need arise. Please contact Todd Smith, Principal Planner, at smithtodd@saccounty.net or (916) 874-6918 if you have any questions.

Sincerely,



Leighann Moffitt, AICP
Planning Director



EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA
GOVERNOR'S OFFICE of PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT



KEN ALEX
DIRECTOR

Memorandum

Date: May 24, 2016
To: All Reviewing Agencies
From: Scott Morgan, Director
Re: SCH # 2016042074
Panhandle Annexation and Planned Unit Development

Pursuant to the attached letter, the Lead Agency has *extended* the review period for the above referenced project to **June 13, 2016** to accommodate the review process. All other project information remains the same.

cc: Dana Mahaffey
City of Sacramento
300 Richards Blvd, Third Floor
Sacramento, CA 95811

Resources Agency

- Resources Agency
Nadell Gayou
- Dept. of Boating & Waterways
Denise Peterson
- California Coastal Commission
Elizabeth A. Fuchs
- Colorado River Board
Lisa Johansen
- Dept. of Conservation
Elizabeth Carpenter
- California Energy Commission
Eric Knight
- Cal Fire
Dan Foster
- Central Valley Flood Protection Board
James Herota
- Office of Historic Preservation
Ron Parsons

- Dept of Parks & Recreation
Environmental Stewardship Section
- California Department of Resources, Recycling & Recovery
Sue O'Leary
- S.F. Bay Conservation & Dev't. Comm.
Steve McAdam
- Dept. of Water Resources Agency
Nadell Gayou

Fish and Game

- Dept. of Fish & Wildlife
Scott Flint
Environmental Services Division
- Fish & Wildlife Region 1
Curt Babcock

- Fish & Wildlife Region 1E
Laurie Harnsberger
- Fish & Wildlife Region 2
Jeff Drongenes
- Fish & Wildlife Region 3
Craig Weightman
- Fish & Wildlife Region 4
Julie Vance
- Fish & Wildlife Region 5
Leslie Newton-Reed
Habitat Conservation Program
- Fish & Wildlife Region 6
Tiffany Ellis
Habitat Conservation Program
- Fish & Wildlife Region 6 I/M
Heidi Calvert
Inyo/Mono, Habitat Conservation Program
- Dept. of Fish & Wildlife M
Becky Ota
Marine Region

Other Departments

- Food & Agriculture
Sandra Schubert
Dept. of Food and Agriculture
- Dept. of General Services
Public School Construction
- Dept. of General Services
Cathy Buck/George Carollo
Environmental Services Section
- Delta Stewardship Council
Kevan Samsam
- Housing & Comm. Dev.
CEQA Coordinator
Housing Policy Division
- Independent Commissions, Boards
Delta Protection Commission
Michael Machado

- OES (Office of Emergency Services)
Monique Wilber
- Native American Heritage Comm.
Debbie Treadway
- Public Utilities Commission
Supervisor
- Santa Monica Bay Restoration
Guangyu Wang
- State Lands Commission
Jennifer Deleong
- Tahoe Regional Planning Agency (TRPA)
Cherry Jacques

Cal State Transportation Agency CalSTA

- Caltrans - Division of Aeronautics
Philip Crimmins
- Caltrans - Planning
HQ LD-IGR
Terri Pencovic
- California Highway Patrol
Suzann Ikeuchi
Office of Special Projects

Dept. of Transportation

- Caltrans, District 1
Rex Jackman
- Caltrans, District 2
Marcelino Gonzalez
- Caltrans, District 3
Eric Federicks - South
Susan Zanchi - North
- Caltrans, District 4
Patricia Maurice
- Caltrans, District 5
Larry Newland
- Caltrans, District 6
Michael Navarro
- Caltrans, District 7
Dianna Watson

- Caltrans, District 8
Mark Roberts
- Caltrans, District 9
Gayle Rosander
- Caltrans, District 10
Tom Dumas
- Caltrans, District 11
Jacob Armstrong
- Caltrans, District 12
Maureen El Harake

Cal EPA

- Air Resources Board
Airport & Freight
Cathi Slaminski

- Transportation Projects
Nesamani Kalandyur
- Industrial/Energy Projects
Mike Tollstrup

- State Water Resources Control Board
Regional Programs Unit
Division of Financial Assistance

- State Water Resources Control Board
Cindy Forbes - Asst Deputy
Division of Drinking Water

- State Water Resources Control Board
Div. Drinking Water # _____

- State Water Resources Control Board
Student Intern, 401 Water Quality Certification Unit
Division of Water Quality

- State Water Resources Control Board
Phil Crader
Division of Water Rights

- Dept. of Toxic Substances Control
CEQA Tracking Center

- Department of Pesticide Regulation
CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- RWQCB 1
Cathleen Hudson
North Coast Region (1)
- RWQCB 2
Environmental Document Coordinator
San Francisco Bay Region (2)
- RWQCB 3
Central Coast Region (3)
- RWQCB 4
Teresa Rodgers
Los Angeles Region (4)
- RWQCB 5S
Central Valley Region (5)
- RWQCB 5F
Central Valley Region (5)
Fresno Branch Office
- RWQCB 5R
Central Valley Region (5)
Redding Branch Office
- RWQCB 6
Lahontan Region (6)
- RWQCB 6V
Lahontan Region (6)
Victorville Branch Office
- RWQCB 7
Colorado River Basin Region (7)
- RWQCB 8
Santa Ana Region (8)
- RWQCB 9
San Diego Region (9)
- Other _____



June 14, 2016

Dana Mahaffey
City of Sacramento
300 Richards Blvd, Third Floor
Sacramento, CA 95811

Subject: Notice of Preparation (NOP), Panhandle Annexation and Planned Unit Development Environmental Impact Report

Dear Ms. Mahaffey,

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the NOP, Panhandle Annexation and Planned Unit Development Environmental Impact Report (EIR). SMUD is the primary energy provider for Sacramento County and the proposed project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed project limits the potential for significant environmental effects on SMUD facilities, employees, and customers.

It is our desire that the NOP, Panhandle Annexation and Planned Unit Development will acknowledge any project impacts related to the following:

- Overhead and or underground transmission and distribution line easements. Please view the following links on smud.org for more information regarding transmission encroachment:
 1. <https://www.smud.org/assets/documents/pdf/Guide-for-transimsson-encroachment.pdf>
 2. <https://www.smud.org/en/business/customer-service/support-and-services/design-construction-services.htm>
 3. <https://www.smud.org/en/do-business-with-smud/real-estate-services/transmission-right-of-way.htm>
- Utility line routing
- Electrical load needs/requirements
- Energy Efficiency

Based on our review of the Initial Study and our understanding of the proposed project, SMUD offers the following input:

1. Project Description: SMUD would like to be informed of any anticipated project related impacts on existing or future SMUD facilities. It is important that information regarding potential impacts to SMUD facilities in the vicinity of the proposed project be contained in the project description chapter of the EIR, as well as the existing conditions discussion of the utilities, hazards and hazardous materials, and cumulative impact sections.

2. Project Schedule: SMUD would like to see a discussion of the project schedule. Specifically, SMUD needs to be able to provide effective service to the proposed project throughout development and operation.

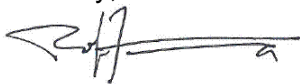
3. Energy Delivery (Capacity): Please continue to coordinate with SMUD staff regarding the proposed energy delivery assumptions associated with the proposed project site. The EIR should provide analysis regarding SMUD's ability to handle the project's anticipated energy needs. SMUD is looking forward to partnering with the City to ensure that the project is designed in an energy efficient and sustainable way.

4. Energy Delivery (Infrastructure): The EIR should provide an analysis of the proposed on-site and off-site energy infrastructure improvements needed to construct and operate the proposed project. The EIR should clearly delineate the responsibilities of SMUD and the City of Sacramento, as it pertains to infrastructure improvements.

SMUD would like to be kept apprised of the planning, development, and completion of the Panhandle Annexation and Planned Unit Development. We aim to be partners in the efficient and sustainable delivery of the proposed project. Please ensure that the information included in this response is conveyed to the project planners and the appropriate project proponents. Please see in the attached a memo describing project level detail that will be of great use to the applicant.

Environmental leadership is a core value of SMUD and we look forward to collaborating with you on this project. Again, we appreciate the opportunity to provide input on this NOP. If you have any questions regarding this letter, please contact Rob Ferrera, SMUD Environmental Specialist at (916) 732-6676.

Sincerely,



Rob Ferrera
Environmental Specialist
Environmental Management
Workforce and Enterprise Services
Sacramento Municipal Utility District

Cc: Jose Bodipo-Memba
Rob Ferrera
Pat Durham
Joseph Schofield
Wenjie Chen

SMUD[®] PROJECT REVIEW COMMENTS

PROJECT TITLE: Panhandle Annexation and Planned Unit Development

PROJECT LOCATION: Sacramento

DRAWING STATUS: Notice of Preparation of EIR

PROJECT OWNER: City of Sacramento

LOCAL JURISDICTION: City of Sacramento

SMUD REVIEW DEPARTMENT: Transmission Line Engineering

SMUD REVIEW BY: Wenjie Chen

SMUD REVIEW DATE: 5/20/2016

These comments are not an acceptance of the proposed development, but serve as a listing of requirements that need to be responded to in writing by the project owner. Approval of proposed development is by executed agreement only.

1. SMUD has 230 and 115kV overhead transmission lines and structures located in the proposed project area. Please see the approximate locations of transmission lines and structures shown in the area outlined in red on the map shown on page two.
2. Project owner shall provide detailed engineering drawings for any improvements that are proposed within the SMUD transmission line easement. SMUD engineering will review the plans and provide comments as required.
3. Under no circumstance shall any grading or construction activities be permitted within SMUD's transmission line easements without the conveyance of rights from SMUD's real estate department. Should applicant be found performing unapproved improvements, the applicant will be responsible for returning the property to its original condition at their expense.
4. SMUD reserves the right to construct new or move existing facilities as necessary within its legal easement. Any developments installed by owner or assignees within this easement may need to be removed or modified as a result of the new or existing installed facilities.
5. SMUD reserves the right to use any portion of its easement and shall not be responsible for any damages to the developed property within said easement.



Approximate
Locations of SMUD
Overhead
Transmission Lines

6. Project Owner or contractor is responsible for assessing any impacts (including but not limited to induced voltage and current effects) to its facilities as a result of constructing and operating their facilities within close proximity to SMUD's high voltage transmission lines.
7. Project Owner or contractor is responsible for ensuring that any subcontractor performing work in the subject right of way is aware and abides by these conditions.
8. Any proposed SMUD transmission facilities modifications/relocations by the project owner shall be performed under an executed cost recovery agreement. Project owner shall provide 18 months' timeframe to allow for design and construction of identified facilities.
9. There shall be no storage of fuel or combustibles and no fueling of vehicles within the SMUD easement.
10. There shall be no long term staging or storage of construction materials within the SMUD easement, such materials shall be removed from the easement at the completion of the project.
11. All boom-operated construction equipment within SMUD's easement corridor shall be equipped with a mechanical lock-out device to prevent the boom from extending above the Cal-OSHA required clearance distance to SMUD's energized high voltage lines and fiber optic communication lines.
12. Add the following note to drawings:
WARNING – SMUD OVERHEAD TRANSMISSION LINES ARE LIVE – Electrocutation Potential. Project owner or Contractor shall take all appropriate safety measures when working near or under lines, including placement of OSHA-required warning signage. On-site SMUD inspection required when working within 25 feet of SMUD facilities. Contractor shall contact SMUD's Ricky Plaza at (916) 732-5905 or (916) 799-5733 to schedule inspection. 72-hour advance notice is required. Project owner or Contractor shall protect SMUD facilities during construction and notify SMUD immediately if facilities are damaged. Any damage to existing facilities shall be repaired at the project owner or contractor's expense.
13. Any deviations or revisions to the plans as submitted shall be brought to the attention of SMUD's Real Estate department.

For additional information please visit our website and review our Guide for Transmission Encroachment

<https://www.smud.org/assets/documents/pdf/Guide-for-Transimssion-Encroachment.pdf>



Community Development
Department

MAY 19 2016

RECEIVED

May 3, 2016

Dana Mahaffey
City of Sacramento Community Development Department
Environmental Planning Services
300 Richards Blvd., Third Floor
Sacramento, CA 95811

Subject: Notice of Preparation of an Environmental Impact Report and Scoping Meeting for the Panhandle Annexation and Planned Unit Development

Dear Ms. Mahaffey:

Sacramento Regional County Sanitation District (Regional San) and the Sacramento Area Sewer District (SASD) have the following comments regarding the Notice of Preparation for the DEIR for the Panhandle project:

SASD will provide local sewer service for the proposed project area. Regional San provides conveyance from local trunk sewers to the Sacramento Regional Wastewater Treatment Plant (SRWTP) through large pipelines called interceptors.

The Regional San Board of Directors adopted the Interceptor Sequencing Study (ISS) in February 2013. The ISS updated the SRCSD Master Plan 2000 is located on the Regional San website at <http://www.regionalsan.com/ISS>. The SASD Board of Directors approved the most current SASD planning document, the 2010 System Capacity Plan Update (SCP) in January 2012. The SCP is on the SASD website at <http://www.sacsewer.com/devres-standards.html>.

Regional San and SASD are not land-use authorities. Regional San and SASD designs their sewer systems using predicted wastewater flows that are dependent on land use information provided by each land use authority. Regional San and SASD base the projects identified within their planning documents on growth projections provided by these land-use authorities. Onsite and offsite environmental impacts associated with extending sewer services to this development should be contemplated in this Environmental Impact Report.

The proposed project lies within the SASD NN Natomas Trunk shed. Project proponents should work closely with SASD and Regional San Development Services to ensure proper connection to any existing SASD or Regional San facilities.

The developer must complete a Sewer study that includes connection points and phasing information to assess the capacity of the existing sewer system to accommodate additional flows generated by this project.

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

Main Office

10060 Goethe Road
Sacramento, CA 95827-3553
Tel: 916.876.6000
Fax: 916.876.6160

Treatment Plant

8521 Laguna Station Road
Elk Grove, CA 95758-9550
Tel: 916.875.9000
Fax: 916.875.9068

Board of Directors

Representing:

County of Sacramento
County of Yolo
City of Citrus Heights
City of Elk Grove
City of Folsom
City of Rancho Cordova
City of Sacramento
City of West Sacramento

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

www.srcsd.com

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.

The Central Valley Regional Water Quality Control Board (CVRWQCB) issued a NPDES Discharge Permit to Regional San in December 2010, requiring Regional San to meet more restrictive discharge requirements. These requirements involve constructing new treatment facilities at the Sacramento Regional Wastewater Treatment Plant in Elk Grove. Regional San must meet new ammonia and nitrate requirements outlined in the permit by May 2021, and new pathogen requirements by May 2023. The Regional San NPDES Discharge Permit was adopted on April 21, 2016.

Regional San currently owns and operates a 5-mgd Water Reclamation (WRF) that has been producing Title 22 tertiary recycled since 2003. The WRF is located within the SRWTP property in Elk Grove. Regional San uses a portion of the recycled water at the SRWTP and the rest is wholesaled to the Sacramento County Water Agency (SCWA). SCWA retails the recycled water, primarily for landscape irrigation use, to select customers in the City of Elk Grove. Regional San currently does not have any planned facilities that could provide recycled water to the proposed project or its vicinity. Additionally, Regional San is not a water purveyor and any potential use of recycled water in the project area must be coordinated between the key stakeholders, e.g. land use jurisdictions, water purveyors, users, and the recycled water producers.

If you have any questions regarding these comments, please contact me at 916-876-9994

Sincerely,

Sarena Moore

Sarena Moore
Regional San/SASD
Policy and Planning

Cc: Regional San Development Services, SASD Development Services, Michael Meyer, Dave Ocnosak,
Christoph Dobson

Valley View Acres Community Association

March 21, 2016

Garrett Norman
Assistant Planner
City of Sacramento - Community Development Department
300 Richards Boulevard, 3rd Floor
Sacramento, California 95811
Email: gnorman@cityofsacramento.org

Re: Panhandle Annexation – Initial Project Application Comments

Dear Mr. Norman:

We appreciate the opportunity to provide comment on this project. As you are aware, development adjacent to Valley View Acres has had a long and tormented history. While we are cautiously optimistic that we can work with the City and the Panhandle property owners towards a plan that works for everyone, our primary concern continues to be the potential negative impacts to our neighborhood character and our rural lifestyle.

First off, there are many improvements to the proposed plan over past plans. Primarily, the reduction in overall density (from 3000 units in 2007 to 1600 units today). The increase in the amount of low density residential immediately adjacent to our community and the elimination of the low income apartments are two design features that are very welcomed and supported. That being said, there are several areas of serious concern.

For many years, Valley View Acres residents fought long and hard to eliminate through traffic on Sorento Road and through our internal streets. In the late 1990s, our community was successful in erecting a gate on East Levee Road at Elkhorn Blvd. to prevent cut through traffic that significantly impacted our neighborhood. If our community could have its way, no development would be proposed east of the high power line corridor that bifurcates the Panhandle project. However, most, if not all of us, realize this is neither realistic nor practical. We believe that integrating our

neighborhood into the rest of North Natomas, rather than further isolating us, should be done carefully and responsibly.

Given that some development will occur in the area west of Sorento and east of the high power line corridor, it is our general feeling that this must be done in such a manner that respects our community and minimizes the potential negative impacts to the maximum degree possible. These concerns include increases in crime, loitering, illegal trash dumping, and traffic impacts and nuisance complaints from future residents about our agricultural activities.

Specific areas of concern that must be the topic of further discussion include:

- (1) In terms of the proposed roadway connections to Sorento, this is of great concern. In terms of significance, it has the most potential to negatively impact our neighborhood. We'd like to better understand the potential traffic impacts of the current proposal to our neighborhood streets. We'd also like to better understand what traffic circulation features in the Panhandle project will be or can be incorporated to minimize the speed and volume of traffic on our neighborhood streets. That being said, we would urge the City and the project applicant to relocate the current two roadway connections to Sorento so that they do not connect to Sorento in front of existing residences.
- (2) With regards to any improvements to Sorento, it is our strong preference to maintain Sorento as a rural roadway, i.e., no street lights, curb, gutter sidewalk, etc.
- (3) Related to traffic, we'd like to better understand what the Twin Rivers Unified School District is planning to do with the East Natomas Educational Complex that's located in the middle of the Panhandle. TRUSD is part of the applicant group. We are very concerned that the ENEC site will use Sorento as an access point. We are adamantly opposed to any such use of Sorento.
- (4) With regards to land uses, in the portion of the Panhandle immediately adjacent to Sorento, the land use plan provides a range of densities, namely 3-8 units to the acres. That is a wide range. Our general

consensus is that density immediately adjacent Sorento, especially in the middle and southern portions of our neighborhood, where there are residences currently, the density range be on the lower end of the 3 to 8 units to the acre range. We'd also like a better understanding of how the City and the project foresee the lot layouts immediately adjacent to Sorento.

- (5) Given the rural nature and character of our neighborhood, we expect that any development in the Panhandle will include adequate legal disclosures, and even a deed restrictions on every property, that requires acknowledgment by future Panhandle residents that properties in Valley View Acres have an absolute right to continue our agricultural activities. We are very concerned and want protection against any possible future nuisance complaints from future Panhandle residents. We want legally adequate protections against any such claims or complaints.
- (6) Additionally, we could support running City utilities up Sorento that are adequately sized to accommodate the possible future needs of our neighborhood. While we strongly oppose being forced off of our well and septic systems, prudent planning dictates that at some point in the indeterminate future, we may be required to abandon our septic systems. As such, it would appear best to plan ahead and minimize costs to homeowners in our neighborhood should that day ever come. That being said, we want to make it abundantly clear that we are fiercely opposed to any scenario in which our neighborhood would be required to abandon our ground water wells.
- (7) We would also like to see some sort of recreational path/trail or other feature along Sorento to accommodate pedestrians, horseback riders and bicyclists. Increasing the connectivity to recreational activities along East Levee Road would be an added amenity to our neighborhood as well as future residents of the Panhandle.
- (8) Lastly, despite the recent drought, in past years our neighborhood has experienced significant drainage issues. This particularly the case with the culvert located at the northeast corner of Sorento and Del Paso. As such, we are particularly interested in what drainage improvements

will be proposed as part of the project and how such drainage improvements can enhance the drainage of our neighborhood.

We are cautiously optimistic that we can work with both the City and the property owners advancing the current entitlement application to develop an ultimate plan that works for everyone. Again, we appreciate the opportunity to comment on this item and look forward to discussing this project further as it makes its way through the City application process.

Sincerely,



Nick S. Avdis, President

(navdis@gmail.com)

cc. Councilmember Angelique Ashby
VVA e-mail list

From: [Kathryn Gillespie](mailto:Kathryn.Gillespie@cityofsacramento.org)
To: NNatomas@aol.com
Cc: auntielibby@macnexus.org; chrisp552@gmail.com; mdfling@gmail.com; hbrickner@golyon.com; lynnlenzi1@yahoo.com; [Ryan DeVore](mailto:Ryan.DeVore@cityofsacramento.org); [Angelique Ashby](mailto:Angelique.Ashby@cityofsacramento.org); [Aelita Milatz](mailto:Aelita.Milatz@cityofsacramento.org); jwaw@cityofsacramento.org; [Lindsey Alagozian](mailto:Lindsey.Alagozian@cityofsacramento.org); david@davidlichman.com; [Hector Barron](mailto:Hector.Barron@cityofsacramento.org); sbattimarco@robla.k12.ca.us; [D1](mailto:D1@cityofsacramento.org); mpettis@ulink.net; [Samar Hajeer](mailto:Samar.Hajeer@cityofsacramento.org); [Dana Mahaffey](mailto:Dana.Mahaffey@cityofsacramento.org); [Kevin Greene](mailto:Kevin.Greene@cityofsacramento.org); nlichman@aol.com; brian@holloway.com
Subject: Re: Last night - Accident on Sorento
Date: Sunday, May 29, 2016 9:18:33 PM

Dear Barbara:

Thank you for bringing this important information to our attention. It will be considered by the Community Development Department as we proceed with our review and comment on the proposed annexation. I am relieved you and your neighbors weren't injured last night.

Kate Gillespie, AICP
Planning Director
Community Development Department
City of Sacramento
916.808.2691 Desk
916.531.2275 Cell

Sent from my Verizon phone.

On May 29, 2016 8:53 PM, NNatomas@aol.com wrote:

Dear Angelique and all,

Last night, someone ran a car into a power pole across the street (5020 Sorento) from my house. There were two long bangs and two power interruptions in our area. SMUD was busy last night and this morning. Six weeks ago, a speeding youth ran into the other power pole in front of my property knocking it down. The driver was observed being picked up by a friend and fled the scene. About 400 houses were without power for several hours. Fortunately, I have candles. SMUD worked through the night to replace the pole.

Both of these accidents occurred since the City sent the Panhandle project to us on February 11.

The City spent \$50,000 to get people off the dangerous East Levee and Sorento Roads in 2004 as part of a Traffic Calming Process.

When we talk about accidents, death and injuries, we are not kidding. These two accidents occurred because kids party on the hill near the school site, get drunk and race on our road.

The Panhandle project proposes three access roads to Sorento and thus the East Levee Road. Each of these roads facilitates through traffic from Elkhorn and Del Paso Road via National and another north-south route. Numerous teenagers will leave the high school and find their way here to speed on the narrow shoulder less levee road which is considered great fun, and Sorento and Carey.

Before our road network was closed to through traffic, accidents occurred at least weekly; some were fatal. One person was airlifted from in front of my next door neighbor's house; another taken away by ambulance from mine. Someone died at the north curve. People regularly drove into my neighbor, Bob's yard north of Barros. A number of people drove off the East Levee Road into neighbors' yards along Tunis or worst into high waters. When we talk about the danger of reopening our roads to substantial traffic, we are not exaggerating.

I need to remind you that this is the first time any Panhandle applicant has proposed access to Sorento from national. At the scoping meeting on May 9, the applicant's engineer told me they could eliminate

the south access to Sorento; and apparently told my neighbor they could eliminate the other accesses. We have not seen anything in writing to verify such actions. We welcome the opportunity to resolve this issue with the applicant.

However, we need your help to ensure a safe neighborhood with calmed traffic pursuant to City policy and human compassion. Please work to remove these road accesses to Sorento. Please call me if you have any questions. Dana and Garrett, could you please add this correspondence to the project file.

Thank you.

Barbara Graichen
Valley View Neighbors Working Together
718-0877; 991-2177

PS We are not suggesting that the Panhandle proposal includes opening the gate at the East Levee Road and Elkhorn. There is apparently some confusion about that.

Mr. Garrett Norman
City of Sacramento
Community Development Department
300 Richards Boulevard
Sacramento, California 95811

Subject: Panhandle Annexation, General Plan Amendment, Pre-Zoning, Tentative Master Parcel Map, Planned Unit Development Guidelines and Schematic Plan, and Development Agreement - Control Number: P-16-013

Initial Comments and Initial Response to Notice of Preparation.

April 30, 2016

Dear Staff and Officials,

Thank you for the opportunity to comment on this Panhandle project. Our first comment letter for a Panhandle project was dated August 5, 1988 when its chief author was Assistant Executive Officer of the Sacramento Local Agency Formation Commission and a senior manager in the Sacramento County Executive's Office.

Much of the history of this site has been lost over the years. I suspect most of planning staff, for example, would not remember that this area lost substantive **open space** in 1997 when the owners of the properties to the west deleted a planned golf course, and other public space which extended onto the Panhandle site from the North Natomas Community Plan. We objected to the loss of that **amenity** in the eastern part of North Natomas, especially the area closest to us. There were no residents in the new areas of North Natomas to help us stop the losses. When I tell Natomas Park people about the missing golf course, they are disappointed.

We objected to the later loss of most of the eastern **transmission line and rural estates buffer/nuisance mitigation** (originally over 100 acres as shown on the 1994 Community Plan and the current Sacramento Council of Government's Blueprint Map) during the moratorium (our neighborhood had no idea this happened). This buffer was previously approved by City Council to provide adequate space to hide or soften the look and health and safety effects of radiation generating transmission lines, **to avoid related blight and the crime that generally follows it, to avoid neighborhood incompatibility** issues between existing and planned horse properties to the east of Sorento Road, and to offset some loss of habitat.

The **vision** included greenways, with visual relief for the transmission towers provided by lush plantings¹ near and along the towers, and wildlife corridors connecting to Steelhead Creek, the Ueda Parkway, the Dry Creek Greenway, and agricultural lands in the Pacific flyway north of the

¹See attached photo of back yard of house in upscale Michigan neighborhood; trees and foliage visually blocks the lines from those living there. The yard is gorgeous.

project site.

In this vision, **north/south and east-west bike, pedestrian and equestrian trails (north-south only)** were placed away from the towers, and **connected to the Ueda Parkway and a Sacramento/Sutter bicycle loop trail** which was proposed along the landward toes of the Natomas levee system, providing more than 70 miles of bicycling pleasure and a campsite along Pleasant Grove Creek, plus a safe off road travel route.

During the City-formed 2005 Panhandle Working Group process, a local farmer testified he could profitably operate an **organic farm** in that 100-acre City approved buffer area, a somewhat novel idea at the time, but now, a cornerstone idea in the Farm-to-Fork and urban farm movements. The latter proposal, by itself, would (and could still) have **solved the nuisance and maintenance problems /costs** for the areas in and near the transmission line easements.

The placement of bike trails between the towers was not desired for **health and safety and aesthetic** purposes. Why would bicyclists be planned to bike five miles from the American River Parkway to Elkhorn Boulevard under ugly, radiating lines, which crackle loudly during damp weather, when other alternatives are available? Certainly, in south Natomas (Ninos Parkway), bike trails followed development so other options weren't available. In the Panhandle, however, there are 600 +/- acres of land with no entitlements except agriculture since it is located in the County. There are numerous **better cycling options**.

The **Bikeway Master Plan is being updated**. Certainly, better options (see footnote 2) for the Panhandle and North Natomas can be incorporated into that Plan as the North Natomas Community Association has already suggested to City Bikeway Plan consultants. Currently, it is extremely dangerous to ride on Del Paso Road. We need at least one off road east-west connector to the Ueda Parkway. There are millions to be made on this development. The developers have already received a gift of more than 100 acres of our open space. We want something in return. It is only fair.

Certainly the City-approved open space buffer and these types of ideas², supported a **high quality livable neighborhood oriented environment which attracts home owners and**

²See attached Community Preferred Alternatives which was supported by North Natomas Alliance, Natomas Community Association, Environmental Council of Sacramento, Valley View Acres Community Association, etc. in 2005-06. Although densities were higher than we actually desired, they were consistent with the NNCP density in place at that time and low income housing requirements in place at that time including provision of 15% low income housing. Notice that uses are buffered, detention basins serve a dual purpose of buffering seniors and others from nuisance impacts, and commercial areas are small, centered in the residential areas, neighborhood-oriented with residential above the small shops. Trails are everywhere with connections to Ueda Parkway, Elkhorn buffer, and all higher density areas where higher trip volume could be anticipated. We envisioned inclusion of an upscale neighborhood as well.

creates stable neighborhoods thus lowering the potential for crime, and complements the rest of North Natomas. Stability, home ownership, and remediation of homeless issues and nuisances may be expected to reduce crime stemming from blighted/unattractive neighborhoods.

The proposed project creates rather than remediates problems. **Project design includes multiple nuisance features and inadequately mitigates the potential effects of existing potential nuisances (transmission lines and City approved horse and livestock properties).** We oppose the approval of a plan which we believe will cause blight, foster neighborhood nuisance and instability and cause increases in crime.

It doesn't matter much if densities are lowered but the neighborhood is so unattractive and nuisance ridden that it deteriorates into a rundown rental community as has happened near other inadequately mitigated transmission line corridors. These issues will be explained in more detail later.

We object to the **continuing degradation of planned potential** for this site, the last major east North Natomas development opportunity. **We do not want to replicate the blight and crime provoking characteristics that have caused so much misery in Gardenland and Northgate.** The City has **expended a lot of money trying to fix the crime, poverty, rental issues, traffic issues and other problems** plaguing those under protected neighborhoods. They are **neighborhoods with the same levee and transmission features as the Panhandle/Valley View area.**

Gardenland was just like Valley View at one time. Some of our neighbors grew up there. Poor planning, and unaddressed traffic intrusion issues, caused it to change greatly. They deserve better and so do we.

The project proponents don't seem to view this area favorably. They seem to see it as potentially lower class. A glaring example of this is their name for **Steelhead Creek.** North Natomas residents don't like having water features that are called canals. Living near a canal is not a selling point; living near a creek is.

The unfortunate canals monikers were set in place between 1911 and 1915 by engineers who were altering Natomas creeks and streams and only had flood control on their minds. In the late 1990s, we decided that the Natomas East Main Drain Canal was an unfortunate name for a **community amenity** (visit the area and SAFCA's wildlife ponds and you'll see what I mean.). With this author working as pro bono consultant for Sacramento County, the County, with City, SAFCA and numerous community groups supporting, petitioned the state and the federal government asking for renaming to Steelhead Creek. It was approved. The new name, which reflected the existence of Steelhead in the waterway, is proudly displayed at SAFCA's pump station on the E. Levee Road.

The Panhandle project proponents don't get it. They still use the old canal name and treat us like we are a canal area!! However, Natomas Precinct proponents who are arguing a more upscale if ill located plan, use the name Steelhead Creek (see NOP for that project). The proponents need to realize that this site is the eastern end of a community that sees itself as lovely, vibrant and livable. We don't want to be viewed as lower class, or named as such. The point may seem small but the bad attitude is reflected in the park, road plan, shopping plan, school, open space, drainage and nuisance mitigation plans. Natomas deserves better!

This author would like to diverge for a moment from specific project comments and focus on perception as opposed to reality issues. Sometimes, people, at first blush, see Valley View as a separate entity from the Panhandle and less important to greater North Natomas. They may, at first, conclude that those who fight for 600 acres of high quality neighborhoods in these parts **only** have their interests at stake. This is not the case.

This letter's principal author, Mrs. Barbara Graichen, has been working on North Natomas and city wide issues since 1980. She sat at the table when all of Natomas Park and north to Elkhorn, was proposed and approved for development, long before our western neighbors were here to defend themselves. She and her neighbors are committed to many local, state and federal endeavors and projects, and a number have served on Natomas Boards such as the Natomas Community Association.

Mrs. Graichen was a two-term member of the City's Parks and Recreation Commission (committee), a founding member of the Natomas Chamber of Commerce, founding principal of a local private school, a four term Board member (2 in 90s, 2 in 2000s) of the Natomas Community Association including president and vice president positions, a raptor rescue and rehabilitation volunteer for the Wildlife Care Association, a multi-year volunteer for the South Natomas library, former coordinator of the Steelhead and Roble Creek week clean-ups, two decade president of the Valley View Acres Community Association, a board member of the Environmental Council of Sacramento, a board member of Stanford Settlement, a member of the first Natomas Coalition effort, and president of the currently recharging North Natomas Community Association.

The Mayor and City Council voted to formally recognize Mrs. Graichen for her many contributions to parks, open space and recreation including establishment of the Ueda Parkway and the official (federal) renaming of the East Main Drain Canal to Steelhead Creek (the latter as pro bono consultant to Sacramento County). In 2007, the Mayor and City Council formally recognized her husband, Gerald, for his many outstanding contributions to the community. **The author is continuing to raise important issues for the good of the entire community on behalf of existing and future residents who have or will contribute to the larger community!**

We will now turn to specific issues:

Traffic and Circulation and Related Health, Safety, Crime and Blight Issues.

When one looks at the colored PUD Schematic Plan and NOP attachment, one sees roads, roads, and more roads. The Panhandle is 1/4 mile wide. If one looks at the unscaled project vicinity map, one can begin to see that this width is less than half the distance from the western edge of the Panhandle to Natomas Boulevard. **There are no north/south through roads between the western edge of the Panhandle and Natomas Boulevard.**

This project proposes three north south roads in the same distance:

- an extension of National Drive which is curved to be closer to the rural neighborhood which needs no new streets and exacerbates nuisance impacts upon it.
- Street A which appears to end at the high school until one looks closer and sees the arrow pointing north to its extension to Elkhorn Boulevard.
- and the reopened Sorento Road which is extended to Elkhorn by SAFCA/ACOE's current proposal to build a minimum 20 foot wide road at the landward toe of the levee.

At the north end of Sorento Road, there are only a few hundred feet separating the 3 roads! Why is eastern North Natomas being subjected to so much unnecessary intrusion from roads? Too many roads in neighborhoods will translate into nuisance and blight. We only need National Drive and it should be built with a landscaped median and buffers on each side like the rest of North Natomas.

THIS PLAN IS A RECIPE FOR BLIGHT, DETERIORATED NEIGHBORHOODS, CRIME AND LOW PROPERTY VALUES.

WHEN ONE ENTERS THE COMMUNITY, ONE WILL SEE TRANSMISSION LINES AS ITS MAJOR FEATURE. The driver is taken on a road trip along power lines. Two of the proposed roads are adjacent to the power lines with no setback. Four of the proposed parks, the High School, Intermediate School and Elementary school, and a large (almost 1/3 mile long) unnecessary shopping attraction, are proposed adjacent to, or partly under, power lines. Schools and power lines don't mix well. Why are all of the schools by power lines. There are health and safety impacts stemming from this. When people consider moving here and visit schools, they will not be attracted to schools with huge power lines next to them, blight in the making.

The only north south bikeway is proposed under the power lines. More than a mile of single family homes abut the power lines. Those homes are likely to evolve into rentals or nuisance properties as has been the case in almost every other location where houses are placed adjacent to power lines without buffering and proper setbacks.

The current residents of North Natomas are proud of their neighborhoods. They want to see the

Panhandle area as an amenity to existing neighborhoods, perhaps even an upscaled addition. This project appears to be adding a **potentially blighted area with low property values** and potentially higher crime rates, into the mix. In the 1985 and 1994 North Natomas Community Plans, City Council prudently provided an open space buffer area in which potential nuisance impacts could be reduced by distance, landscaping and other amenities for roads and power lines.

When **Truxel/Natomas Boulevard was extended to Elkhorn Boulevard, it was downsized** to ensure that it didn't induce growth on the Natomas Precinct site to the north, and to ensure that any future projects to the north did not dump thousands of cars per day into North Natomas via Natomas Blvd. (The project file for the Truxel Road Extension and associated planning, engineering and environmental documents, and comment letters, including additional staff work and analysis contained in the Valley View Acres Traffic Calming approval by City Council which closed Sorento Road to through traffic, are hereby incorporated by reference into these comments.)

This project proposes what appears to be at least six lanes of access to Natomas Precinct, the exact opposite of previous Council approvals. This situation will cause the Panhandle to carry more cut through traffic than any other areas of North Natomas. This is an area not located near the Town Center or Light Rail lines or planned to be a traffic attractor. High volume traffic/road areas are supposed to be limited to the Town Center and light rail areas. More traffic, more noise, higher concentrations of carbon monoxide translates into greater potential for urban blight and undermines air quality plans and mitigation for North Natomas development.

Finally, where will the extra traffic from the north go after it reaches Del Paso Road?? There are no freeway entrances. Will our North Natomas neighbors to the west find all this additional traffic dumped into their portion of Del Paso, and the intersection of Natomas Blvd. and Del Paso Road?

This proposal is also inconsistent with the traffic policies of the City's General Plan, and the **Sacramento Council of Government's MTP/SCS with Blueprint Reference and Transit Priorities Map and policies. In fact, "under this MTP/SCS Map (horizon year 2036) no growth is anticipated to occur (Hargrove, 4/4/16)."**

The **Habitat Conservation Plan** discourages projects that induce growth on areas not identified as growth in that Plan. This proposal will induce growth to the north and produce more traffic impacts than are necessary for a low density residential community. There can't be access to the east because of the levee and public lands, none to the south because of existing industrial areas.

Why is the road network proposed to be so overbuilt? Future residents will be required to pay for this over construction through increased fees and **unnecessarily inflated financing plan costs.**

Before going any further, we need to state without equivocation, that **THIS NEIGHBORHOOD**

OPPOSES THE REOPENING OF SORENTO ROAD AND OTHER VALLEY VIEW ACRES STREETS TO SUBSTANTIAL TRAFFIC. We oppose a plan to essentially empty streets into people's front yards. By that, we mean that two streets proposed to access Sorento Road, (Mayfield and street D) end in front of existing residences. They point hundreds of cars and headlights at these peoples' front yards and living rooms, plus noise, litter and potential crime. Street A easily connects the high school site to Sorento; Mayfield connects the elementary school and high school to Sorento. Twin Rivers wants its own access to Sorento.

This is unacceptable and has never been done in North Natomas. Why here? So far, **almost 190 Valley View Acres residents representing 95% of the community, have signed a petition requesting that no roads from the new development be dumped into our neighborhoods, and that a buffer be provided to protect our neighborhood from future nuisance complaints.** We deserve better!

If criminals, or teenagers leaving late night high school events stop at a stop sign or light and sit looking at a house or yard, they will get ideas. Crimes will happen. Last week, an officer came to a neighborhood meeting and told us our crime rate was lower than the rest of North Natomas because we are isolated. We welcome our new neighbors, but, just like our North Natomas neighbors to the west, we don't want unnecessary traffic from urban development to blight our individual neighborhoods. **Elsewhere in North Natomas, streets are ended or cul-de-sacs placed on ends to deter strangers from casing our neighborhoods or speeding.**

The new streets are meant to serve the new neighborhoods, not us. Please leave us out of the mix. Our excellent first response emergency and police services come from the south not the west.

The rest of North Natomas was designed to calm traffic as much as possible and to minimize adverse traffic impacts on the internal neighborhoods. Why is this project so different? The applicants have 600 acres of space in which to design streets that support quality neighborhoods. This plan proposes to completely undermine efforts to date to upgrade Valley View Acres and reduce blight in it and other neighborhoods. Certainly, other North Natomas neighborhoods were designed with this basic courtesy in mind.

Nowhere else in Sacramento or Sacramento County will you see the proposal of streets that end in front of existing residences because it's been proven to be blight inducing. Street "D" does not even connect to Club Center. The obvious connection to Barros, an existing road, is dismissed.

We strongly disagree with a road entering Sorento at another place. There are **no services, shopping centers, schools, public facilities or even low density housing to the east. Why are roads proposed to even go there?**

This project proposes to **undo the work of the City approved Traffic Calming Plan for Valley View Acres. The roads in Valley View Acres are long and attractive to speeders.** When the North Natomas Community began to build out, traffic volumes on Sorento Road

quickly escalated into the thousands. The **East Levee Road and Sorento became very dangerous with traffic fatalities on both.** People drove off the levee and crashed.

Drivers lost control and drove into the yards at the Sorento curves north of Barros, and into the two poles by the curve south of Barros near the proposed Mayfield extension. SMUD had to replace poles on more than one occasion.³ There is a hill which impedes the view of oncoming traffic and cars backing out of driveways. By the time the city acted to close Sorento to through traffic as allowed in the 1994 North Natomas Community Plan, accidents were an almost daily occurrence, with many fender benders that went unreported. It was unsafe to walk along the road, or retrieve one's mail.

There were several reports of **children who while waiting for the school bus on narrow streets, especially Carey and Sorento Roads were forced to jump into ditches to avoid speeding traffic.** Frantic mothers yelled at cars; one Carey Road mother followed a car to the driver's place of employment and reported an incident to the driver's employer. Friends, turning into properties along Sorento, were sometimes rear ended. Collisions occurred at the Sorento/Del Paso Road intersection. The City recognized our safety concerns and fixed the problem. [All city files pertaining to traffic issues (accidents, speeding, natural hazards, nuisance impacts) on Sorento, East Levee Road and Valley View Acres are incorporated by reference including the City staff reports and supporting documentation for City Council approvals.]

This proposal seeks to uncalm our traffic. There is **no reason for the urban area to access Valley View Acres.** Traffic can be directed from collector streets toward National as was always planned and has been the case with every previous Panhandle proposal. Why is the City not opposing this change in course? **People will die as they did before and many will be injured** if the City allows these seven roads to be reopened to through traffic. People love driving through/speeding through our streets. Please notice that every street in Valley View Acres can be used to access Del Paso Road. People cut through and sped before; they will again. Don't let this happen. We deserve better!

Serious traffic issues up to 2003 were causing our neighborhood to begin to be **blighted and decline** due to noise, safety impacts, and dangerous conditions. People were beginning to sell houses and more renters were moving in. Since our neighborhood has been "calmed," Valley View Acres has been upgrading and improving the quality of its neighborhood. New estates have been built, small and decrepit homes have been replaced with better homes, and regular cleanups are diminishing nuisances.

If our streets are reopened, we believe that the neighborhood will decline similar to the decline experienced by Gardenland many years ago. Many have already said they will need to

³In fact, a speeding youth who had been partying at the unoccupied Twin Rivers school site ran into the utility pole across from 5000 Sorento a few months ago. Many people were without electricity for most of the night. This project connects Sorento to the new high school.

move or rent as conditions especially at the dead-ends will be insufferable. Gardenland has been severely damaged by numerous open street and cut through traffic which has caused an increase in crime.

These proposed streets connect us to a high school with late night activities. Teens will take to the dark places after their events end. There are no street lights in our neighborhood which is the way we like it. Add traffic and it's a perfect place for crime to take root. Throw in the shoulder less narrow East Levee Road after dark and/or in the fog or rain and it spells injury and death! We need to discourage access to these dangerous roads, not design a plan that increases access.

The City can do better. Please don't contribute to the decline of a neighborhood by filling it with unnecessary traffic.

Our neighborhood has just discovered that our land use designations have been changed. In 1985, as reaffirmed in 1994, City Council recognizing the history and nature Valley View Acres, created a new designation, called Rural Estates for us and subsequently initiated a process by which we downzoned our properties to minimum one acre parcel size.

Please be advised that this neighborhood intends **to petition the City to initiate a redesignation of General and Community Plan monikers** to reflect past Council actions.⁴ The 2009 changes occurred without our knowledge, or the knowledge of our Board (other than one). We fear foul play on the part of some who may have desired to hide the General Plan and Community Plan changes from us for financial gain. The 2009 change made no sense for Valley View Acres which is nearly built out with one acre parcels.

We will be working to investigate and champion this issue in the very near future. **A proposed General and Community Plan Amendments from Rural Neighborhood (with 3 potential residences per acre) to Rural Estates minimum one acre parcel size to attain Zoning Consistency will be requested to be initiated by the City, or will be initiated by us if we cannot attain fairness in this matter.** This project **should be considered an anticipated project which should be considered at this stage of the process for staff analysis and must be considered in the CEQA review.** (We add this to the traffic section because we do not want the higher densities to be used to force unnecessary access.)

During the 2005-006 Panhandle Working Group process, the **North Natomas Alliance representative argued on the behalf of Mayfield residents that the street should not be used for Panhandle traffic.** Everyone on the working group, including planning staff and Dunmore voted to support this position. As Mike Chavez, a Natomas Park resident pointed out, the Charter school site was originally supposed to be only three acres. The expanded size and use has caused much more traffic than was originally expected and the City has had some difficulty calming the

⁴Please note that the author suffered substantive personal tragedies and illness during this period and had relied upon her association for updates.

situation along Black Rock. Additionally, Mayfield is not configured as a through street. So, traffic needs to wander and make several turns to even reach Black Rock which is not a through street to the north. Mayfield is not a through street to the west.

Mayfield and Natomas Park residents did welcome an east-west bike access.

Finally, there isn't any reason for residents south of Mayfield to go north to Mayfield. The road dead-ends in both directions, has congested access to the west (note the odd configurations near the Charter School), and doesn't access any services not available via National or Del Paso Roads.

The elementary school already has an access on its north side. **An elementary school should not be surrounded by busy roads on all sides. This is bad planning.** There are too many opportunities for children to be hit by cars. Some people will notice this feature and choose not to move here because of the dangerous situation. This is a debit to achieving stable and healthy neighborhood.

What is the purpose of Street B as a connector to two large roads? It's less than two city blocks away from Del Paso Road. Why subject so many people to cut through traffic for no reason. There is no precedent for this type of pattern anywhere else in Natomas. Through streets every few blocks? We haven't seen it around here.

As we stated previously, this site is not being treated like any others in North Natomas. Why are there so many through streets so close together?

Finally, these **numerous proposed roads will cost a lot to build.** Developers don't generally spend money unless they see an associated profit. These roads will encourage latent trips, will cost a lot to build, and could **drive up the cost of the public facilities** financing plan and fees for future residents. We think the **developers will come back with requests for higher densities, more commercial, etc., because the project** will not pencil out with so many roads—and because roads induce growth.

Buffer for Valley View Acres

Valley View Acres residents strongly support the reinstatement of its City-approved buffer so that its lifestyle may continue without nuisance complaints. When the North Natomas Community Plan was adopted, the City voted to recognize and protect this rural neighborhood. A Rural Estates land use designation was created and applied to our neighborhood.

The City subsequently initiated a Rezone including changes to City Ordinances to allow us to legally keep our horses, cows, llamas, peacocks, chickens, sheep and other livestock. It was Jim McDonald's first planning project. The neighborhood cheerfully downzoned. Valema Farms to the north was designated Rural Estates, but left with agricultural zoning. Files, staff reports and

public hearing documents are hereby incorporated by reference into this letter and initial response to the NOP.

It is critical that a prudent buffer is maintained between Valley View and its new neighbors. People will complain about livestock. People will harm livestock if immediate access is available. One may reference the multi-year protests and litigation regarding horse property/ new urban development in Loomis which was extensively covered in the Sacramento Bee. We have been here since the 50s. Our lifestyle should be valued and protected. Mixed communities are blessed communities.

Shopping Center - A cornerstone of the North Natomas Community Plan Traffic and Air Quality Mitigation Plans is to attract shoppers to the west where services are clustered, the town center is located and Light Rail will be built. This strategy leads to fewer vehicle trips, less congestion and lessens air quality impacts.

In the Panhandle area, there were to be a few small neighborhood shopping/service areas. The 2005 Community Preferred Alternative proposed a few neighborhood commercial sites near two road intersections. The vision was for small businesses with owners and other residents living above their shops. The business owners became our neighbors and took interest in our community.

The proposed shopping center is huge, almost a third of a mile long creating a strip development along National adjacent to, and under, the power lines. **It will attract trips from other neighborhoods to the east and south, and from western North Natomas.** This area already has too much unplanned commercial development. County plans did not envision a long commercial strip along Del Paso Road. However, one has slowly evolved. One of the reasons a center turn lane can't be placed at Sorento and there is no room for a landscape buffer is because an influential past owner of the Kings, pushed through the development of a triangle created by the realignment of Del Paso Road (the road previously dead ended into the East Levee Road.)

This trend needs to stop. Instead, the Panhandle exacerbates it. **We don't need to attract more traffic from the east and south for nuisance and air quality reasons. This proposal will also attract the nearby homeless population.** They are currently expanding their way up Steelhead Creek. We fear they will be attracted to this large shopping center so they can scavenge in bins and panhandle. If they buy alcohol, **we also fear they will drink, sleep or try to move into the park next to the shopping center.** These are ingredients for blight!!

Finally, why is the shopping center partially under the power lines? **Why is it next to the park site which would otherwise have the best potential for mitigating transmission power nuisance effects, and buffering Valley View?** This oversized center will be the **first thing people see when entering this part of North Natomas:** a huge shopping center with huge power lines in it. This is a recipe for lowering the perception of the neighborhood and promoting blight. Who will be attracted here? **We fear investors with rental dreams.**

We ask you to return this area to its original plan for small neighborly commercial uses for the nearby residents to visit on feet and bicycle.

Detention Basin - During non drought periods, the water table rises near or to the surface. Dry Creek used to cross the project site near the Mayfield/Sorento Road interface. Its pathway is visible when the area is farmed because of the sandy soil in its former bed.

All the creeks stubbed by the levee project flowed southwesterly. This project proposes to pump the water north, then south. It doesn't make any sense. We believe the pumps will be overwhelmed during high water years (we haven't had one since 1997). The costs of pumping will be high and will be borne by future residents. The City didn't listen when we warned them about the detention basins, so they had to redo them. Please listen to us this time.

We asked to keep the northern location for drainage from the north and east, and create another detention basin near the Charter School. The northern basin could drain to the south. One developer opposed the pumping of water from this site across Del Paso Road, but that is the natural flow and least expensive for the public facilities financing plan.

We believe that maintenance of the area under the power lines should be included in the financing plan for this site.

We've proposed less expensive alternatives, like organic farming or wildlife preserve. We request that the city work with the community to develop a plan for remediating the tower nuisance and developing a feasible, attractive and effective buffer alternative. One alternative could be large 3-5 acre lots with the easement areas included and maintained by the estate. Trees, etc., would be planted by the developer to achieve an effect similar to the one shown in the attached photo.

City Council planned North Natomas with a necessary buffer between rural horse properties in Valley View Acres and urban uses. **Almost 190 Valley View Acres residents have so far signed a petition requesting a buffer between us and the new development that will ensure that neighborhood incompatibility issues don't destroy our way of life. Work with us to develop the buffer alternative.**

We want to help solve Panhandle problems.

Thank you for your consideration of our comments. Please call us at 718-0877 if you have questions.

Sincerely,



David Lichman

Leader

Valley View Acres Neighbors Working Together (VVNWT)

5000 Tunis Road

Sacramento, California 95835



Barbara Graichen, Principal Author

Public Liaison, VVNWT

President, North Natomas Community Association

Natomas Community Association Representative for the 2005-06 Panhandle Working Group

5010 Sorento Road

Sacramento, CA. 95835

Attachments:

Map: Community Preferred Alternative

Photograph of back yard in upscale neighborhood along major transmission lines.

cc.

Angelique Ashby

Ryan DeVore

Jerry Way

Sameer Hajeer

Lindsay Alagozian

Jim Mc Donald

Dana Mahaffy

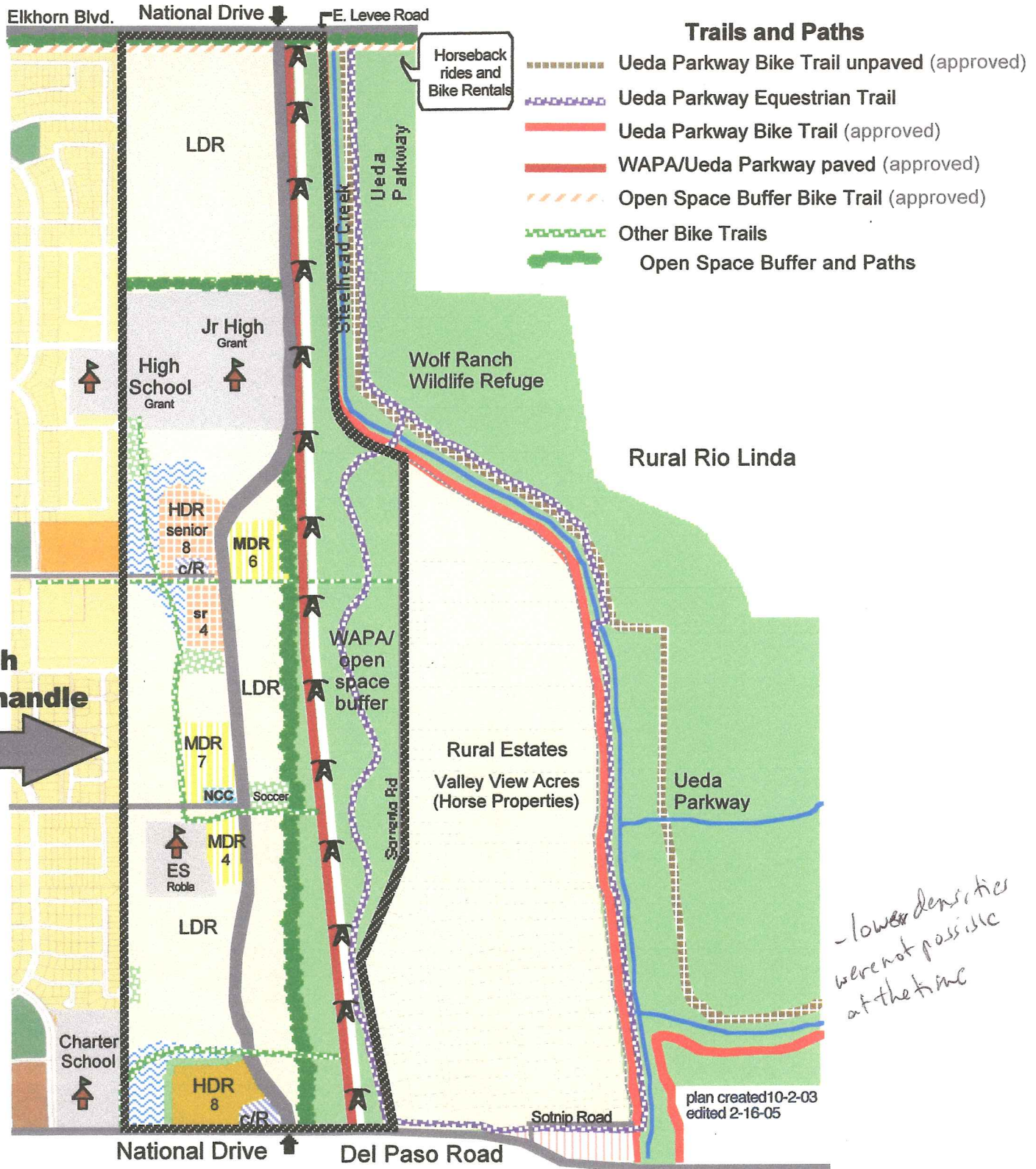
Jude Lamar

Chris Paros

Holly Brickner

Molly Fling

Community Proposed-Ueda Parkway Compatible Plan



North Panhandle

Environmentally Friendly Plan

Properly mitigated backyard
in upscale Michigan neighborhood.



Ms. Dana Mahaffey
City of Sacramento Community Development Department
300 Richards Boulevard, Third Floor
Sacramento, California 95811

JUN 13 2016

RECEIVED

June 10, 2016

Subject: Response to Notice of Preparation (NOP) for the Panhandle Annexation and Planned Unit Development (City of Sacramento Control Number: P-16-013).

Dear Ms. Mahaffey,

Thank you for the opportunity to respond to the NOP for the Panhandle Project DEIR. At this time, we would like to briefly list our areas of concern, and request that related potential significant project-specific and cumulative adverse impacts be reviewed in the DEIR and mitigated to the extent feasible.

We request that any mitigation measure include identification of its cost and requirements for funding and implementation. Funding must be made available to provide essential public service needs identified in this DEIR process and its related planning analysis. Mechanisms to monitor implementation of mitigation measures need to be in place. Mitigation needs to be implemented before, or concurrent with, site development not after the homes are built.

This community has had difficulty funding vital services, such as fire and police infrastructure, because of previously under funded financing plans, failure to identify necessary mitigation until after projects have been approved, or inadequate assessment of infrastructure needs. We understand that it is impossible to perfectly project the effects of development. However, it is possible to reasonably predict and mitigate effects. We urge you to assist us with this process and are pledged to help with clarification and resolution of issues as needed.

We especially request that land use and neighborhood and community incompatibility issues be clearly identified, discussed and adverse effects mitigated. Related traffic, nuisance, drainage, social and economic (which cause physical impacts such as blight, crime and deterioration of public safety), and health and safety impacts should be viewed in light of compatibility and livability.

We appreciate this process, which enables all interested parties to (1) better understand the proposed project, (2) learn how the proposed project affects our community and (3) determine its project specific and cumulative benefits and adverse impacts. Our associations look forward to working with the Environmental Council of Sacramento, Habitat 20-20, Friends of Swainson's Hawk, the North Natomas Community Coalition, the Regency Park Neighborhood Association, the Terrace Park Homeowners, Witter Ranch representatives, Westlake, the Natomas Park Master Association, Creekside, the Natomas Chamber of Commerce, Valley View Acres Community Association, the Natomas Community Association, the North Natomas Alliance, the Robla Community Association, Gardenland-Northgate Neighborhood Association, Stanford Settlement, Twin Rivers and Robla School Districts, the North Natomas TMA, our elected and appointed officials, the project proponents and others to discern a project that benefits all concerned.

The project proponents have not yet met with either of our associations. We urge them to do so. We look forward to working with both the City and the applicant as this application progresses.

Many of the following issues and concerns have been previously voiced over the past twenty years.

1. Water Supply: For the last four years, and most critically in summer and fall of 2015, the Governor's Office, State Department of Water Resources, local water agencies and the Sacramento Bee reported an insufficient water supply to meet area water needs. Draconian water conservation requirements were passed and enforced. Evidence of an adequate groundwater supply, and adopted conjunctive use plans, were insufficient to prove to state regulatory agencies that adequate water was available. Therefore, high-percentage water use cutbacks remained in place. Trees and lawns in North Natomas died (tour Northgate Blvd. and North Market and view numerous dead mature trees for proof of this assertion).

The Bee often reported that there was insufficient water to meet the needs of existing, and currently approved, but not yet constructed, development in the 2014-15 drought year and even in future normal precipitation years. This proposed project includes 600 acres of development which proposes using existing sources known to the state but considered inadequate by the Governor, State, and The Bee for already approved development.

State law requires that new development projects prove the existence of an adequate water supply. There is no new water source for this proposed project. Certainly, water conservation mitigation measures should be identified which reduce future water usage on the project site. However, there remains an inadequate water supply for future residents. Significant adverse impacts need to be quantified, evaluated and mitigated as feasible.

Attachment A lists approved but not yet built units in this region. What new water supply source is available to enable their development? Potential project specific and cumulative adverse impacts of the subject proposed project, Natomas Precinct (5,600 acres to the north), Greenbriar, Delta Shores and other reasonably foreseeable projects need to be evaluated.

2. Water Quality: Runoff from the project site is proposed to empty into Steelhead Creek and ultimately the Sacramento River. The use of Steelhead Creek as a collector for polluted urban runoff could endanger Steelhead, Salmon and other fish and wildlife using the creek. Residents who play and fish in the creek may be subjected to high levels of heavy metals and toxins from urban runoff. Water quality and clarity could be diminished by the addition of phosphates and nitrates. The difference between existing periodic agricultural runoff and year round urban runoff will be significant and adverse.

The proposed detention basins should be operated in a manner that mitigates the potential adverse water quality impacts of urban runoff on area waterways. Plants that fix heavy metals, for example, should be included in detention basin design with periodic remediation included in mitigation measures. It is important that grass and soils be regularly checked to ensure that lead, cadmium, copper and solvents have not accumulated at a level toxic to children who may play there.

Steelhead Creek hosts Steelhead and endangered salmon species. Its clarity needs to be maintained and even ameliorated. The first is the charge of project developers to develop the site in a manner that avoids adverse water quality impacts. The second is a goal of the city, county, state and federal governments, which needs to be advanced.

3. Flooding: Natomas is a deep basin; much of it was swamp or swale. More than a dozen streams emptied into it prior to construction of the Natomas levee system. Dry Creek crossed the project site. Its course is still visible when the site is farmed. Natomas was so wet that it was crossed by steamboat during most months.

There have been four substantive high water years in the past 50: 1983; 1986; 1995 and 1997. Each of those events proved that the level of flood protection believed to be in place was not in place. 70 year protection was relabeled as 40; 100 as 70, etc. These events caused two subsequent flood control moratoriums in the project area during the last twenty years.

All SAFCA and US Army Corps of Engineer's flood event projection documents indicate that the Natomas basin will eventually flood; perhaps, only once in the next hundred years or twice, but it is projected to occur. The once in a hundred year flood event may occur next year.

Natomas is a deep floodplain. It should never have been developed. 60,000 more people should not move here (Precinct/Panhandle). It is unsafe.

The proposed project appears to include plans to ultimately pump runoff and floodwater into Steelhead Creek. Natomas Precinct, a 5,600 acre urban development project which is currently undergoing CEQA review (Control Number: PLNP2014-0017; State Clearinghouse Number: 2016042079) also proposes to pump drainage into Steelhead Creek.

Steelhead Creek empties into the Sacramento River in Discovery Park. In 1986, water from Steelhead Creek backed up into Rio Linda and Elverta and the Ascot area. It flooded Brashier's auto business, emptied tires from local junkyards and deposited them throughout neighborhoods. Second floors of houses were flooded. Please refer to aerials flown by State Water Resources which show the extent of flooding. SAFCA had copies.

Rio Linda and Elverta residents claimed that water pumped from the Natomas Basin into Steelhead Creek was a large cause of their flooding or at a minimum exacerbated it. (In a very tense and hostile environment, some threatened to blow up either the pumps or the levee north of Elkhorn or a levee to protect families, livestock and properties.)

Strawberry Manor won a lawsuit against reclamation districts, and other public agencies responsible for managing flood control in the Steelhead Creek watershed, which partially argued this issue (that the Strawberry Manor area was deliberately flooded so drainage from Natomas could continue to be pumped into Steelhead Creek.) Later, North Sacramento, east of Steelhead Creek, south of Main and north of 80 suffered severe flooding when the Creek's capacity was exceeded.

This proposed project appears to propose to ultimately pump large quantities of runoff into a creek which already floods. Streams, such as Dry Creek, Robla and Arcade, which empty into it already back up when reaching Steelhead Creek.

This proposed project has the potential to greatly increase existing flooding and associated impacts not only because of runoff from urbanization, but because it currently serves as a large detention basin during substantive precipitation events, allowing water to percolate into the water table, and more slowly make its way into the urban drainage facilities and ways. The basin/pit created by SAFCA's mining extends from the southern curve of Sorento Road past the next curve north of Barros Road. It is quite deep north of Barros

Certainly, SAFCA's pump station will mitigate some flooding to the north from American River water back-up. Additionally, recent and short-term flood control system upgrades will eliminate some of the potential significant adverse impacts. However, they cannot manage all of them.

Levees will be stressed. Roads north of the project site (Sorento north of Elverta Road, as an example) experience deep flooding during high water events due to inadequate elevation changes and back-up in Steelhead Creek. This proposed project will exacerbate flooding in those areas which compete for the same flood carrying capacity.

The engineered upgrades for the Natomas basin put in place since 1997 have never been tested. There has not been a high water event since the beginning of the post-flood moratorium development of the North Natomas Community Plan in the early 2000s. No one actually knows how well the drainage system will function, what type of localized ponding or flooding will occur, or where the water will go.

A look at the proposed location of the detention basins on the Panhandle Map illustrates our concerns that a general lack of awareness of surface and subsurface water flow patterns on the project site and in the project area exists. Engineers and others often view this basin as it appears now with levees and diverted flow patterns. This perspective sometimes causes serious errors in evaluation of potential significant adverse project specific and cumulative drainage and flooding impacts.

Water from the east will follow its natural gravity flow southwesterly across the site, with the southern drainage from Dry Creek exiting the site just east of the Charter School. If one looks at pre-1911-1915 maps, one sees a delta shaped confluence of Dry Creek where it flows into a large north-south stream near Gateway Park and a bit south of Del Paso Road.

This project proposes to pump water north ***against its natural flow*** to a detention basin near the proposed extension of Club Center Drive, before artificially moving it west and south. This will be expensive. It is our concern that it will also cause on-site pumps and other elements of the engineered system to be overwhelmed when surface and subsurface runoff compete in an area known for its near surface water table in wet years.

This same mistake was made once already. The City had to spend millions to design and reconstruct several detention basins when North Natomas was first being developed because it did not take this area's unique characteristics into account when designing them. These additional costs stressed the North Natomas Financing Plan and frustrated the City's ability to

provide vital public services and infrastructure in a timely manner. We hope these comments will help the City avoid similar errors with this project.

The proposed project site and area have unique characteristics and potential adverse development impacts which must be carefully assessed and adequately mitigated to ensure the safety of the region's residents during above normal precipitation events. It is imperative that infrastructure required as mitigation does not need to be resized, rebuilt or replaced with funds earmarked for other public services.

Del Paso Road already floods from Panhandle site runoff, Dry and Robla Creek (surface and subsurface) and Valley View runoff. A mitigation measure should be devised and adopted which positions detention basins at the southeast corner of the Panhandle (Sorento and Del Paso) to manage Robla and other local runoff, and next to the Charter School at Del Paso Road (See attachment C, Proposed Conceptual Alternative, for possible locations) to detain Dry Creek's flows and those from the southern portion of the project site.

Finally, access to this site is inadequate if deep flooding occurs and evacuations are required. Elkhorn and Del Paso Road will be over capacity from evacuation of our western neighbors. Residents cannot drive east as that area floods or there is no access. Southerly access dead-ends. How will residents get out of the Panhandle area? A site-specific flood evacuation plan needs to be required as mitigation. It needs to be in place prior to occupancy of any homes or businesses.

4. Premature and Growth Inducing: SACOG, a regional agency which includes representatives from the Sacramento County Board of Supervisors and Sacramento City Council has determined that the Panhandle area is not needed for growth through 2036 and likely longer. There is already plenty of land approved for development within the city limits in N. Natomas, including Greenbriar, in Delta Shores, various locations in the County, in Rancho Cordova, South Sutter County and Isleton (see attachment A - ECOS letter to Sacramento County Board of Supervisors dated December 16, 2015.)

This project undermines local, state, regional and federal air quality and traffic management goals, by enabling growth away from planned transit corridors and perimeter growth before infill is completed. Our neighborhood will suffer from the smog, noise and congestion caused by this project.

The extension of sewer and water lines to a rural area is growth inducing. The proposed project could induce growth in Valley View Acres. Potential related impacts need to be evaluated.

Finally, this project appears inconsistent with local, state and federal air quality attainment plans and greenhouse emissions reductions plans.

5. Agriculture and Prime Farmland and Important Open Space: The Natomas basin contains prime agricultural land. Agriculture is the best land use for prime land in a deep floodplain (also see 4 above). Because of the special requirements of the Cortese Knox Hertzberg Act which consider successful agricultural activities as a reason for considering land to be prime, the entire site may be prime if use is considered. A portion of it is currently in agricultural production and recently harvested. The project needs to be evaluated using

Cortese/Knox Hertzberg agricultural land definitions as an annexation is proposed. On-site mitigation of some agricultural losses could be effected by providing an agricultural land buffer east of the power transmission lines (including the power line easement areas). We request that mitigation be provided separately for agricultural and habitat losses rather than stacking mitigation.

This area is suitable for small natural/organic farming activities as local farmers testified at previous Panhandle Working Group meetings. The buffer area could be rented to a farmer who would assume responsibility for maintenance. A mitigation measure could be required to this effect as a funding mechanism for this environmental benefit which has no cost to the City or residents of Natomas. The rural Valley View Acres hosts substantial wildlife and open space. Please see Attachment B, the alliance of Natomas community groups and ECOS arguments for retention (now reprovision) of an open space mitigation area.

The portion of the project site from the western edge of the power line easements to Sorento and the East Levee Roads is identified for open space uses on the SACOG Blueprint. As previously stated the SACOG MTP/SCS map indicates (in pink) that the rest of the north Panhandle site (589+/- acres) which was identified for growth in the Blueprint is anticipated as a no growth area (horizon year 2036). When the DEIR for the Panhandle project was prepared in 2005, there was some confusion about SACOG's policy intentions regarding the blueprint open space buffer. This confusion was clarified by SACOG's later action to declare the entire site as not anticipated for growth through 2036.

The Panhandle directly connects to an important habitat corridor, which extends from the Sierra foothills along Dry Creek to the Pacific flyway, important agricultural lands and Natomas Habitat Conservation Plan mitigation sites to the north and west (see Attachment C, Proposed Conceptual Alternative). Burrowing Owls, Swainson's Hawk, Western Pond Turtle, Giant Garter Snakes, tri-shouldered blackbirds, numerous varieties of owls, white tailed kites, avocets, pelicans, northern harrier, egrets, black crowned night heron, red tailed hawks, American kestrel, snowy egrets, blue heron, etc. Canadian geese, kit fox, and many other important species inhabit or forage the project site and adjacent wetlands. The State department of Fish and Game has documented the presence of the kit fox in Valley View Acres and east in Hansen Ranch.

The project site teemed with wildlife when the entire site was farmed. Prudent small farming would restore that environment, enhance wildlife, improve the habitat value of northern and eastern conservation lands and provide recreation, education and employment opportunities. People who refer to the eastern Panhandle as infill need to visit the area or consult aerials to see the extent of the existing wildlife corridor and the Panhandle's relationship to it (See Attachment C, Proposed Conceptual Alternative).

Project Alternative: Valley View Acres Neighbors Working Together and the North Natomas Community Association request a Project Alternative which (1) mitigates agricultural and open space losses, (2) avoids land use incompatibility issues with the rural neighborhood to the east, (2) eliminates the large shopping center and its nuisance, air quality and traffic impacts replacing it with several small neighborhood commercial uses to which residents may walk or cycle, (3) deletes road connections to Sorento Road, (4) adds connectivity to Regency Park and (5) includes only one north-south connector from Del Paso Road to

Elkhorn Boulevard because the project site is too narrow and densities are so low that two or three are not required.

The proposed alternative shows the open space buffer in place until March 3, 2009 in the North Natomas Community Plan (ECOS also requested this portion of our proposed alternative in its May 27, 2016 NOP comment letter), and included in the existing SACOG Blueprint.

In this alternative, to avoid land use incompatibility, noise and unnecessary nuisance impacts, National Drive is extended due north from its current intersection at Del Paso Road to Elkhorn Boulevard rather than curving toward and quite near the rural neighborhood to the east.

The proposed elementary school is moved west away from power lines, and the major arterial and busy roads are removed from three sides of the site, to avoid health and safety impacts. To effect motorized vehicle trip reduction, and avoid related adverse air quality and traffic impacts: (1) an off-road bike/pedestrian trail is located on the west side of Sorento Road; (2) four off-road east-west bike trails are to be provided, one from Mayfield and accessing the elementary school site, one accessing the high school, one in the agricultural buffer area along Elkhorn Boulevard, and another parallel to the extension of Club Center Drive.

To mitigate drainage, flooding and water quality impacts, at least three detention basins are to be provided, one at the southwest corner of the site next to the Charter School, one on the southeast corner adjacent to Valley View Acres, and one to the north consistent with the proposed project's locations. To reduce motorized vehicle trips and achieve related air quality and traffic impact mitigation, four, small, neighborhood shopping sites are included for local services. Minor streets and cul-de-sacs are to be designed when subdivision maps are submitted. A soccer field could be located at or near the Club Center/National Drive interface or nearby. (See Attachment C, Proposed Conceptual Alternative)

The necessary nuisance buffer and wildlife corridor was previously approved by City Council to (1) provide adequate space to hide or soften the look and potentially the health and safety effects of radiation generating transmission lines, (2) to avoid related blight and the crime that generally follows residential construction next to massive power line towers, (3) to avoid neighborhood incompatibility and nuisance issues between existing and planned horse properties to the east of Sorento Road, (4) to provide a wildlife corridor and (5) to offset some loss of habitat from the 1985 and 1994 North Natomas Community Plan iterations.

The environmentally friendly project alternative includes greenways, with mitigation for adverse aesthetic impacts of the transmission towers on nearby residences, schools and parks by providing distance from impact and room for lush plantings near and along the towers¹, and wildlife corridors connecting to Steelhead Creek, the Ueda Parkway, the Dry Creek Greenway, and agricultural lands in the Pacific flyway north of the project site. The greenway mitigates the loss of a broad area currently providing habitat connectivity between Dry and Steelhead Creeks and lands north of Elkhorn.

¹See attached photo of mitigated home site, a large parcel with lush plantings providing visual relief from the towers.

In this mitigation alternative, north/south and east-west bike, pedestrian and equestrian trails (north-south only) are placed away from the towers, and connected to the Ueda Parkway and a Sacramento/Sutter bicycle loop trail which has been proposed along the landward toes of the Natomas levee system, providing more than 70 miles of bicycling pleasure and a campsite along Pleasant Grove Creek, plus a safe off road travel route. Small parks and schools are located away from the worst nuisance impacts.

During the City-formed 2005 Panhandle Working Group process, a local farmer testified he could profitably operate an organic farm in the 100-acre City approved buffer area, a somewhat novel idea at the time, but now a cornerstone idea in the Farm-to-Fork and urban farm movements. The latter proposal, by itself, would have solved (and could still) the nuisance and maintenance problems/costs for the areas in and near the transmission line easements as well as providing employment and educational opportunities for local students and residents.

The placement of bike trails between the towers is not desired for health and safety and aesthetic purposes. We believe bicyclists would prefer to cycle in an aesthetically pleasing environment. The transmission towers are ugly and crackle loudly during damp weather. Certainly, in South Natomas (Ninos Parkway), bike trails followed development so other options weren't available. In the Panhandle, however, there are 600 +/- acres of land with no City entitlements because it is located in the County.

There are numerous better cycling options. A goal of this alternative is to cause motorized vehicle trip reduction by creating a safe, attractive bicycling environment for commuting, shopping and recreation. This trip reduction plan and alternative could become a model for alternative transportation planning as it actually enables and facilitates walking and riding bicycles. The DEIR should seek to quantify the differences in numbers of motorized daily vehicle trips with and without an attractive bicycle/pedestrian alternative transportation network. Please note that this proposed alternative recommends locations for pit stops for bicyclists.

The Bikeway Master Plan is being updated. Better options for the Panhandle and North Natomas can be incorporated into that Plan as the North Natomas Community Association has already suggested to City Bikeway Plan consultants. Currently, it is extremely dangerous to ride on Del Paso Road. We need at least one off road east-west connector to the Ueda Parkway.

Notice that the proposed project alternative includes low density residential throughout most of the plan area, except a senior assisted and independent living facility near Club Center Drive, which could be multi-story medium density. That facility is situated east of a detention basin which will provide a good view for residents and a place for recreation and exercise as well as buffer Natomas and Regency Parks from visual intrusion.

A small neighborhood service and shopping site is provided adjacent to, or possibly within, the senior facility so residents may walk to a small grocery/deli/store. (The vision here is similar to that built into the senior complex on I Street near 6th. Sundries, cards, deli items and groceries are available on the first floor of the complex along with a few small businesses.) One goal of this arrangement is to reduce motorized vehicle trips by seniors and provide local shopping, which enhances their independence as they age and health declines.

Notice that existing and higher density land uses are buffered, detention basins serve a dual purpose of buffering seniors and others from nuisance impacts, and commercial areas are small, centered in the residential areas, and neighborhood-oriented with residential above the small shops. A main goal of this alternative is to reduce motorized vehicle trips by providing an urban form and amenities which naturally encourage walking and bicycling for recreation, daily shopping, commuting, and getting to school.

Trails are easily accessible with connections to Ueda Parkway, Elkhorn buffer, and all higher density areas where higher trip volume could be anticipated. With adequate security monitoring of the pedestrian/bicycle paths, children will be able to walk to school. The latter would greatly reduce daily vehicle trips and stress on parents.

We envision inclusion of an upscale neighborhood as well. The proposed project has no estate-sized lots although it states that upscale housing is a goal. Residential densities of 4.5-6.5 dwelling units per acre are simply ordinary sized urban lots, not upscale sized. Recent conversations with real estate professionals indicate that they are aware that these are not large lots, and do not, therefore, have much upscale potential.

This alternative suggests at least ½ to one acre sized lots to provide a mix of housing in the project area and complement Valley View. (Lots of this size should be required as mitigation for land use compatibility and nuisance impacts along Valley View Acres if an open space buffer is not approved.) Even larger, 3-5 acre lots, could provide an upscale urban estates area.

Certainly these ideas along with a City-approved open space buffer support a high quality, livable, neighborhood-oriented environment which attracts home owners and creates stable neighborhoods, thus lowering the potential for crime. This alternative complements and enhances the rest of North Natomas. Stability, home ownership, and remediation of homeless issues and nuisances may be expected to reduce crime stemming from blighted/unattractive neighborhoods.

Finally, it is also suggested that a Project Alternative be devised which assesses the placement of 3-5 acre estate lots east of the transmission towers with easement maintenance provided by the owners of the parcels. Alternatively, mitigation measure needs to be provided which ensures maintenance of the transmission tower easements in perpetuity so that the area is not a public nuisance.

6. Traffic, Use of the Panhandle for Southerly Access. It appears the road network in the county panhandle is being designed to accommodate traffic from Natomas North precinct. When Truxel Road (now Natomas Boulevard) was extended to Elkhorn Boulevard, mitigation measures were required which ensured that southerly access from the Joint Vision/North Precinct would not be provided through the City (The project file for the extension of Truxel Road, and all public hearing transcripts and reports, are hereby incorporated by reference). The Panhandle project includes major through streets to the north. If access to Interstate 80 exits is obtained, as has been discussed previously, the traffic impacts will be numerous and objectionable.

The Panhandle currently proposes to open up Sorento Road and Valley View Acres to through traffic from Elkhorn Boulevard via proposed north/south roads. The additional adverse effects of traffic from the proposed project through Valley View Acres need to be assessed, especially health and safety impacts stemming from accidents on the E. Levee and Sorento Roads.

The project proposes as many as three road connections to Sorento Road, two of which dead-end directly into the front yards of existing residents. We oppose a plan to essentially empty streets into people's front yards. By that, we mean that two streets proposed to access Sorento Road, (Mayfield and street D) end in front of existing residences. They point hundreds of cars and headlights at these peoples' front yards and living rooms, plus noise, litter and potential crime. These impacts need to be quantified, disclosed and mitigated. Street A easily connects the high school site to Sorento and the East Levee Road; Mayfield connects the elementary school and high school to Sorento.

Twin Rivers has asked for access to Sorento Road in the past, a proposal which is no longer related to their education facility needs. Their entire school facility is now proposed to be located west of National Drive. Their proposed urban development project can use National Drive as access. This proposal is inconsistent with city traffic calming, land use compatibility and other traffic and circulation policies, policies and will substantially and adversely affect those properties, especially carbon monoxide concentrations on cold mornings. At the NOP scoping meeting, the applicant's representative indicated that the road connections to Sorento could be eliminated. We recommend that they be eliminated as part of the DEIR's mitigation avoidance strategy.

This project could undo the work of the City approved \$50,000 Traffic Calming Plan for Valley View Acres undertaken around 2004. The roads in Valley View Acres are long and attractive to speeders. When the North Natomas Community began to build out, traffic volumes on Sorento Road quickly escalated into the thousands. The E. Levee Road and Sorento Road became very dangerous with traffic fatalities on both. People drove off the levee and crashed.

Drivers lost control and drove into the yards at the Sorento curves north of Barros, and into the two poles by the curve south of Barros near the proposed Mayfield extension. SMUD had to replace poles on more than one occasion.² There is a hill which impedes the view of oncoming traffic and cars backing out of driveways. By the time the city acted to close Sorento to through traffic as allowed in the 1994 North Natomas Community Plan, accidents were an almost daily occurrence, with many fender benders that went unreported. It was unsafe to walk along the road, or retrieve one's mail.

There were several reports of children who while waiting for the school bus on narrow streets, especially Carey and Sorento Roads were forced to jump into ditches to avoid speeding traffic. Frantic mothers yelled at cars; one Carey Road mother followed a car to the driver's place of employment and reported an incident to the driver's employer.

Friends, turning into properties along Sorento were sometimes rear-ended. Collisions occurred at the Sorento/Del Paso Road intersection. The City recognized our safety concerns

²In fact, a speeding youth who had been partying by the unoccupied Twin Rivers school site ran into the utility pole across from 5000 Sorento a few months ago. Many people were without electricity for most of the night. The Panhandle project connects Sorento to the new high school. On May 29, another speeder ran into a power pole at 5020 Sorento.

and fixed the problem. [All city files pertaining to traffic issues (accidents, speeding, natural hazards, nuisance impacts) on Sorento, East Levee Road and Valley View Acres are incorporated by reference including the City staff reports and supporting documentation for City Council approvals.]

If the Panhandle road network is used as a southerly access for the Natomas Precinct proposal, significant adverse traffic circulation, air quality and health and safety impacts will occur. All roads west of National including Club Center and the future accesses to regency Park will be overwhelmed by drivers hoping to circumvent traffic jams on Del Paso and Elkhorn by accessing Natomas Boulevard directly. A mitigation measure should be required which limits lane access from the Panhandle consistent with the Truxel Road extension (TRE) project mitigation (see TRE file).

The North Natomas Alliance representative on the Panhandle Working Group, a Natomas Park resident, argued successfully that use of Mayfield as a through street from the Panhandle was (1) inconsistent with the 1994 Community Plan Land Use Map, 2) would subject single family residents to substantial noise, adverse air quality and related impacts and (3) cause traffic jams on Black Rock Road.

The City already has difficulties managing traffic near the Natomas Charter School. These impacts should be avoided by deleting through access to Mayfield as all members of the Panhandle Working group voted to do, including City staff. If the cut through road is created, speed bumps and/ or other traffic calming mitigation measures need to be put in place in the Mayfield neighborhood, and at the Black Rock intersections near Mayfield and near the schools.

This project proposes a large shopping center attractor on Del Paso Road essentially adjacent to a rural neighborhood. People from North Sacramento, western North Natomas and South Natomas will travel to this site. The NNCP was designed to mitigate some of the plan's air quality and traffic and circulation impacts by concentrating trips in more central locations near transit corridors and the Natomas Town center.

Del Paso Road has been quickly becoming a strip commercial area with dozens of commercial businesses lining it. To our knowledge, no comprehensive and cohesive study of the traffic and air quality impacts of this strip development has been undertaken. This development undermines the provisions of short and long term air quality and traffic mitigation programs.

This proposal is inconsistent with the community plan and general plan and will cause significant adverse nuisance and traffic impacts upon the rural neighborhood to the east, and add to traffic congestion and poor air quality in and near the site, especially concentrations of carbon monoxide near the elementary school site.

7. Natomas North Precinct: Control Number: PLNP2014-0017; State Clearinghouse Number: 2016042079; other reasonably foreseeable projects. This EIR needs to be coordinated with the EIR for the County's Natomas Precinct project. It needs to be considered a pending reasonably foreseeable project for evaluation of project specific and cumulative impacts. Also, Valley View Acres is preparing to submit a plan to reinstate its rural estates General and Community Plan designations (one acre minimum parcel designation).

This should be considered an anticipated project, as the proposed project includes incompatible uses adjacent to Rural Estates with livestock. In addition, a number of large development projects are either under evaluation or planned in the project area. All of these projects need to be considered in cumulative impact analysis.

8. Natural Features/Mining Scars – A portion of the project site has been mined. The proposed project does not appear to consider the fact that there is a pit adjacent to Sorento. Land elevations drop substantially. The area between the drop offs and Sorento Road should be considered for open space, perhaps a rest spot for bicyclists to enjoy the Valley View Acres rural ambiance, the view of western North Natomas, horses and agricultural activities.

9. Social and Economic Impacts Causing Adverse Environmental Impacts, Traffic and Circulation.

The proposed project includes an annexation and is subject to the requirements of the Cortese/Knox/Hertzberg Act (CKH). The California Environmental Quality Act (CEQA) applies to all parts of the project proposal. However, the CKH Act project is mentioned here because one of the most important State Supreme Court rulings regarding the relationship between projects, as defined by CEQA, and significant adverse environmental impacts caused by project-induced crime, blight and economic decline was based on a CKH applicable project. In the case of the Citrus Heights Incorporation proposal, the Sacramento Local Agency Formation Commission (LAFCO) determined there were no adverse project related significant impacts which could not be reduced to a level of insignificance. LAFCO prepared and adopted a Negative Declaration and approved the project.

The CEQA document was challenged largely on the basis that the loss of County funding that would occur if the incorporation proceeded, would hinder the County's ability to provide adequate public safety services. This impact would cause crime and blight to occur with accompanying physical impacts. The Court agreed with the plaintiffs. LAFCO was required to prepare an Environmental Impact Report, consider these impacts significant and adverse and seek ways to avoid them, or mitigate them to a less than significant level.

The Panhandle proposed project includes multiple features which have the potential to cause substantive blight, increases in crime, exacerbation of homeless related, and a decline in economic indicators and property values. The proposed project appears to create, rather than remediate, such problems. Project design includes multiple nuisance features and inadequately mitigates the potential effects of existing potential nuisances (transmission lines and City approved horse and livestock properties). We oppose the approval of a design which we believe will cause blight, foster neighborhood nuisance and instability and cause increases in crime.

The proposed project includes the insertion of three roads into our economically, culturally and racially diverse neighborhood that are not needed for it. An increase in criminal activity, litter, erratic behaviors, mailbox destruction, and accidents can be reasonably expected as was the case prior to closure of the neighborhood to outside and cut-through traffic. It was unsafe to walk our streets.

Valley View Acres was identified as a low income neighborhood when SAFCA mailed its first flood control assessment notices for low income homeowner's relief. At the time, it was

plagued by a dangerous and nuisance ridden traffic condition. Thousands of daily vehicle trips through the neighborhood coupled with litter, crime and related nuisance effects, had caused some to move, some to change their property over to rentals and others to give up on property and neighborhood upkeep. The neighborhood was clearly declining.

The City acted in 2003-04 to calm Valley View's traffic and remedy economic decline problems by eliminating through traffic, and related nuisance impacts. After the traffic was stopped, the appearance of the neighborhood, property maintenance, home ownership ratio, and number and types of upscale homes increased. Homes in disrepair were repaired or removed and replaced with safe and decent housing. Incomes also increased in this diverse neighborhood. This area improvement effort continues today. It is a model of renewal without government investment. Gardenland, our sister neighborhood, has not been so fortunate.

In eastern South Natomas, where much development occurred before the Environmental Quality Act took effect, adverse traffic, nuisance and aesthetic impacts, especially from the Western Area Power Administration transmission lines and an ill-designed road network, were not identified or mitigated. The area became blighted and crime ridden and home ownership diminished. The City has spent millions over the years and been required to undertake many police actions due to the resultant blight and high crime rates. Fortunately, expensive urban renewal programs and community activism have been reversing the decline. This project needs to be mitigated and partially redesigned to avoid the decline altogether.

This project proposes to undo our traffic calming project by opening up this rural enclave to thousands of trips every day. The proposed project could stall or reverse the physical improvements to Valley View Acres which were enabled by traffic calming. These impacts need to be avoided by removing the unnecessary and unwanted road accesses from the project site to Sorrento Road.

We have always supported prudent and high quality development on the Panhandle site. We have observed, however, that this project does not appear to have been optimally designed.³ The proposed project alternative and the City approved buffer in place until 2009 supported a high quality livable neighborhood-oriented environment which attracts home owners and creates stable neighborhoods thus lowering the potential for crime, and complements the rest of North Natomas. Stability, home ownership, and remediation of homeless issues and nuisances may be expected to reduce crime stemming from blighted/unattractive neighborhoods.

This project's proposed road network is inconsistent with that found anywhere in Natomas. When one looks at the colored PUD Schematic Plan and NOP attachment, one sees roads, roads, and more through roads (See Attachment E – Road Comparisons). The Panhandle is approximately 1/4 mile wide. The project proposes up to three major north-south roads in an area less than half the width of the entire area west to Natomas Boulevard, where there are **no** north-south through roads.

-The project proposes an extension of National Drive that is curved to be closer to the rural

³For example, one finds an elementary school proposed to be located adjacent to a major arterial road, major power transmission lines, and surrounded by busy roads on all four sides. This type of school siting has never occurred in the Sacramento region to our knowledge because of adverse safety issues. It is very difficult and likely expensive to guard all four sides of a school site from incidents caused by major through traffic.

neighborhood to the east. This exacerbates nuisance impacts and is not necessary if road connections through to Sorento Road are eliminated, as suggested here.

-Street A which appears to end at the high school until one looks closer and sees the arrow pointing north to its extension to Elkhorn Boulevard.

-A reopened Sorento Road which may be extended to Elkhorn by SAFCA/ACOE's current proposal to build and pave a minimum 20 foot wide road (could be as wide as fifty feet) at the landward toe of the levee.

At the north end of Sorento Road, there are only a few hundred feet separating the 3 roads, a distance less than the width of the Natomas Charter School site. There are two busy streets proposed on the southern portion of the project site in the width of the Charter school. Too many through roads in neighborhoods will translate into crime, nuisance and blight.

North Natomas residents have regularly objected to road patterns which encourage strangers to enter and case neighborhoods, diminish the effectiveness of neighborhood watch programs and destabilize neighborhoods. Entire neighborhoods, such as Heritage Park Westlake, have chosen to live in gated communities partially to avoid traffic nuisance and crime. The City and project proponents should recognize the special needs of unique neighborhoods like Valley View Acres. People should be allowed to choose their style of connectivity. It is possible that a gated community might be created in the Panhandle if the Coalition's desire for upscale housing is realized.

It is important to promote a healthy connectivity between neighborhoods where needed. There are also advantages to grid systems. At a recent North Natomas Community Coalition meeting, one member noted that grid systems were good. This is not a grid system.

It is important to note that the City has found out the hard way that grid systems fail if the overall urban design is not cohesive and carefully executed. Many of the grid areas in the City of Sacramento have had to be "calmed." There are now one way streets in inconvenient locations, dead-ends, stop signs at every corner of some through streets, and speed bumps at many locations. A tour of the areas between 12th and 29th streets between B and J Streets will prove the failure of the grid system in much of Sacramento. Traffic calming programs were needed to mitigate safety and blight impacts, but they have occurred at a cost in reduced connectivity, increased travel times, confused drivers and loss of income for some small businesses.

After briefly examining Attachment E, one Coalition member remarked that the road configuration would not be wanted in her neighborhood. Another suggested that speed bumps would be needed around the school site. These comments, we hope, indicate the beginning of a productive discussion which needs to take place around road network issues.

Attachment E clearly shows how incompatible this proposed road network would be in Regency or Natomas Park, for that matter, anywhere in North Natomas. If one analyzes it carefully, it soon becomes clear that the quality of life in those neighborhoods would be greatly diminished by this proposed road network. It is also incompatible with Valley View Acres' rural neighborhood, and is unsafe for future residents of the Panhandle.

This proposed project's road network will need to be calmed. The North Natomas Community Coalition is already asking for traffic calming measures in Valley View Acres. We are asking that the problem be avoided altogether. We are well connected to our neighbors now, and don't desire increased connectivity for any reason. We have livestock and horses that need to be protected from strangers. These new connectors to Sorento Road need to be eliminated from the plan as mitigation by avoidance.

The significant adverse safety, nuisance, traffic, air quality, crime and blight impacts of this proposed intrusion into our neighborhood needs to be thoroughly assessed and mitigated. Any proposed mitigation measures need to be funded by the project proponent or a financing district and put in place prior to the construction of any roads or the issuance of any building permits. We are all too familiar with the long wait for traffic calming measures when there is no provision for funding. These mitigation measures need to be funded and assured.

To partially mitigate adverse road network design effects, especially noise and aesthetics, only one north south through road should be constructed in this narrow corridor, National Drive as a straight road. It should be built with a landscaped median and noise buffer walls on each side like the rest of North Natomas. The number of east-west cut through roads should also be reduced per Attachment C, Proposed Conceptual Alternative. Alternatively, any busy through roads should be appropriately "calmed," landscaped and buffered to reduce noise, safety and congestion impacts

Regency Park has been somewhat landlocked by lack of connectivity. Their roads were designed to extend to, and dead-end, at National Drive (see 1994 NN Community Plan Land Use Map). Our alternative proposes to remedy their connectivity issues. However, Valley Acres does not want to be connected to the urban grid. Thus, our proposed project alternative does not extend any streets into the long existing community. Excellent emergency access to VVA is provided from the south, and can be augmented, if necessary, by use of gated pedestrian/bike ways for emergency access.

The proposed project has other elements that could lead to blight, deteriorated neighborhoods, crime and low property values and related physical impacts. When one enters the community, one will see transmission lines as its major feature. The driver is taken on a road trip along power lines. Two of the proposed roads are adjacent to the power lines with no setback. Four of the proposed parks, the high school, intermediate school and elementary school, and a large (almost 1/3 mile long) unnecessary shopping attraction, are proposed adjacent to, or partly under, power lines. Schools and power lines don't mix well. There may be health and safety impacts stemming from this.

When people consider buying or staying here, they will be deterred by schools with huge power lines next to them. Quality school environments are necessary to ensure a stable neighborhood with high home ownership statistics. The combination of ugly, dangerous (the elementary school is surrounded by busy roads on all four sides) school environments and the transmission tower locations may destabilize neighborhoods, increase the number of potentially ill-maintained rentals, and thus increase crime and blight.

The only north south bikeway is proposed under the power lines. More than a mile of single-family homes abut power lines. Those homes are likely to evolve into rentals or nuisance properties as has been the case in almost every other location where houses are placed

adjacent to power lines without buffering and proper setbacks, including South Natomas, and Robla.

This proposal may also attract the nearby homeless population. They are currently expanding their way up Steelhead Creek, and inhabit the area parallel to the Panhandle along and east of the waterway. We fear they will be attracted to this large shopping center so they can scavenge in bins and panhandle. If they buy alcohol, we also fear they will drink, sleep or try to move into the park next to the shopping center. Mitigation measures need to be devised and adopted which provide funding to manage the homeless population drawn to the proposed shopping center and park. Otherwise, the rural neighborhood especially (no streetlights) and the new neighborhoods may experience increased crime and blight.

Finally, why is the shopping center partially under the power lines? Why is it next to the park site which would otherwise have the best potential for mitigating transmission power nuisance effects, and buffering Valley View? Large parks are not located next to large shopping centers in this City and especially in Natomas.

Additionally, this oversized strip mall will be the first thing people see when entering this part of North Natomas: a huge shopping center with huge power lines in it. This is a recipe for lowering the perception of the neighborhood and promoting blight. Who will be attracted here? We fear investors with rental dreams. Certainly not the upscale neighborhoods, the North Natomas Community Coalition and others are suggesting. Adverse aesthetic impacts need to be assessed, disclosed and mitigated to a less than significant level.

The impacts of a large, area-wide traffic attractor as opposed to the NNCP's original plan for small neighborly commercial uses for the nearby residents to visit on foot, stroller and bicycle need to be evaluated and mitigated. The physical effects of the social and economic blight potentially caused by this plan need to be evaluated, redesigned as mitigation or otherwise mitigated to the extent feasible.

The current residents of North Natomas are proud of their neighborhoods. They want to see the Panhandle area as an amenity to existing neighborhoods, perhaps even an upscaled addition. This project appears to be adding a potentially blighted area with low property values and potentially higher crime rates, into the mix. In the 1985 and 1994 North Natomas Community Plans, City Council prudently provided an open space buffer area in which potential nuisance impacts could be reduced by distance, landscaping and other amenities for roads and power lines.

Mitigation measures should be devised and adopted which provide adequate space and vegetation buffers along power lines as well as financing mechanisms for properly maintaining the easement areas. The provision of 3-5 acre lots along and under the lines could work as well as homeowners could maintain the portion of the property that they would not use and lush vegetation could remediate the visual blight on their properties. We previously provided a photo of the large backyard of a home in an upscale neighborhood which abuts a major transmission line.⁴ One may observe that the impacts have been well mitigated.

⁴ Our comments on the planning project and the Natomas precinct NOP are hereby incorporated by reference. They have been provided to Ms. Mahaffey separately.

10. Other Traffic and Air Quality Issues and Impacts. When Truxel/Natomas Boulevard was extended to Elkhorn Boulevard, it was downsized to ensure that it didn't induce growth on the Natomas Precinct site to the north, and to ensure that any future projects to the north did not dump thousands of cars per day into North Natomas via Natomas Blvd. (The project file for the Truxel Road Extension and associated planning, engineering and environmental documents, and comment letters, including additional staff work and analysis contained in the Valley View Acres Traffic Calming approval by City Council which closed Sorento Road to through traffic, are hereby incorporated by reference into these comments.)

This project proposes what appears to be up to 3 roads and six to ten lanes of access to Natomas Precinct, the exact opposite of previous Council approvals. This situation will cause the Panhandle to carry more cut through traffic than any other area of North Natomas. This is an area not located near the Town Center or Light Rail lines, nor planned to be a traffic attractor. High volume traffic/road areas are supposed to be limited to the Town Center and light rail areas. More traffic, more noise, and higher concentrations of carbon monoxide translate into greater potential for urban blight and undermine air quality plans and mitigation for North Natomas development.

Finally, where will the extra traffic from the north go after it reaches Del Paso Road?? There are no freeway entrances. Will our North Natomas neighbors to the west find all this additional traffic dumped into their portion of Del Paso Road, and the intersection of Natomas Blvd. and Del Paso Road? Will Club Center Drive, or the other connectors to Regency and Natomas Park, become cut-through routes from Natomas Precinct, Antelope, North Highlands and Rio Linda to employment centers and downtown? Those areas (except the precinct) used Sorento as a cut through before it was closed to through traffic. How much traffic will Sorento and Carey Roads carry? They provide direct access to Del Paso Road.

This proposal appears to be inconsistent with the traffic policies of the City's General Plan, and the Sacramento Council of Government's MTP/SCS with Blueprint Reference and Transit Priorities Map and policies. In fact, "under this MTP/SCS Map (horizon year 2036) no growth is anticipated to occur (Hargrove, 4/4/16)."

The Habitat Conservation Plan discourages projects that induce growth on areas not identified as growth in that Plan. This proposal will induce growth to the north and produce more traffic impacts than are necessary for a low-density residential community. There can't be access to the east because of the levee and public lands, none to the south because of existing industrial areas.

The proposed shopping center is huge, almost a third of a mile long creating a strip development along National adjacent to, and under, the power lines. It will attract trips from other neighborhoods to the east and south, and from western North Natomas. This area already has too much unplanned commercial development.

County and City plans did not envision a long commercial strip along Del Paso Road. However, one has slowly evolved and new commercial businesses, like Track 7, are continually being added immediately south of Del Paso Road in the once mainly industrial area.

A traffic study evaluating the impacts of previously unplanned strip development along Del Paso Road, the commercialization of nearby streets and industrial areas, such as North Market, the subject project's shopping mall and other proposed 600 acre Panhandle development, and southerly traffic from the 5,600 acre Natomas Precinct, needs to be undertaken as part of this DEIR project so project related and project specific and cumulative significant adverse traffic, circulation, air quality and livability impacts may be adequately assessed, disclosed and mitigated. Current air quality and traffic plans, strategies, policies and mitigation, transit planning and strategies, transit corridor development, and town center policies need to be reevaluated in light of the commercialization of eastern North Natomas.

The local road network was not designed to carry traffic from these additional commercial uses.

North Natomas air quality and traffic mitigation plans and programs were designed to concentrate work and shopping near transit corridors. What are the actual project specific, and most important, cumulative impacts of all this additional shopping and commercial activity? How does the proposed large shopping center contribute to significant adverse traffic, circulation and air quality impacts? Mitigation needs to be provided to minimize or avoid these adverse impacts to the extent feasible. We are asking for a mitigated plan which removes the over sized shopping attraction and replaces it with a few small neighborhood oriented commercial locations

The road network appears to be over built and expensive. Can it be reasonably financed? North Natomas residents are accustomed to beautiful sound walls and landscaping along busy connector streets. Speed bumps have had to be installed along streets, such as Sagebrush, which were being used as cut-throughs to Elkhorn even though they weren't planned that way. Who will pay for the traffic calming, the walls, the landscaping for 2-3 north-south roads and nine busy collectors?

Future residents will be required to pay for this over construction through increased fees and unnecessarily inflated financing plan costs. We are also concerned that this road network is actually being designed to accommodate future requests for higher densities. We wonder why the project proponents and the City would be willing to fund so many major streets.

Previous financing plans have proved inadequate to fund road improvements and other infrastructure found to be necessary after project approvals. The DEIR needs to assess this road network from many perspectives, safety, air quality and circulation, nuisance, impact on crime activity and feasibility in terms of funding and maintenance.

Mitigation measures need to be proposed and adopted which ensure that the traffic will be appropriately calmed, adverse aesthetics and nuisance issues will be mitigated, requests for higher densities discouraged, and financing is in place for identified mitigation before road construction is permitted to begin. In the early 2000s, the City failed to require extension of Truxel, and other backbone roads, before thousands of homes were constructed. It caused a very traffic situation. This proposed project's backbone roads, especially the extension of National Drive, need to be constructed prior to the construction of homes in the Panhandle.

It appears the City and project proponents have thus far not been able to engage the owners of 123 acres in the North Panhandle in this process. At one point in the past, those owners

opposed the extension of National. For a while, they supported annexation. It is unclear what they are doing now.

A mitigation measure need to be adopted which requires that all property owners in the annexation area agree to the extension of National Drive prior to any construction on this site. A mitigation measure also needs to be adopted which ensures financing of the entire road by the project proponents if the 123 acre parcel owners do not agree to participate, or decide not to develop their property.

The process of eminent domain is complex, expensive and time consuming. If the City has to pay to extend this road, how will they fund it?

We oppose a plan to essentially empty streets into people's front yards. By that, we mean that two streets proposed to access Sorento Road, (Mayfield and street D) end in front of existing residences. They point hundreds of cars and headlights at these peoples' front yards and living rooms, plus noise, litter and potential crime. These impacts need to be quantified, disclosed and mitigated. Street A easily connects the high school site to Sorento and the East Levee Road; Mayfield connects the elementary school and high school to Sorento. Twin Rivers has asked for access to Sorento Road in the past, a proposal which is no longer related to their education facility needs. Their entire school facility is now proposed to be located west of National Drive. Their proposed urban development project can use National Drive as access

Busy roads have not been designed in North Natomas to dead-end into existing residences. Why here? So far, almost 190 Valley View Acres residents representing 95% of the community have signed a petition requesting that no roads from the new development be dumped into our neighborhoods, and that a buffer be provided to protect our neighborhood from future nuisance complaints.

If criminals, or teenagers leaving late night high school events, stop at a stop sign or light and sit looking at a house or yard, they will get ideas. Crimes will happen. Last week, an officer came to a neighborhood meeting and told us the Valley View Acres crime rate was lower than the rest of North Natomas because we are isolated (See Attachment D). We welcome our new neighbors, but, just like our North Natomas neighbors to the west, we don't want unnecessary traffic from urban development to blight our individual neighborhoods. Elsewhere in North Natomas, streets are ended or cul-de-sacs placed on ends to deter strangers from casing our neighborhoods or speeding.

The new streets are meant to serve the new neighborhoods, not Valley View Acres. The rest of North Natomas was designed to calm traffic as much as possible and to minimize adverse traffic impacts on the internal neighborhoods. This plan proposes to completely undermine previous efforts to upgrade Valley View Acres and reduce blight there, and in surrounding areas. Certainly, other North Natomas neighborhoods were designed with this in mind.

We object to the continuing degradation of planned potential for this site, the last major east North Natomas development opportunity. We do not want to replicate the blight and crime provoking characteristics that have caused so much misery in Gardenland and Northgate. The City has expended a lot of money trying to fix the crime, poverty, rental issues, traffic issues and other problems plaguing those under protected neighborhoods. They are

neighborhoods with the same levee and transmission features as the Panhandle/Valley View area.

Gardenland was just like Valley View at one time. Some of our neighbors grew up there. Poor planning, and unaddressed traffic intrusion issues, caused it to change greatly.

12. Creation of an unincorporated island within a City. This project is inconsistent with the provisions of the CKH Act regarding creation of unincorporated islands within cities. The State legislature has worked diligently to eliminate existing unincorporated islands because of their adverse public service provision impacts upon inhabitants and property owners within unincorporated islands and the surrounding areas. Interfaces between service providers are often difficult to manage. This project exacerbates existing nuisance abatement, police, fire, road maintenance, water and sewer and other service provision issues in this area.

Thank you for the opportunity to comment on the NOP. We will continue our fact-finding efforts and provide you with information we believe will facilitate the best possible land use decisions. We look forward to working with you, the project proponents and community on this project.

We look forward to working with City, County and LAFCO staff, our elected and appointed officials, our neighbors and friends throughout the Natomas Community and the project proponents to develop the most livable and attractive project possible, one which enhances our communities and is consistent with our plans and dreams.

Thank you again for your work on this important project.

Sincerely Yours,



David Lichman, Leader
Valley View Acres Neighbors Working Together
5000 Tunis Road, Sacramento, California 95835



Barbara Graichen
President, North Natomas Community Association
Liaison, Valley View Acres Neighbors Working Together
Former City/SAFCA Ueda Parkway Coordinator
Organizer, Friends of the Ueda Parkway
Owner, Graichen Consulting
5010 Sorento Road, Sacramento, California 95835

Attachment A

Table A-1

Approved or Pending Greenfield Plans included in adopted 2035 MTP/SCS as Developing Community	Total Housing Units Planned/Proposed in Project	Housing Units Estimated to be Built by 2035 in Adopted MTP/SCS	Approved or Pending Greenfield Plans not included in adopted 2035 MTP/SCS	Total Housing Units Planned/Proposed in Project
Isleton			Isleton	
			Village on the Delta Specific Plan	300
Rancho Cordova			Rancho Cordova	
Sunridge Specific Plan	8,763	7,571		
Rio Del Oro Specific Plan	11,601	8,057		
Ranch At Sunridge Specific Plan	2,713	2,296		
Suncreek Specific Plan	4,893	1,834		
Arboretum ¹	4,742	571		
Westborough ¹	6,078	756		
Sacramento			Sacramento	
Delta Shores Specific Plan	5,092	5,077		
Unincorporated Sacramento County			Unincorporated Sacramento County	
Elverta Specific Plan	4,950	1,507	Cordova Hills Specific Plan	9,010
North Vineyard Station Specific Plan	6,063	3,292	Jackson Township Specific Plan	6,143
Vineyard Springs Specific Plan	5,942	3,740	Newbridge Specific Plan	3,075
Vineyard Community Plan	6,610	5,251	Northwest Special Planning Area	22,000-25,000
Florin Vineyard Specific Plan	9,919	2,552		
Glenborough at Easton Specific Plan	3,239	3,262		
West Jackson Specific Plan	15,658	5,150		
Mather South Specific Plan	2,504	1,039		
Sutter County			Sutter County	
Live Oak			Live Oak	
			Live Oak northern annexation ¹	2,700
			Live Oak SOI ¹	10,900

Panhandle Working Group Support Position for retention of the City Council approved WAPA/Valley View Acres/Steelhead Creek OPEN SPACE buffer

The City Council should retain the Open Space Buffer in the current Panhandle Plan for a variety of mutually supportive reasons.

- 1. Because it was approved unanimously by City Council on May 3, 1994 after the North Natomas Community Plan Working Group consisting of residents, associations, property owners and staff, unanimously supported it, and hundreds of residents attended City Council meetings to express support. Greenbelts around a community's edge enhance a community's sense of identity, and provide recreational opportunities for all residents. The North Natomas Community consists of 9,038 acres of former agricultural land; most of which is now designated for urban uses. The community deserves to keep the community plan's major open space components.**
- 2. Because retention of the open space buffer received a super majority vote from the 2004-05 Panhandle Working Group. Informed working group representatives voting to retain the open space buffer included:**

Jude Lamare, Environmental Council of Sacramento
Barbara Graichen, Natomas Community Association
Mike Chavez, North Natomas Alliance
Charles Gray, Natomas Park Homeowner's Association
Bob Pinkiert, North Natomas Community Association
Michael Lopez, Sr., Valley View Acres Community Association
Steve Marmolejo, independent resident
Carol Shearly, City of Sacramento

The only two dissenting votes came from Dunmore Homes and JB Properties.

- 3. Because hundreds of residents and community associations called elected officials and wrote letters supporting the open space buffer in 1994 and 2003-04. More than a thousand residents have signed petitions supporting the open space.**
- 4. Because numerous community associations and organizations discussed the Panhandle at dozens of meetings reaching more than a thousand residents, and decided to support a plan which retains the open space buffer. Supporters include, but are not limited to:**

NATOMAS COMMUNITY ASSOCIATION
ENVIRONMENTAL COUNCIL OF SACRAMENTO

NORTH NATOMAS COMMUNITY ASSOCIATION
NORTH NATOMAS ALLIANCE
ROBLA PARK COMMUNITY ASSOCIATION
VALLEY VIEW ACRES COMMUNITY ASSOCIATION
WEST NATOMAS COMMUNITY ASSOCIATION
RIVER OAKS COMMUNITY ASSOCIATION
SIERRA CLUB
GARDENLAND NORTHGATE NEIGHBORHOOD ASSOCIATION
FRIENDS OF SWAINSON'S HAWK
NATOMAS PARK HOMEOWNER'S ASSOCIATION

5. Because it buffers horse properties, agriculture, and the existing Valley View Acres neighborhood from incompatible urban uses.

In 1985 and 1994, City Council recognized that North Natomas was not just empty farmland. Rather, there existed a long-established community on its east side where generations of families with a rural lifestyle live. Valley View Acres is a close-knit neighborhood extending along Sorento Road from Del Paso Road north to the East Levee Road near Wolf Ranch Wildlife Refuge, and identified as Valley View Acres/Valema Farms on historic subdivision maps. Steelhead Creek forms its eastern boundary. Cows, horses, poultry, and small-scale agriculture, distinguish a neighborhood where 4H, livestock competitions, and horse whispering are as common as computers. Valley View Acres was designated for rural uses on the 1994 Community Plan, and the open space buffer was created, in large part, to separate uses considered nuisances in urban areas from the new North Natomas neighborhoods.

As part of the land use compatibility strategy, southern Valley View residents agreed to downzone their properties from low density to rural residential in 1994. City Council, city staff and residents agreed that a buffer was needed to avoid future nuisance complaints, and ensure that sewer and water lines did not extend to Sorento Road and induce applications for denser growth amidst the horse properties, and possibly fuel future in-fighting.

The residents of Valley View Acres received a commitment from City Council to protect their lifestyles over the long term by providing a buffer of open space along the west side of Sorento Road.

A major problem with bringing low density (half acre lots to 7 units per acre) housing close to horse properties, livestock and small scale agriculture is that future buyers west of Sorento Road may not appreciate being so close to animals. Some are likely to disapprove of the way livestock is managed, and generally object to sights, sounds and smells, which are part of country life. Some are likely to complain about these "nuisances" even though they knew Valley View Acres was there when their homes were purchased. This is similar to what happens when people move next to an airport and then complain about the noise and want the flight paths changed.

A good example of this is a recent well-publicized case, which caused huge headaches for elected officials, hard feelings among neighbors, and unnecessary expenditures on lawyers. It's the case of the Placer County family who fought, last year, to have braying donkeys removed from a nearby horse property, a parcel similar to those found in Valley View Acres. The new neighbor couldn't tolerate a sound other neighbors found pleasant. It didn't matter that the donkey was there first; or that the neighbor knew they moved next to a horse property. The new neighbor still fought hard to get rid of the donkey.

Valley Acres residents are farmers, PTA presidents, school Board members, volunteers for numerous associations, the Urban Creeks Council north area coordinator, cofounder of the City's mounted horse patrol, teachers, police officers, horse whisperers, artists, attorneys, emergency personnel, nurses, accountants and secretaries. Many have lived here more than fifty years, including Nando Santos who remembers his mother washing him under the hand pump for their well; or Reyes Torres who remembers the first flush toilet!

They love a lifestyle rare in the urban environment, a lifestyle City Council endorsed for them in 1994 when it voted to formally permit the keeping of livestock in the neighborhood. Please don't remove the planned buffer, which protects long time residents from nuisance complaints and potential litigation.

6. Because it protects new neighborhoods from the economic, health and safety and nuisance impacts of multiple 230 kV Western Area Power Administration (WAPA) and SMUD transmission corridors.

The WAPA 230 K power lines form an existing edge to the urban area that works well for public safety reasons. Maintaining an open space buffer east of those lines and between them and Valley View makes a lot of sense for good urban planning. Developing close to the lines on both sides squeezes urban uses too close to the power lines.

The 1985 EIR for the North Natomas Community Plan devoted numerous pages of analysis to the potential effects of WAPA/SMUD high voltage transmission corridors on future North Natomas residents. It discussed corona effects, noise, biological effects and other potential damage to the health and safety of future City residents. The Environmental Impact Report consultants advised the City that it should not place any future residences within 250 feet of the transmission corridor. City Council listened to their technical advice and the testimony and perspectives of those who wished to protect future residents, especially children, from adverse effects, and to those who expressed concerns that the placement of apartments and backyards in close proximity to towering steel structures would depress property values and encourage transiency.

City Council approved the 170.5 acre "WAPA" buffer, which extends almost two miles from Elkhorn Boulevard to Del Paso Road, in May 1994. City Council made it wide enough to ensure that future residences could not be placed in close proximity to the corridor. National Drive, a major arterial, was placed adjacent to the western edge of the buffer adding 100 +/- feet to its western edge and ensuring no residences within 250 feet of the power corridor.

In 2004, Grant School District purchased a high school site in the Panhandle, and set back all improvements, including parking lots, a full 150 feet from the power structures. They did it willingly, but, in reality they had no choice. State law requires a minimum 150-foot setback for parking lots or any other improvements.¹ School buildings should and will be placed even further away.

It is important to keep in mind that children don't just need to be protected at schools. Children will play in wading pools and playpens, sleep in bedrooms, play on swings, lay on blankets and frequent the backyards and balconies of future homes and apartments. They don't attend school all year. They do use their yards all year. We need to be cautious when exposing them to the potential health and safety effects of massive high voltage power lines.

Electric and magnetic fields are invisible energy fields that surround any electrical device, including electrical transmission lines. Together these fields are called electromagnetic fields (EMFs). All types of electric energy facilities and appliances generate EMFs. In part because of their visibility in areas of human habitation, electric energy transmission facilities generate the greatest public concern. Once emitted from the source, an EMF dissipates in a circular pattern and weakens with distance from the emitting source. Electrical fields are shielded or weakened by materials that conduct electricity (including trees, buildings, and human skin). Magnetic fields pass through most materials and are therefore more difficult to shield².

A variety of epidemiological and laboratory studies, including those sponsored and funded by international, federal, and state organizations and agencies, have been carried out regarding EMF exposure and its potential human health risks. With regard to electric energy facilities, a connection between exposure to the type of EMF generated by electric energy facilities and childhood cancer (e.g., leukemia) has been suggested, but consensus conclusions have not been reached.

In 1991, the California Public Utilities Commission (CPUC) began an investigation into the possible health effects of electromagnetic fields (EMFs). A Consensus Group consisting of citizens, utility representatives, union representatives, and public officials was established to define near-term research objectives and develop interim procedures to guide electric utilities in educating their customers, reducing EMF levels, and responding to potential health concerns. The Consensus Group concluded that the body of scientific

¹Regulations adopted by the California Department of Education require minimum distances between new schools and the edge of transmission line rights-of-way. The setback guidelines are: 100 feet from 50- to 133-kVA lines; 150 feet from 220- to 230-kVA lines, and 350 feet from 500- to 550-kVA lines. These requirements are based on the prudent rationale that the EMF drops to more acceptable levels the further the wires are from the receiving person or thing.

² California Public Utilities Commission, 2003

evidence continues to evolve. However, they recognized that public concern and scientific uncertainty remain regarding the potential health effects of exposure of EMFs generated by electric energy facilities (CPUC 2003).

Based upon these findings, the CPUC recommended that the state's utilities carry out "no and low cost EMF avoidance measures" in construction of new and upgraded utility projects. The Sacramento City Council adopted WAPA open space buffer is one such measure. It permits land currently designated for agricultural or open space uses to continue in such uses. It constitutes an insurance policy for our children. We don't believe City Council wants to take an action that could later be proven to have caused leukemia or birth defects in even one child.

The power lines are very noisy especially when it is foggy, humid or there is much moisture in the air. Homes can be soundproofed to eliminate much of the noise, but yards and balconies can't be soundproofed. People work in their yards, mow lawns, play catch, work on their cars, use outdoor spas, and send children outside when it is cloudy or slightly foggy. The North Natomas Community Plan EIR recommended a 250-foot setback from the WAPA corridor because the noise is a severe nuisance, and somewhat threatening to residents. This setback needs to be maintained.

Cracking and popping, accompanied by the downright ugly appearance of the two lines of massive structures, creates an environment, which lowers property values, degrades quality of life and dissuades long-term residency. Transiency is a precursor to blight and crime. City Council needs to retain the approved WAPA buffer to ensure that this area of North Natomas is not planned for blight and transiency.

Retention of the open space buffer makes economic sense as well in terms of the region's future energy needs. It ensures that WAPA and SMUD can add additional voltage and/or lines to the transmission corridor without adverse effects on future residents, thus protecting future power grid choices. As the voltage carried by the WAPA/SMUD transmission corridor increases, buffer widths may need to be increased or other options pursued if we don't retain the already approved buffer. It's prudent to protect our power infrastructure from encroachment just as we protect our airport.

- 7. Because the North Natomas Community Plan was ahead of its time; it was designed to support smart growth including the placement of higher densities near the town center and light rail, and reduced densities in areas, such as the Panhandle, where the circulation system was not able to handle higher densities due to constraints caused by the eastern levee system and floodways, and there was a need to buffer habitat, natural resources and agricultural residential uses in Valley View Acres, the deep floodways of Dry, Robla and Steelhead Creeks, the Dry Creek Parkway, Ueda Parkway and floodprone, rural Rio Linda from the urban edge of North Natomas.**

A goal of smart growth is to concentrate densities in appropriate areas thus ensuring maximum conservation of important agricultural land and wildlife habitat. Retention of

the open space buffer does just that. In recognition of its relationship to smart growth principles, the Sacramento Area Council of Government's regional Blueprint includes the Panhandle open space buffer. A vote to retain the buffer is a vote to support the SACOG blueprint, which City Council has endorsed.

The Panhandle is located at the urban edge far from light rail and the town center and was designed to be less dense as part of the smart growth plan. The Panhandle is bounded by agricultural uses on the north; and rural floodprone Rio Linda, Steelhead Creek, the Ueda Parkway, Hansen Ranch, rural Valley View Acres and the Dry Creek Parkway on the east.

The road infrastructure is inadequate to support much additional traffic because the floodway prevents the construction of any eastbound roads between Elkhorn and Del Paso Road, and National Drive dead ends to the south. The East Levee Road, north of Elkhorn can't be widened to accommodate northbound traffic, and no alternative road exists. Filling the open space buffer with land uses that generate another 8,000 daily vehicle trips, in an area unsuited for transit use, is a recipe for congestion. City Council and plan preparers acted wisely when it approved the open space buffer. It needs to be retained.

- 8. Because the open space buffer provides habitat and forage for nesting White Tailed Kites, Swainson's Hawk, Kestrel Falcons, Burrowing Owls, tri-Colored Blackbirds, Northern Harriers, Red Tailed Hawks, Great and Snowy Egrets, Great Blue Herons, and a variety of other raptors, birds, mammals, reptiles and amphibians. It also is part of a wildlife corridor including the Wolf Ranch Wildlife Refuge, Steelhead Creek and the Ueda Parkway.**

The "panhandle" provides important breeding and foraging habitat for a number of species including those nesting or breeding at the adjacent Wolf Ranch Wildlife Refuge, Steelhead Creek, the Ueda Parkway, Hansen Ranch and the Dry Creek Parkway. Among special status species are the western burrowing owl (*athene cunicularia*), swainson's hawk (*buteo swainsoni*), white-tailed kite (*elanus leucurus*), as well as some of the last remaining vernal pool habitat in northern Sacramento County. The California Department of Fish and Game designated the western burrowing owl as a *Species of Special Concern* because their populations have been undergoing a severe decline in the Central Valley (DeSante et al 1994). Burrowing owls, as their name implies, are ground nesting birds that are largely dependent upon fossorial mammals (such as ground squirrels) to dig their nest burrows. Semi-colonial nesters, burrowing owl colonies were once common in the Central Valley, but it is increasingly rare to find more than one or two pairs of owls, even where there are still large numbers of ground squirrels.

Swainson's hawks are designated as *Threatened* by CDFG. They return to the Central Valley to breed around March each year from their wintering grounds in Central and Latin America. They quickly reestablish nesting territories and begin nesting in order to rear young before beginning their annual migration in the fall. Swainson's hawks forage on animals found in short grassland habitats and agriculture such as irrigated and dry pasture, and row crops: small rodents (mice and voles), lizards, and large insects (crickets and

grasshoppers). Studies in the Central Valley have documented Swainson's hawks traveling as far as 18-miles from their nest sites to forage (Estep 1986). These distances are not out of choice, but out of necessity, due to the continued conversion of foraging habitat to other land uses (notably housing development), and the loss of suitable nesting habitat. The Panhandle is an important foraging area for nearby nesting Swainson's hawks.

White-tailed kites, designated as *Fully Protected* by CDFG, feed on small rodents and insects, and are known to nest on at least one of the small ranches located immediately east of the Panhandle. Kites are often observed foraging over the grasslands of the Panhandle area.

Seasonally inundated vernal pools provide important foraging habitat for migrating waterfowl, and breeding habitat for other species such as western spadefoot toad and California tiger salamander. California's vernal pools have the highest percentage of endemic plant species of any plant community, and provide critical habitat for several federally listed invertebrates.

Retaining open space is critical to the conservation and protection of these species in the North Natomas Basin. As development continues to encroach on wildlife habitat, the last few areas of open lands become ever more valuable. Although bisected by large transmission lines, the open landscape of the Natomas Panhandle is an important wildlife corridor, linking the Ueda Parkway, the Sacramento Area Flood Control Agency's Steelhead Creek wetland restoration sites, and Wolf Ranch Wildlife Refuge, and ultimately to the American River Parkway to the south, the Dry Creek Parkway and Greenway to the east, and the Natomas Cross Canal to the north.

It should be noted that birds and raptor use the power transmission lines and structures as roosts. It is not unusual to see hundreds of birds lined up along a wire. Raptors sit on them and watch for prey to emerge.

The Natomas Basin Habitat Conservation Plan (HCP) identifies 800 feet as the proper setback of urban development from preserved habitat lands. The setback is intended to reduce 'edge effects' as well as protect nesting sites from disturbance. The City's biological consultant, Padres Associates, said in its report that any widening of a buffer area "could reduce edge effects and benefit core area species inhabiting the existing habitats."

Although the land adjacent to the east side of the buffer is not "preserved habitat land" as defined in the HCP, it is preserved habitat land as defined by the US Fish and Wildlife Service, State Department of Fish and Game, and Sacramento Area Flood Control Agency. The adjacent Steelhead Creek and Wolf Ranch Wildlife Refuge Retention are designated habitat and mitigation lands hosting Pelicans, Cormorants, Stilts, various raptors, beavers, Western Pond Turtle, Giant Garter Snake, avocets, swallows, and encompassing more than 100 acres of native tree, shrub and grass plantings and environmental restoration areas, and part of the 1,000 acre Ueda Parkway. They must be retained in perpetuity. Retention of the open space buffer reduces the edge effects for species nesting at the wildlife refuge, Hansen Ranch and along Sorento Road and supports survival of threatened species.

- 9. Because a portion of the buffer is already constrained by the RD 1000 levee, or needed to facilitate RD 1000 access for emergency and maintenance purposes.**

The eastern most buffer (levee toe) along the East Levee Road is owned by RD 1000, and reserved for levee maintenance and access.

- 10. Because too much open space has already been lost in the eastern end of North Natomas, and several upzones have occurred. A 24-acre lake, and most of the approved 164.4-acre golf course along Club Center Drive have already been rezoned.**

Jude Lamar

Jude Lamar, Environmental Council of Sacramento

Barbara Graichen, President

Barbara Graichen, Natomas Community Association

Mike Chavez

Mike Chavez, North Natomas Alliance

Bob Pinkiert
Bob Pinkiert, North Natomas Community Association

Michael Lopez
Michael Lopez, Sr., Valley View Acres Community Association

Steve Marmolejo
Steve Marmolejo, independent resident

Wendy Garrison
Wendy Garrison (alternate), Natomas Community Association

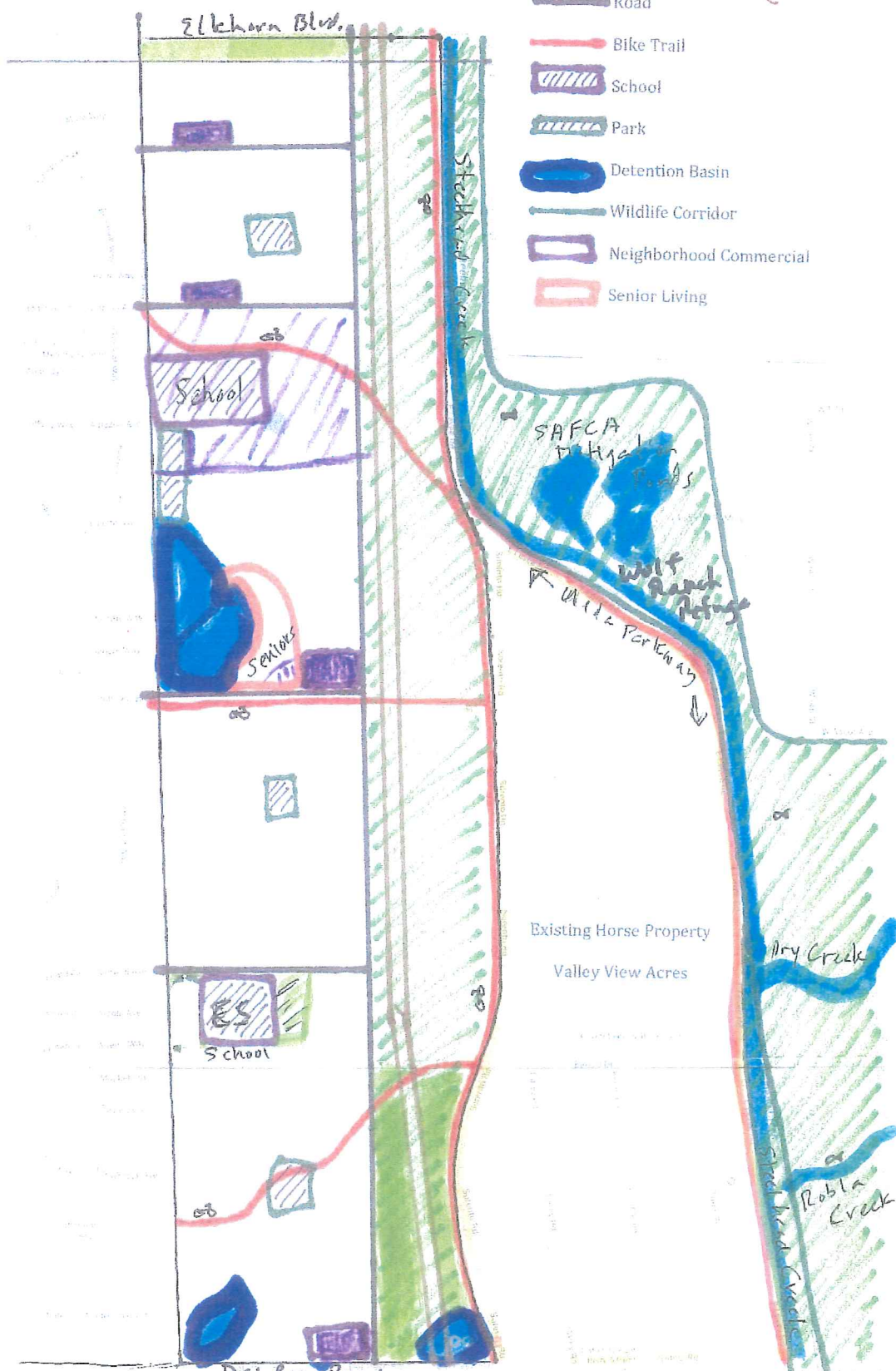
Joe Angel
Joe Angel (alternate), Valley View Acres Community Association

Contributors: David Lichman, Perelli Company, Amy Meyer, Environmental Specialist,
Rebecca Cull & Camille Remy, biologists, Sustainable Environmental Consulting

Attachment
C

Legend

- Road
- Bike Trail
- School
- Park
- Detention Basin
- Wildlife Corridor
- Neighborhood Commercial
- Senior Living



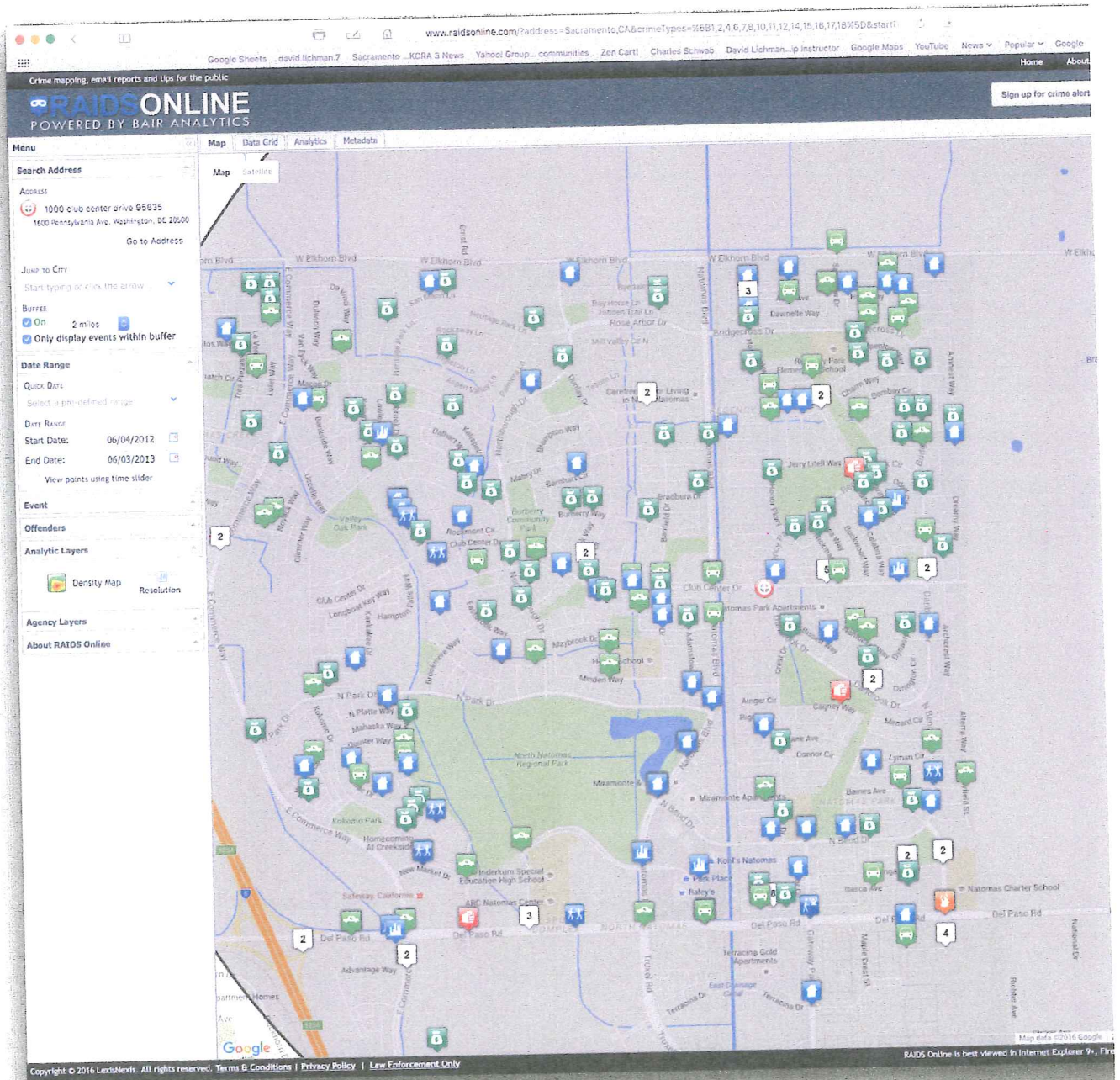
Community Proposed Alternative
(Conceptual)

Attachment D

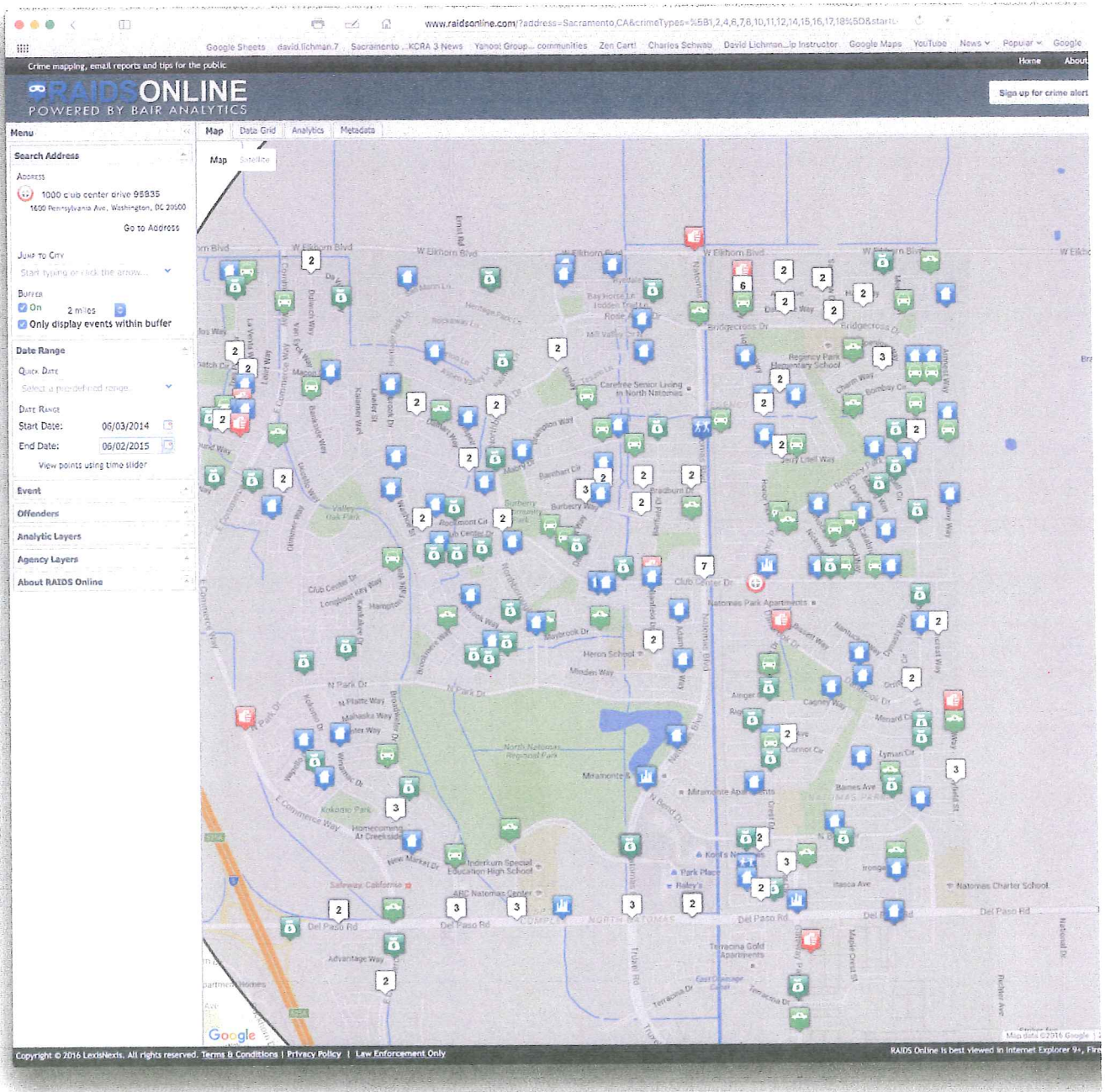
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From: dllichman@aol.com
To: NNatomas@aol.com

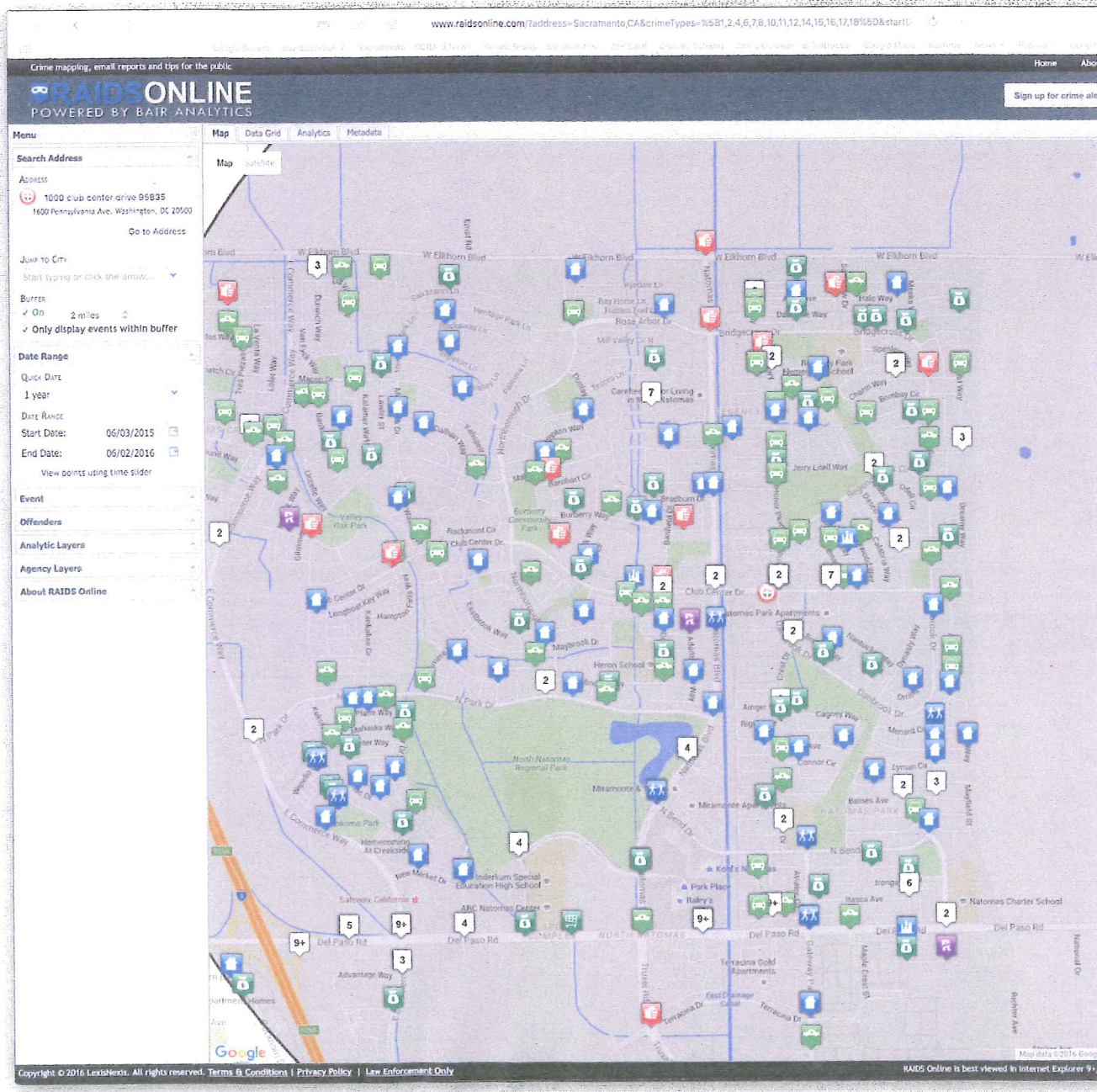
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A picture is worth a thousand words... three different date ranges...



Crime statistics





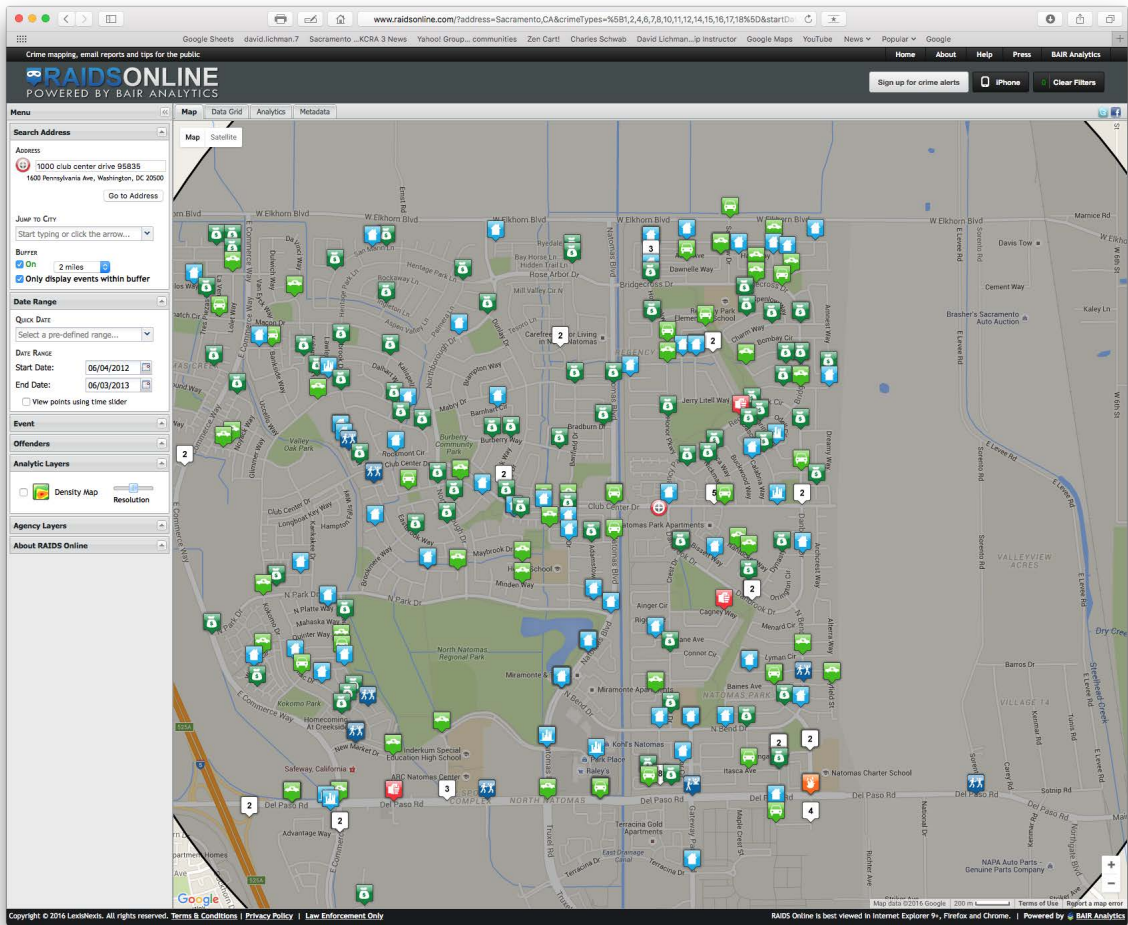
From: NBalomas@aol.com
To: Dana.Mahaffey
Cc: david@davidlichman.com
Subject: Response to NOP for Panhandle Annexation Proposal
Date: Monday, June 13, 2016 4:20:20 PM
Attachments: [Screenshot2016-06-02a11.44.55PM.png](#)
[Screenshot2016-06-02a11.41.50PM.png](#)
[Screenshot2016-06-02a11.40.41PM.png](#)

Dear Dana

Attachment D is missing the right side of each page, so you can't see the Valley View statistics. I did not have time to fix it before I delivered our comment letter. These maps should be added to our comments and labeled revised Attachment D. Thank you.

Barbara Graichen
718-0877

A picture is worth a thousand words... three different date ranges...



www.raidsonline.com/?address=Sacramento,CA&crimeTypes=16,581,2,4,6,7,8,10,11,12,14,15,16,17,18&5D&startD...

Crime mapping, email reports and tips for the public

RAIDSONLINE

POWERED BY BAIR ANALYTICS

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Menu Map Data Grid Analytics Metadata

Search Address
Address: 1000 club center drive 95833
1600 Pennsylvania Ave, Washington, DC 20500
Go to Address

Jump to City
Start typing or click the arrow...

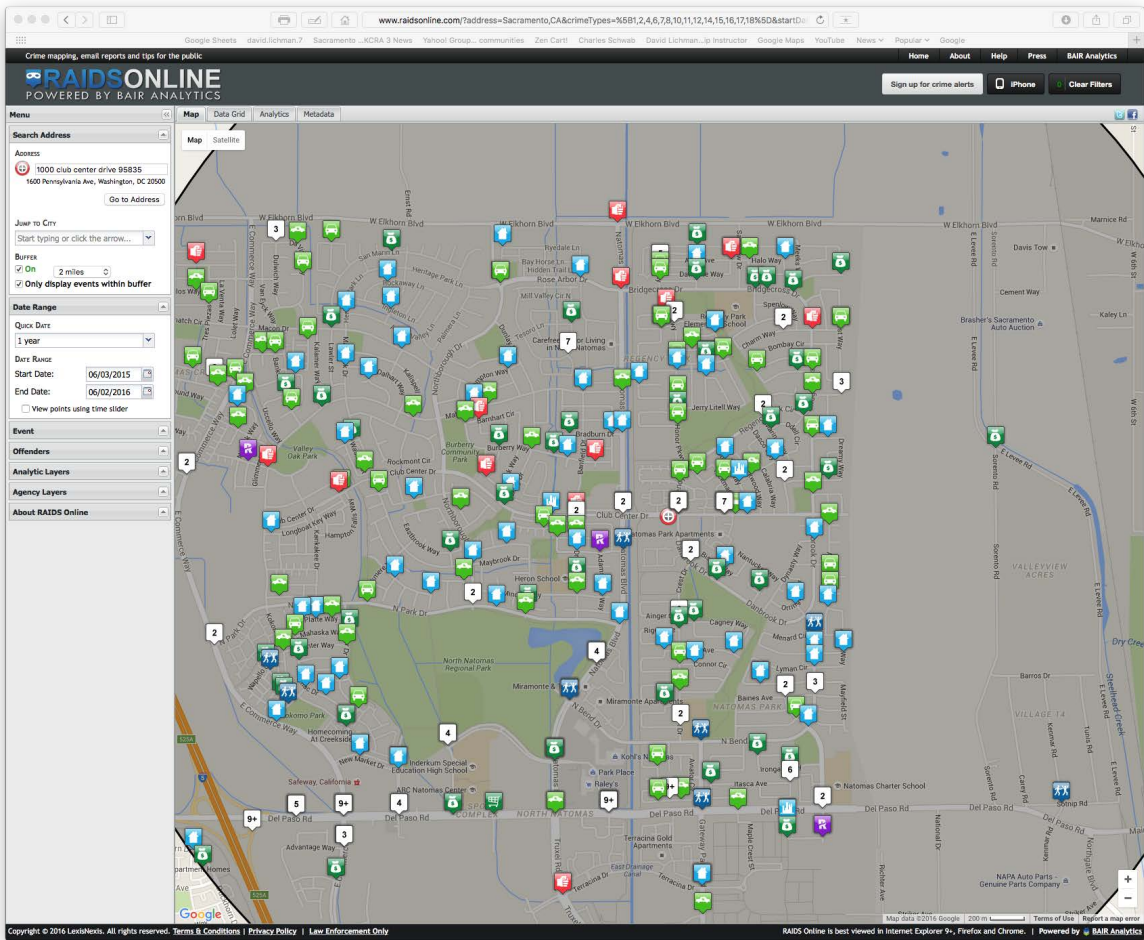
Buffer
On 2 miles
Only display events within buffer

Date Range
Quick Date: Select a pre-defined range...
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View points using time slider

Event
Offenders
Analytic Layers
Agency Layers
About RAIDSONLINE

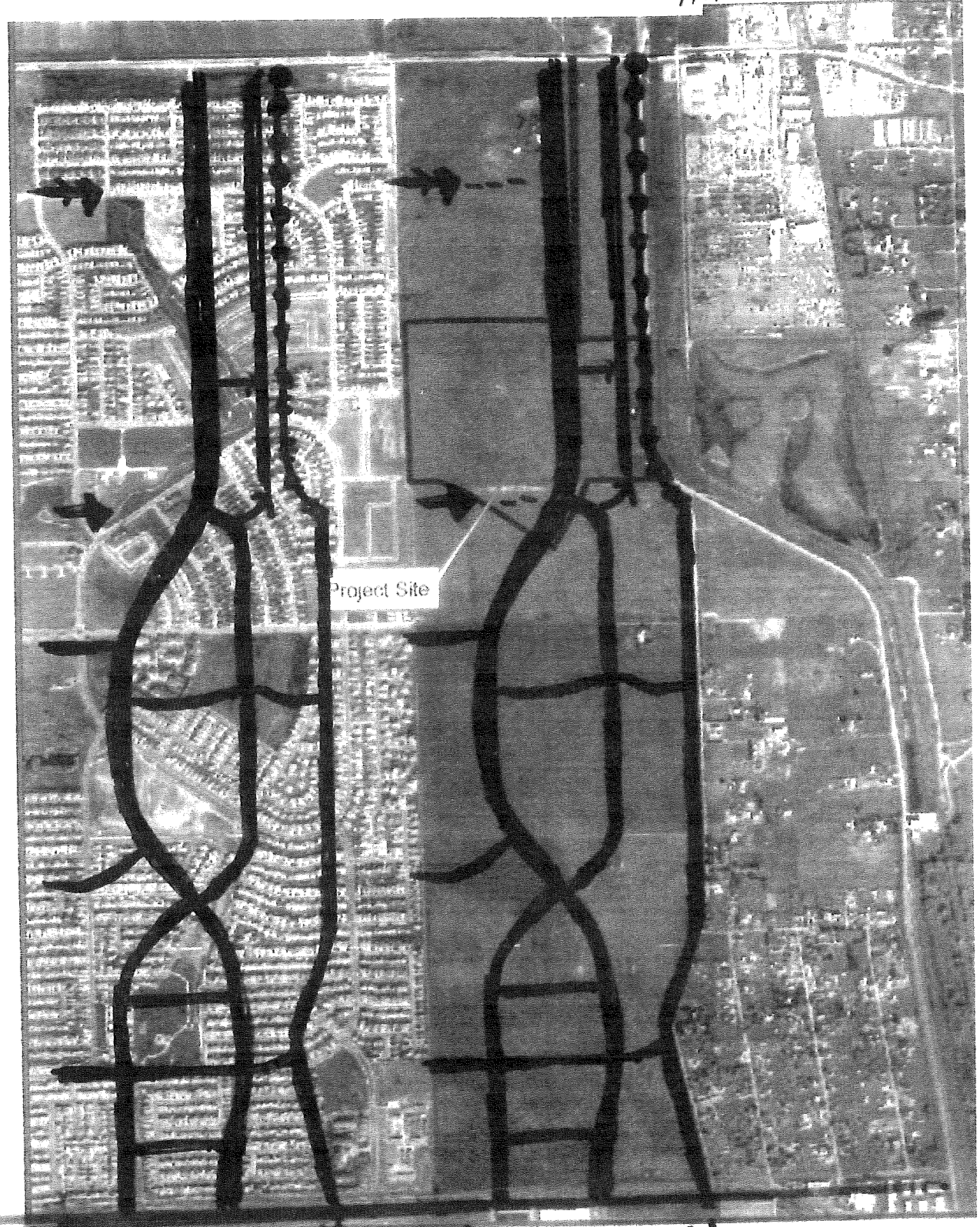
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RAIDS Online is best viewed in Internet Explorer 9+, Firefox and Chrome. Powered by BAIR Analytics



Valley View Acres Neighbors Working Together - Barb Grauechen 991-2177

Attachment E



Natomas Park

- 0 north-south through streets
- 1 east-west to Natomas Blvd.

Panhandle

- 3 north-south through roads
- 9 east-west through roads to National Drive

Appendix B

The Panhandle Planned Unit Development Guidelines

THE PANHANDLE

planned unit development guidelines



DRAFT 7: June 1, 2017

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- 1.3 Guidelines Organization
- 1.4 PUD Guidelines Amendment Process
- 1.5 PUD Schematic Plan
- 1.6 Illustrative Land Use & Bikeway Exhibit

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- 2.2 Development Standards
- 2.3 Design Guidelines
- 2.4 Westerly Project Interface
- 2.5 Easterly Project Interface

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- 3.2 Development Standards
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SECTION I PLAN OVERVIEW

1.1 Plan Area Context

The PANHANDLE is located entirely within the City's Sphere of Influence (SOI) and within the North Natomas Community planning area. The PANHANDLE is located adjacent to City lands on the west and east and adjacent to County lands on the north and south and is bounded by Elkhorn Boulevard on the north, Sorento Road and East Levee Road on the east, Del Paso Road on the south, and Lone Tree Road on the west.

The PANHANDLE Planned Unit Development (PUD) Project acreage (the area subject of these Design Guidelines) encompasses approximately 466.4 acres.

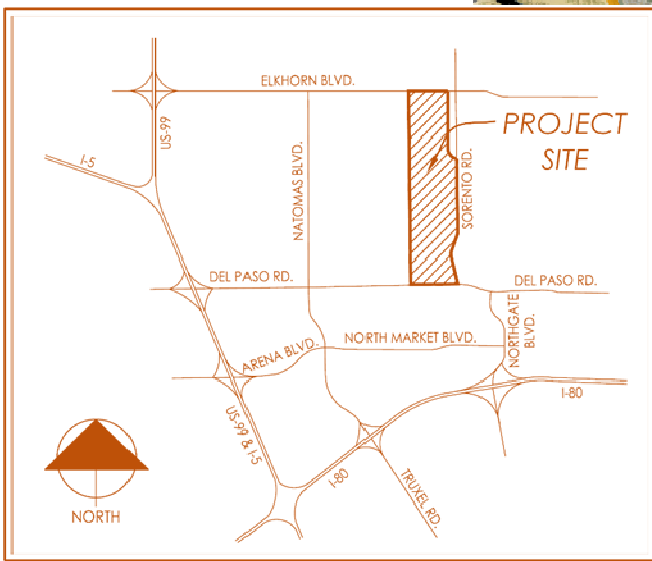
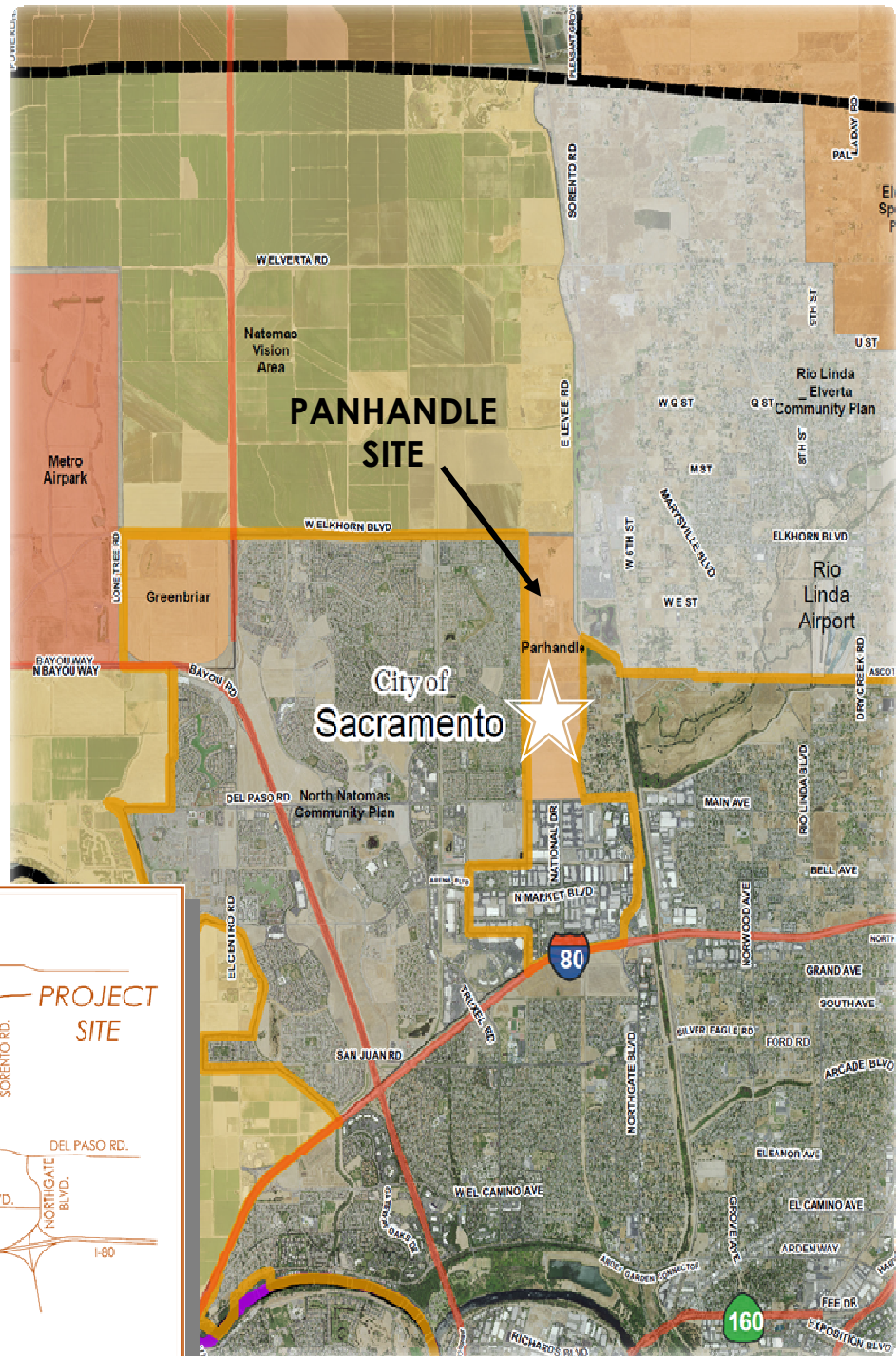


EXHIBIT I: PLAN AREA CONTEXT MAP

THE PANHANDLE PUD

PLANNED UNIT DEVELOPMENT Guidelines

The area to the west of the Project site is comprised of suburban residential development and the area east of the Project site is comprised of suburban & rural residential lands and agricultural lands. General Plan land use designations west of the Project site are typical for suburban development and include Suburban Neighborhood Low Density (SNLD), Suburban Neighborhood Medium Density (SNMD), and Public uses (PUB, for a charter school site). General Plan designations east of the Project site include SNLD and Rural Residential (RR).

High-voltage power lines traverse the eastern part of the property, in a north-south direction. Two sets of steel lattice towers supporting 230 kV lines (east tower) and 115kV lines (west tower) are owned by the Western Area Power Administration (WAPA) and are located within a 250-foot wide powerline easement. Radio towers are mounted on top of the steel towers that support the electric lines. There are a few clusters of mature trees scattered within the Project area. Habitat conditions include annual grasslands, pasture and wetland resources. Primary access is available from Del Paso Road, Elkhorn Boulevard and Sorento Road.

EXHIBIT 2: AERIAL SITE PHOTO



1.2 Goals and Objectives

The PANHANDLE PUD strives to achieve **three primary goals**. Each of these goals will be pursued using specific PUD design objectives which are listed below.

Additionally, site-specific design objectives relative to the interface of the PANHANDLE PUD to the existing built suburban communities of the North Natomas Community Plan and the Valley View Acres rural-residential community are provided in Sections 2.5 of these PUD Guidelines.

PANHANDLE PUD GOAL 1:

Implement the Vision of the General Plan and North Natomas Community Plan (NNCP).

- **Connect the existing NNCP areas to the east and west** of the Plan Area.
- **Respect and complement the adjacent built environment** of the NNCP.
- **Extend logical street connections** through the Plan Area.
- **Provide pedestrian/bicyclist connections to existing trails** and bikeways in the NNCP area.
- **Provide a variety of housing opportunities** that will complement the existing NNCP Community.
- **Provide a trail system in the existing WAPA powerline corridor** that will unify the PUD and maximize the usage of otherwise unutilized lands.

PANHANDLE PUD GOAL 2:

Respect the Valley View Acres (VVA) community rural residential lifestyle.

- **Provide large suburban homesites adjacent to Sorento Road** to transition from the existing suburban densities west of the Plan Area to the existing rural densities to the east of the Plan Area.
- **Provide thoughtful road connections to Sorento Road** to minimize “cut-through” traffic in the VVA neighborhood and to minimize speeding on Sorento Road.

PANHANDLE PUD GOAL 3:

Provide “move-up” housing opportunities with complimenting public spaces.

- **Provide diversity and “move-up” housing opportunities** which incorporate high-quality design materials that will retain property values over time.
- **Utilize a consistent set of design standards** and details to develop a sense of place for the Plan Area.
- **Co-locate an elementary school and neighborhood park** to serve the needs of the residents and the larger community.
- **Provide a large central community park along the powerline corridor** to maximize the development potential of the lands under the powerline corridor for both park and trail usage.
- **Unify the PUD through the design and location of a convenient and functional trail system** that well-utilizes the lands in the powerline corridor.
- **Provide a highly visible & accessible small-scale commercial center** to serve the needs of the residents.

The PANHANDLE PUD will achieve these three primary goals through implementing the following **PUD design objectives**.

- **Optimize the land use potential of an infill location** in the City by providing a mix of residential, commercial, park, open space, and school uses.
- **Create a community with a park system** which incorporates park facilities with local and regional-connecting open space amenities that are accessible to residents and the public.
- **Provide a safe and efficient circulation system** that interconnects uses, promotes pedestrian circulation, and minimizes impacts to the surrounding area.
- Create a community that makes efficient use of land while offering **residential housing densities that transition** from suburban densities of the existing North Natomas Community to the west to the existing large-lot and rural densities to the east.

1.3 PUD Guidelines Organization

The purpose of these PUD Guidelines is to guide future development within the PANHANDLE PUD area. The PUD Guidelines are organized into three (3) Sections as follows.

SECTION 1: PLAN OVERVIEW

This section of the PUD Guidelines provides the local context for the proposed Project, and the PUD Principles and Objectives for the Plan Area. This section also includes the PANHANDLE Illustrative Land Use Plan which illustrates the form and land uses of the Plan.

SECTION 2: RESIDENTIAL LAND USE

This section discusses the single-family residential housing in the Plan including specific design regulations for the SNLD-E, SNLD-T and SNLD-C areas.

SECTION 3: COMMERCIAL LAND USE

This section discusses the design and function of commercial land use.

Implementing the PUD requires carefully-crafted development standards and design guidelines to allow for flexible residential development, unique street scenes and unified design among the varied and diverse housing types. These PUD Guidelines are not intended to be an all-inclusive prescriptive listing of the types of development that are permitted in the Plan Area, but rather are intended to guide the future high-quality development of the PANHANDLE residential, commercial, elementary school, parks and open space areas. These Guidelines recognize that other high-quality design/development options may be identified in the future and these options will be considered Administratively and evaluated as to whether they meet the spirit and intent of these PUD Guidelines.

The guidelines for the PANHANDLE PUD establish the development framework and design guidance for the land use, community design, architecture, open space, and other components of the PUD. The guidelines supplement and, where noted, replace existing City zoning and development standards. The guidelines will apply to all future development applications within the Project area and would be reviewed to determine consistency with the vision and regulations of this document and other regulatory documents.

1.4 PUD Guidelines Amendment Process

The procedures for development under, as well as amendments to, the PUD Guidelines are as set forth in the City of Sacramento Code.

THE PANHANDLE PUD

PLANNED UNIT DEVELOPMENT Guidelines

1.5 PUD Schematic Plan



PUD Land Use*
SNLD-E
SNLD-T
SNLD-C
Suburban Center
Elementary School
High School / Middle School
Park - Quimby
Park - Ninos Parkway
Open Space - Ninos Parkway
Detention Basin - Open Space
Planned Development (Krumenacher Property)
Major Roads (Del Paso Rd & Elkhorn Blvd)
Collector and Residential Streets

The PANHANDLE Planned Unit Development (PUD) Schematic Plan is consistent with the City's General Plan; this PUD is established in accordance with the City of Sacramento Code.

The PUD Schematic Plan is comprised of predominantly single-family residential development to be implemented through provision of various single-family lot sizes and product types

to accommodate various income levels and lifestyle options within the plan area. (GP designation Suburban Neighborhood Low Density SNLD; Zoning designation R-1 and R-1A). The PUD further defines the development intentions by establishing specific land use designations in the Plan that allow specific residential density ranges and lot sizes (SNLD-E "Estate Lots", SNLD-T "Traditional Lots", and SNLD-C "Compact Lots"). The school sites in the Project are also GP designation SNLD and Zoning designation R-1A. The PUD also provides a commercial site (GP designation Suburban Center SC, Zoning designation C-1), and park sites, detention basin and open space (GP designation Parks & Recreation PR and Zone designation A-OS).

EXHIBIT 3: PUD LAND USE SUMMARY TABLE

LAND USE SUMMARY				
PUD Land Use*	General Plan	Zoning	Acres (G)	Acres (N)
SNLD-E	SNLD (3-8 du/ac)	R-1	111.4±	100.7±
SNLD-T	SNLD (3-8 du/ac)	R1-A	133.2±	121.8±
SNLD-C	SNLD (3-8 du/ac)	R1-A	65.2±	59.3±
Suburban Center	SC	C-1	10.7±	9.7±
Elementary School	SNLD (3-8 du/ac)	R1-A	11.7±	10.0±
High School / Middle School	SNLD (3-8 du/ac)	R1-A	65.5±	60.4±
Park - Quimby	PR	A-OS	18.0±	15.6±
Park - Ninos Parkway	PR	A-OS	7.7±	6.5±
Open Space - Ninos Parkway	PR	A-OS	24.5±	21.0±
Detention Basin - Open Space	PR	A-OS	13.6±	13.4±
Planned Development (Krumenacher Property)	PD	A	123.0±	119.0±
Major Roads (Del Paso Rd & Elkhorn Blvd)	varies	varies	4.9±	4.9±
Collector and Residential Streets	varies	varies	0.0±	47.1±
TOTALS			589.4±	589.4±

The PUD Schematic Plan and Design Guidelines are intended to guide future development and promote flexibility to quickly respond to changing market demand. The PUD Schematic Plan may be modified over time and is included herein for reference only; please see the PANHANDLE PUD Schematic Plan (Map) for detailed information.

EXHIBIT 4: PUD SCHEMATIC PLAN

THE PANHANDLE PUD

PLANNED UNIT DEVELOPMENT Guidelines

1.6 Illustrative Land Use & Bikeways Exhibit

The PANHANDLE Illustrative Land Use & Bikeways Exhibit is conceptual only provided solely to graphically illustrate the various land use components and amenities of the Plan. Actual locations and alignments of roadways, trail corridors, etc. will be determined with future Small Lot Tentative Map(s) and/or Improvement Plan(s).

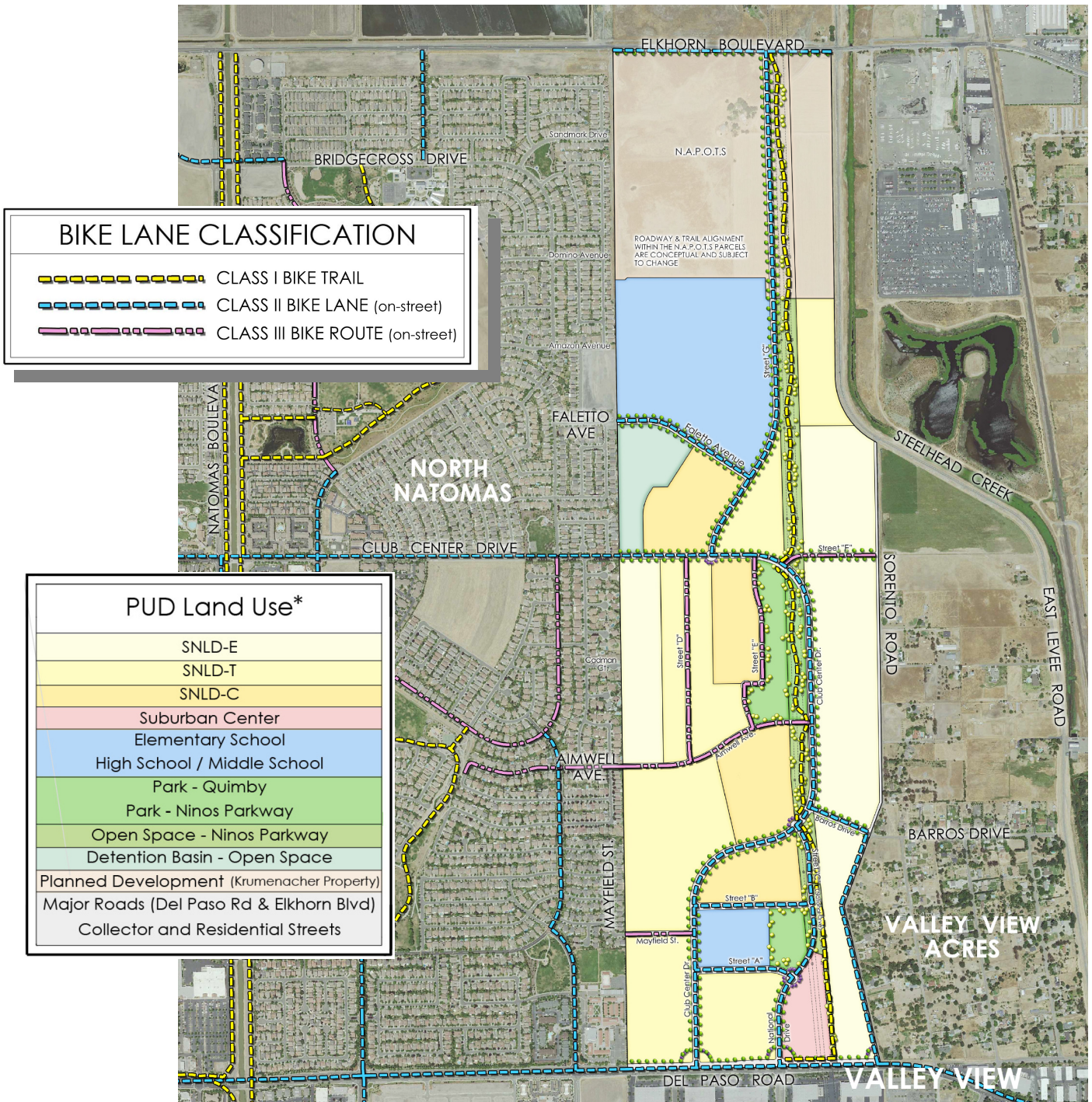


EXHIBIT 5: ILLUSTRATIVE LAND USE AND BIKEWAYS EXHIBIT

SECTION 2 RESIDENTIAL LAND USE

2.1 Suburban Neighborhood Low Density (SNLD)

Residential areas in the PUD are all designated with the GP designation SNLD which allows a development density of 3-8du/acre, as shown in the City of Sacramento General Plan. The PANHANDLE PUD further defines and differentiates the residential land use by creating three (3) PUD sub-designations of SNLD land use as shown below.

Zoning-General Plan-PUD Compatibility Table		
Zoning Designation	General Plan Designation	Panhandle PUD Designation
R-1	SNLD	SNLD-E
R-1A	SNLD	SNLD-T
R-1A	SNLD	SNLD-C

- “SNLD-E” Estate Lots
- “SNLD-T” Traditional Lots
- “SNLD-C” Compact Lots

EXHIBIT 6: ZONING, GENERAL PLAN AND PUD DESIGNATION COMPATIBILITY

2.2 Development Standards

Residential densities will vary throughout the PANHANDLE but will be categorized consistent with the City of Sacramento Code.

Panhandle PUD Residential Development Standards				
KEY	CATEGORY	SNLD-E	SNLD-T	SNLD-C
A	lot size range	6,000-14,500sf.	4,500-7,500sf	3,000-6,000sf.
B	lot width range-interior	55'-90'	45'-75'	35'-60'
C	lot width range-corner	65'-100'	55'-85'	45'-70'
D	lot depth range	100'-160'	90'-125'	75'-105'
E	front setback (min.)	12.5'	12.5'	12.5'
F	front garage setback (min.)	20'	20'	20'
G	interior sideyard setback (min.)	5'	5'	5' or 0'/10' alley-load
H	street sideyard setback (min.)	12.5'	12.5'	12.5'
J	rear setback (min.)	20'	15'	10' / 5' alley-load
K	lot building coverage (max.)	50%	50%	60%
L	building height (max.)	35'	35'	35'
<i>Lot depth:width ratio shall not exceed 3:1, except on alley-loaded lots and as approved by the City of Sacramento.</i>				
<i>Lot size range maximum sf. above is for typical interior lots; corner lots may exceed lot size maximum.</i>				
<i>Development standards are measured from public street/alley right-of-way; development standards on lots adjacent to private alleys and/or easements are measured from back-of-curb or edge of easement.</i>				

EXHIBIT 7: PANHANDLE PUD RESIDENTIAL DEVELOPMENT STANDARDS

THE PANHANDLE PUD

PLANNED UNIT DEVELOPMENT Guidelines

2.2.1 Development Regulations

Residential development shall comply with the Suburban Neighborhood Low Density (SNLD) General Plan designation and the R-1-PUD and R-1A-PUD Zoning designations as approved on the PANHANDLE PUD Schematic Plan. Where there are discrepancies between these Guidelines and the Sacramento Planning and Development Code, these Guidelines shall prevail. Where these Guidelines are silent, the Sacramento Code shall prevail.

2.2.2 Typical Development Exhibits

The Typical Development Exhibits illustrated herein outline the typical lot and setback requirements needed for the single-family product categories listed above. The exhibits illustrate and list detailed information to accommodate the product range envisioned for the PUD area including typical front-loaded residential homesites and alley-loaded (rear-loaded) residential homes.

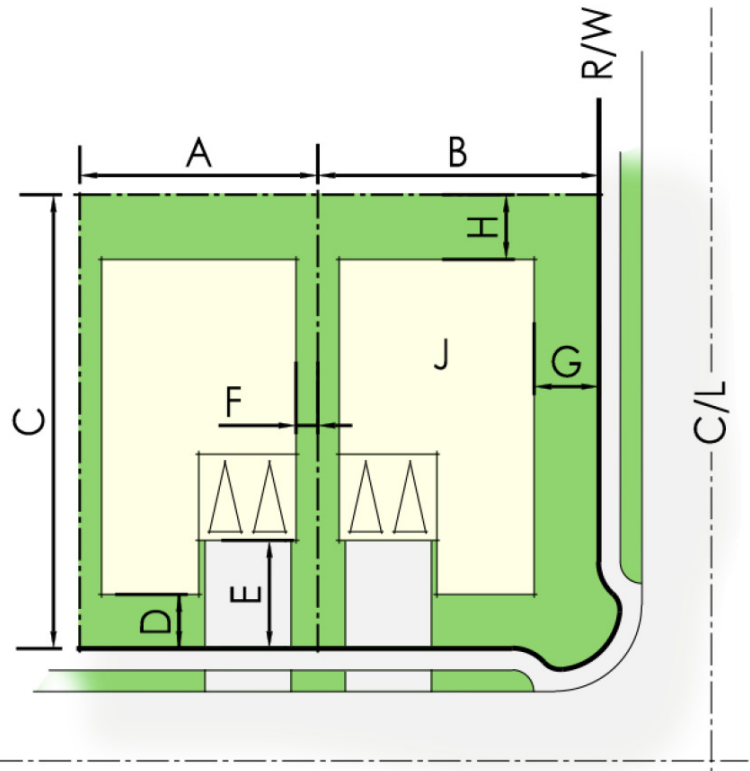
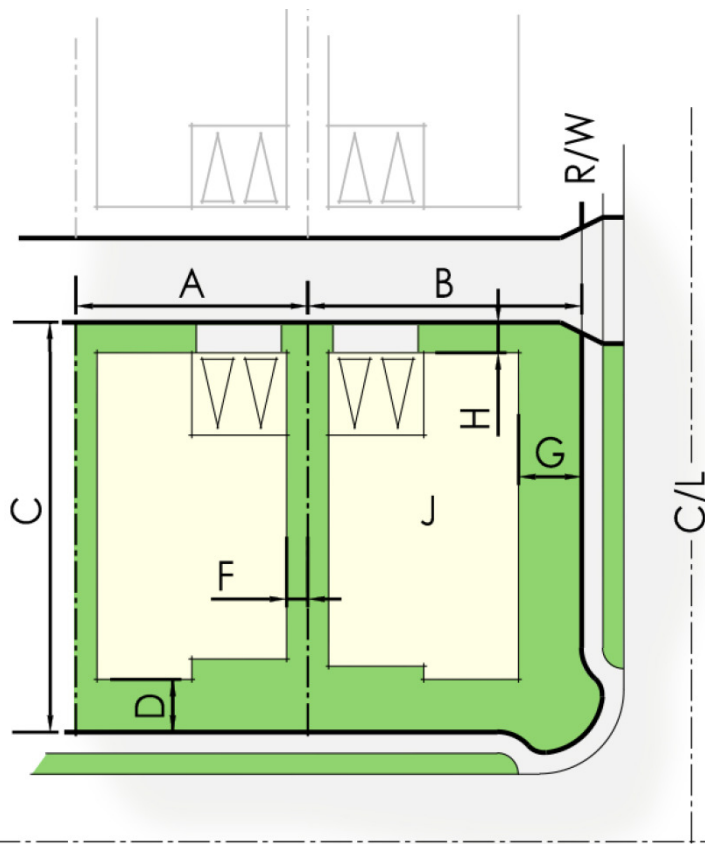


EXHIBIT 8:
TYPICAL DEVELOPMENT EXHIBIT-
FRONT-LOADED



2.2.3 Permitted Uses

Land uses in the PANHANDLE PUD shall comply with the City of Sacramento Planning and Development Code. Please see City of Sacramento Code for a full listing of Permitted Uses.

2.2.4 Signage

Signage in the PANHANDLE PUD shall comply with the City of Sacramento Code.

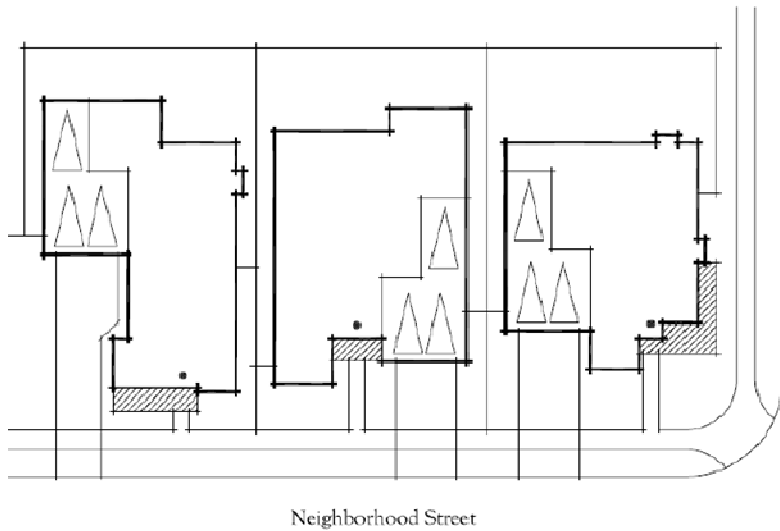
EXHIBIT 9:
TYPICAL DEVELOPMENT EXHIBIT-
ALLEY LOADED

2.3 Design Guidelines

2.3.1 Residential Prototypes

A variety of residential prototypes are anticipated in the PANHANDLE Plan Area. The residential homesites are intended to be predominantly traditional front-loaded however alley- or lane-loaded homes are permitted. "T" Court and "I" Court homes are not permitted.

The prototypes contained herein are representative of residential concepts envisioned for PANHANDLE; these concepts are not intended to be the exclusive actual product types utilized within the PUD and are not intended to portray precise locations and/or sizes of entry porches, garages, living areas, yard areas, etc. The residential concepts provided herein are intended as ideas and sources of inspiration for creative residential product design to be ultimately reviewed and approved by the City of Sacramento.

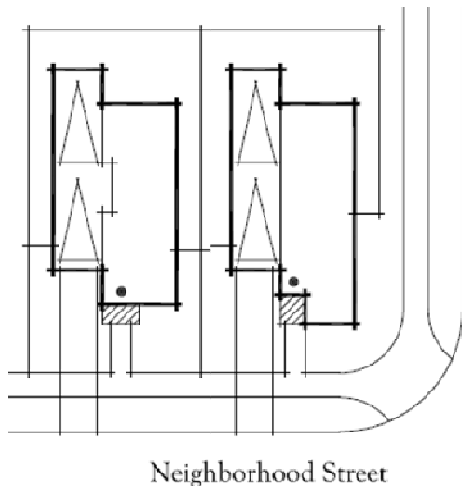


Neighborhood Street

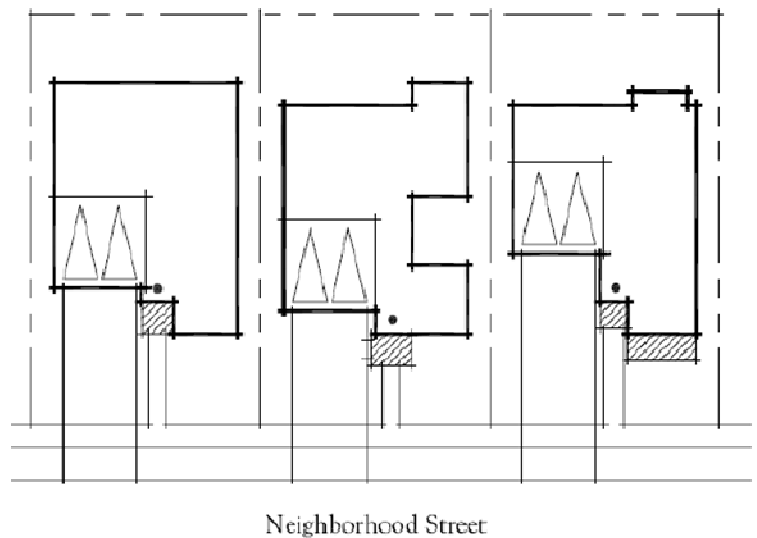
EXHIBIT 10:
LARGE LOT HOMES



EXHIBIT 11:
TRADITIONAL HOMES



Neighborhood Street

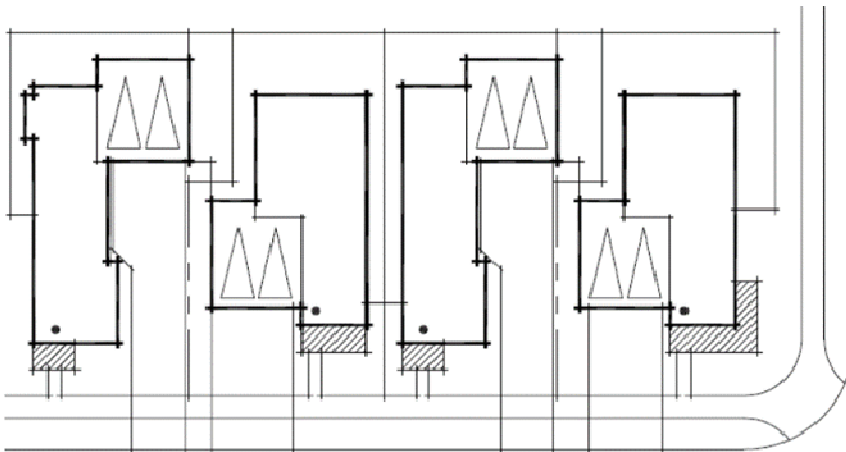


Neighborhood Street

EXHIBIT 12:
TANDEM GARAGE HOMES

THE PANHANDLE PUD

PLANNED UNIT DEVELOPMENT Guidelines



Neighborhood Street

EXHIBIT 13:
"Z" LOT HOMES

● FRONT ENTRY

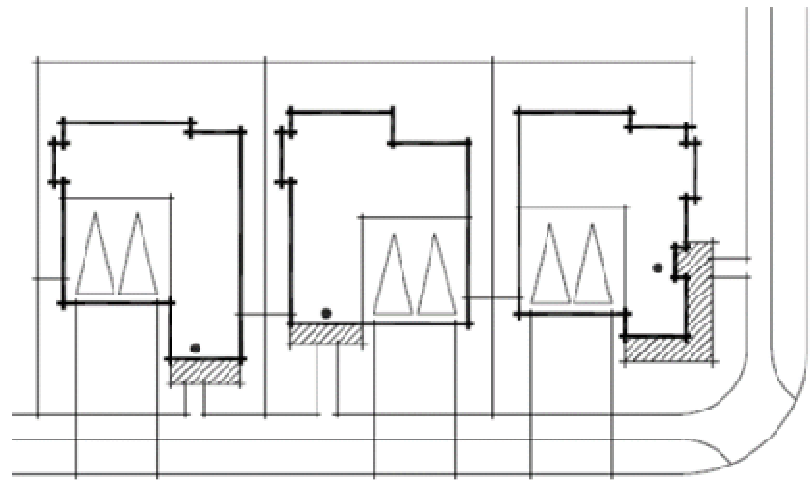
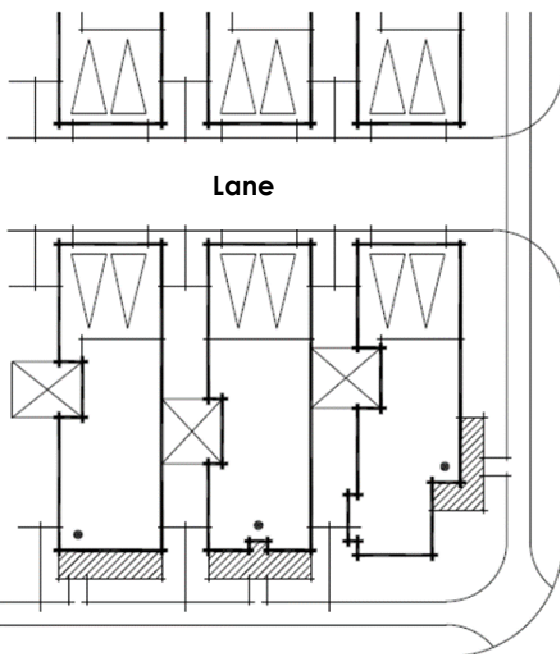


EXHIBIT 14:
COMPACT HOMES

Neighborhood Street

Neighborhood Street



Lane

Neighborhood Street

EXHIBIT 15:
LANE-LOADED HOMES

2.3.2 Architectural Styles

The City of Sacramento embodies a variety of architectural styles that are appropriate for application to the PANHANDLE community. The listing below contains a menu of architectural styles that may be utilized for the Plan Area. It should be noted that this listing is representative of concepts envisioned for PANHANDLE. This listing is not intended to be the exclusive product types, but are instead provided as guidelines and sources of inspiration.

- American Farmhouse
- Urban Farmhouse
- California Bungalow
- California Cottage
- European Cottage
- American Colonial
- Spanish Colonial
- Craftsmen
- Prairie
- Modern Prairie
- Mid-Century Modern
- English Revival
- English Tudor
- English Country
- French Country
- Italian
- Monterey
- Mediterranean

2.3.3 Architectural Guidelines

1. Building Siting and Orientation

- Front entries, windows, porches and living areas should be placed close to the street so that active, articulated architecture visually dominates the streetscene.
- Variable building and garage setbacks are encouraged along the streets to create visual diversity and interest in streetscenes.

2. Building Form and Massing

- Building form and massing should be consistent with the architectural of the building.
- Single-story elements may be incorporated into two-story buildings to create a more pleasant streetscene, especially on corner lots.
- Encourage variation in building massing to provide variety to streetscene.
- Porches, terraces, balconies and decks should be integrated into the architecture of the building and be consistent with the selected style.

3. Authentic Architecture

- Building massing, forms, materials, colors, details, and roof design should reflect the building's architectural style, and be as authentic as feasible to avoid "stage-front" architecture.
- Develop floor plans and massing solutions that will be authentic to the architectural style.

4. Elevation Style Requirements

- A minimum of three floor plans shall be provided for each builder product line. A minimum of three elevation styles shall be provided per floor plan.
- Thoughtful and balanced plotting of elevation styles and material/color palettes is required. No identical plans and elevations are permitted side-by-side, or directly across the street, except for reverse building footprints of identical plans, provided that each has a different elevation and material/color palette.

5. Building Façades, Features and Details

- Incorporate appropriate architectural design features and details, such as railing, trim, headers and sills, shutters, awnings, etc., that are consistent with the architectural style of the building.
- Doors and windows should be in proportion to the overall building massing and consistent with the architectural style of the building
- Enhanced architectural treatments should be provided on building elevations that are visible from the streets, trails/pathways, parks and open space.
- Buildings on corner lots should be designed for two-sided corner exposure with enhanced architectural elements.
- The front building façade treatment should wrap partially around onto the side of the house to an appropriate break point. However, some elements (such as trim) should continue onto the sides of the buildings.

6. Building Materials and Colors

- Building materials and colors should match the overall neighborhood design theme palette, and be consistent with the building's architectural style.
- The material palettes should provide a harmonious variety in color and texture.
- Building materials should be high quality, durable and low maintenance.
- The use of natural materials such as brick, stone, tile, and wood-like siding/shingle may be utilized where appropriate. These materials may be used for architectural accent and/or they may be used as the primary architectural materials.
- Smooth finishes and/or other light finish texture should be used on exterior stucco, where appropriate for the architectural style.
- Primary building colors should be neutral and muted in hue. Brighter and more saturated colors should be used as accent colors only or as part of a balanced, carefully executed color scheme.

7. Roof Design

- Variety in roof forms is encouraged along streets, trails/pathways and open space areas to promote visual diversity.
- Roof pitch and elevation styles should be consistent with the architectural style of the building.
- Use roof materials that are appropriate to the architectural style of the building. Appropriate materials include barrel/mission/"S" tile, flat/shake concrete tile, architectural grade asphalt composition shingles, or others as appropriate to the style.

8. Garage Placement and Design

- A variety of garage placement options are permitted, including, but not limited to, front loaded garages, side-on garages, split garages, tandem garages, and rear garages. The developer/builder will select the most appropriate garage placement for the style and type of building(s) being proposed.
- Overhangs, trellises, arbors and other architectural elements are permitted to visually soften the front-facing garage doors. Decorative garage door treatments, styles, trims and colors that reflect the architectural style of the building elevation are encouraged.
- Garage door patterns are encouraged to vary from elevation type to elevation type.

9. Functional Elements

- Gutters and downspouts shall be integrated into the design of the building. If exposed, the colors of gutters and downspouts should match or complement the surface to which they are attached or the accent colors of the building.
- All exterior components of plumbing, heating and cooling systems, and ventilating systems located near or at ground level must be screened from public view by walls and fences, berms, landscaping, or a combination thereof.
- Exterior lighting fixtures should be consistent the architectural style of the building. Lighting shall be designed for night-time mobility and safety, and not be used in excess of its purpose.

10. Sustainable Building Design

- Use energy efficient lighting, cooling systems, and windows to promote natural ventilation.
- Promote the use of natural ventilation through building orientation, window placement, architectural shade elements and landscape design.
- Encourage the installation of Energy Star appliances and low-flow water fixtures.
- Properly install drywall, insulation, and sealing to maintain the optimal temperature inside the home.
- Use renewable and recyclable building materials wherever feasible.
- Implement an on-site construction waste recycling program to the extent feasible.

11. Usable Open Space

- Design and orientation of usable open space should take advantage of available sunlight and be sheltered from the wind, noise and traffic on adjacent streets wherever possible.

2.4 Westerly Project Interface – Existing North Natomas Community Plan

Development within the PANHANDLE PUD will respect and complement the existing North Natomas Community Plan (NNCP) suburban residential lifestyle.

NNCP OBJECTIVE 1:

The PANHANDLE PUD intends to diminish traffic ‘cut-through’ of the NNCP neighborhood.

Consistent with General Plan Policy, planned NNCP road connections along the Projects' western boundary will connect to the PANHANDLE internal residential street systems as planned in the approved and/or built subdivisions along the Project's boundary. Exceptions occur where these roadway connections are either not feasible (as in extending Amazon Avenue, which connects to the backside of the East Natomas Education Complex {ENEC}) and/or where extension of roadways would cause hardship and/or a change in lifestyle (as in Cadman Court which is a cul-de-sac). These two areas will remain open conduits to the public in the form of pedestrian/bike connections only; no through automobile traffic will be accommodated at these locations.

NNCP OBJECTIVE 2:

The PANHANDLE PUD intends to minimize intrusion to the lifestyle of the existing NNCP suburban community.

Future PANHANDLE PUD subdivision development along the Projects' western boundary edge (between Club Center Drive & Mayfield Drive) is encouraged to incorporate residential lot sizes that are like, compatible with, or larger than the typical lot size found in the adjacent NNCP Subdivision area.

Actual subdivision development including lot sizes, lot orientations, street patterns, and interface of new residential uses along the built residential portion of the NNCP, will be the subject of future Small Lot Tentative Subdivision Map(s) and will be reviewed by the City for consistency with the intent of these PUD Guidelines.



EXHIBIT 16: ADJACENT DEVELOPMENT CONTEXT

2.5 Easterly Project Interface – Existing Valley View Acres

Development within the PANHANDLE PUD intends to respect and complement the Valley View Acres community (VVA) rural residential lifestyle.

VVA OBJECTIVE 1:

The PANHANDLE PUD intends to minimize road connections to Sorento Road to diminish traffic ‘cut-through’ of the VVA neighborhood and to minimize overall traffic on Sorento Road.

By design, there are no direct east-west street connections through the PANHANDLE Project from the existing North Natomas Community Plan area to the Valley View Acres area; if provided, direct east-west street connections could encourage non-local through traffic as an alternative to Del Paso Road and Elkhorn Boulevard, both of which provide direct east-west routes.

There are two residential street connections to Sorento Road shown on the PANHANDLE PUD Schematic Plan, which illustrates the primary street circulation within the Project area. The northerly street connection links Club Center Drive to Sorento Road and the southerly street is an extension of Barros Drive to Club Center Drive. Residential street connectivity will provide existing residents (east of the Project site) direct routes to the planned schools and parks located within the PANHANDLE PUD, will promote natural surveillance and safety in the community, and will improve Public Safety response times. Final precise locations and alignments of all streets will be the subject of future small lot tentative maps and improvement plans.

VVA OBJECTIVE 2:

The PANHANDLE PUD intends to minimize intrusion to the lifestyle of the existing VVA community.

Future PANHANDLE PUD subdivision development along the Projects’ eastern boundary edge (adjacent to Rural Residential (RR) designated lands on Sorento Road) is encouraged to incorporate lot sizes that offer housing variety and are complimentary to the adjacent Valley View Acres development. Future development in this location is encouraged to provide large suburban homesites closest to Sorento Road that will interface well with the existing rural densities to the east of the Plan Area.

Sorento Road is an existing residential street and homesites may “front on” or “side-on” to Sorento Road. Adjacent to SNLD designated lands, residential homesites are encouraged to front-on to Sorento Road; garage access for these homesites would be off Sorento Road. Adjacent to RR designated lands, residential homesites are encouraged to side on to Sorento Road; garage access for these homesites may be from Sorento Road or internally from the PANHANDLE Project via short public and/or private streets or alleys (or from shared access easements). In some cases, it may be necessary for development within the Project to back-onto Sorento Road, for example, due to safety and noise concerns near the intersection of Sorento Road and Del Paso Road.

SMUD is contemplating a possible future 69kV powerline through the PANHANDLE Project that will serve both existing and planned development in the area. According to SMUD, their preferred alignment for the new powerline is within the existing WAPA corridor, however other alignment options are being evaluated by SMUD including along a location the west side of Sorento Road. The timing for installation of the proposed 69kV powerline is also being analyzed and installation may occur after the PANHANDLE Project is developed.

Actual subdivision development, including lot sizes, lot orientations, street patterns, and interface of new residential uses along Sorento Road, will be the subject of future Small Lot Tentative Subdivision Map(s) and will be reviewed by the City for consistency with the intent of these PUD Guidelines.

SECTION 3
COMMERCIAL LAND USES

3.1 Suburban Center (SC)

The commercial area in the PUD is designated with the GP designation Suburban Center (SC) which allows a commercial floor area ratio (FAR) of 0.25 - 2.0 and a residential density of 15-36du/ac as shown in the City of Sacramento General Plan.

3.2 Development Standards

Commercial development within the PANHANDLE will be consistent with the City of Sacramento's General Plan and Code.

3.2.1 Development Regulation

Commercial development shall comply with the Suburban Center (SC) General Plan designation and the C-1-PUD Zoning designation as approved on the PANHANDLE PUD Schematic Plan. Where there are discrepancies between these Guidelines and the City of Sacramento Code, these Guidelines shall prevail. Where these Guidelines are silent, the Sacramento Code shall prevail.

3.2.2 Permitted Uses

Land uses in PANHANDLE shall comply with the City of Sacramento Code; please see the Code for a full listing of Permitted Uses.

3.2.3 Signage

Signage in PANHANDLE shall comply with the City of Sacramento Code.

3.3 Design Guidelines

The overall style of the PANHANDLE'S commercial site should employ eclectic use of traditional materials and forms to create architectural flavor. Forms, proportions and materials should create visually pleasing buildings able to bridge the gap between residential housing and the more modern buildings surrounding the site. Varied materials and styles within building facades are encouraged to reflect Sacramento's architecture. Focal points and view corridors should invite visitors from one point to another within the Project and are critical to creating an inviting, human-scaled environment.

3.3.1 Architectural Elements

1. Roofs

Roofs and roof forms should be consistent with the overall architectural theme of the PANHANDLE PUD. Individual roof elements placed in key locations along buildings should convey the built-over-time concept in conjunction with building forms. Pedestrian areas should be enhanced by shed and gable roof elements extending into pedestrian areas for cover and shade. Additional elements are allowed such as fabric and metal awnings, trellises, etc. Dormer elements are also encouraged for an added layer of detail and shadow. Roof-mounted equipment should be screened from view from ground level.

2. Cornices

Cornice elements should be applied and should articulate basic building forms while providing differential between individual tenants. Cornices should provide contrast of color and material to wall areas beneath. Cornice elements should not be of such size or quantity that they become a dominant repetitive or overwhelming architectural feature.

3. Building Corners

Building corners present an opportunity to simply enhance visual anchoring of individual structures. Presenting building corners as focal points to surrounding areas within the Project is encouraged. Thoughtful treatments of building corners provide changes in scale, color and material, as well as an opportunity to introduce windows as a simple focal detail.

4. Wall Transitions

A variety of elements should be used to create wall transitions between buildings and tenant spaces and careful consideration should be given to walls adjacent to and oriented toward open spaces. Color and texture are basic elements of interest while towers and other details may be used in some cases to frame transition areas. Simple, intermediate elements that book-end an area of wall are encouraged. Whenever possible, color and simple traditional material changes are encouraged to break wall areas into visually pleasing proportions.

5. Towers

Tower elements may be considered if appropriate to the style of buildings. When situated and massed properly, towers can enhance visual interest. These elements can serve as a connection between individual buildings as focal points and transitional spaces. Towers should provide a change in scale, color and material, and use windows as well. Vertical elements should not be limited to towers. The appropriate and tasteful use of chimney elements and finials is also encouraged where appropriate.

3.3.2 Materials, Colors and Finishes

Interest and complexity in building design is encouraged. Both contemporary and traditional approaches to building form and articulation provide variety, interest and vitality.

1. Building Materials

Materials should reflect the style and overall impression of all buildings. Materials should also reflect high-quality and reinforce the overall design theme.

Encouraged Materials

- Smooth stucco finishes
- Style-appropriate rock and/or brick
- Complementary-colored canvas awnings
- Wood trellises and ironwork
- Split-face block
- Wood columns and/or beams
- Pre-cast stone trims, heads and sills
- Metal and/or tile roof elements
- Decorative gutters and/or shutters

Discouraged Materials

- Heavy “knock-down” and/or “Spanish Lace” stucco finishes
- Artificial stone veneers
- Unfinished tilt-up wall panels
- Large unbroken window walls
- Exposed precision (flat) concrete block walls
- Exposed aggregate walls

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2. Colors

Colors should be selected to offer distinction and individuality to each building and tenants in larger buildings. Bold or saturated hues are encouraged if they are not obtrusive to the adjacent residential character. Colors should bring together selected Project materials and be selected to complement other stone, concrete, wood and fabrics.

3. Windows

Shape, size and placement of windows are important elements that lend positive, yet simple character to the overall theme of the Project. Window size and proportion should be appropriate to individual building style. Window forms may vary between individual tenant spaces and buildings to subtly reflect the built-over-time concept. Windows, especially at a pedestrian level, are encouraged in overall building design. Consideration of design elements like shutters, canopies, recesses, iron and other elements should be used to enhance windows and add variety.

4. Canopies and Awnings

Canopies and awnings are classic architectural details that add an additional layer of interest to building facades. A variety of materials may be used including canvas, corrugated metal, wood trellises and shed or gable roof forms. Canopy and awning elements should also provide cover at pedestrian walkways wherever possible. These covered elements should also be placed to encourage the play of shadows against buildings.



Appendix C

Air Quality Modeling Data

Construction Year 1

Land Use	Project Total		Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)	
	Units	Acres											
Residential	2660	397.7	Site Prep	4.5627	48.1988	22.4763	18.0663	2.5769	20.6432	9.9307	2.3708	12.3014	
Elementary	500	10		Unmitigated Off-site	0.0928	0.0526	0.7238	0.1369	1.01E-03	0.1379	0.0363	9.30E-04	0.0373
City Park	57.8	57.8		Total	4.6555	48.2514	23.2001	18.2032	2.57791	20.7811	9.967	2.37173	12.3387
Retail	101.277	9.7											

Construction 2018			Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)	
Units	Acres												
Retail	101.277	9.7	Grading	7.9228	93.4008	50.1673	16.2862	4.0353	20.3215	7.0785	3.7125	8.612	
City Park	8.257142857	8.25714286		Unmitigated Off-site	0.1443	0.0819	1.1259	0.213	1.56E-03	0.2146	0.0565	1.44E-03	0.0579
Total	109.534142857	17.95714286		Total	8.0671	93.4827	51.2932	16.4992	4.03686	20.5361	7.135	3.71394	8.6699
Residential	380	56.8142857	Building	2.6795	23.39	17.5804	0	1.4999	1.4999	0	1.4099	1.4099	
Elementary	500	10		Unmitigated Off-site	2.4025	16.5545	18.6708	3.3116	0.1434	3.4549	0.8951	0.1365	1.0316
Total Acres	880	66.8142857		Total	5.082	39.9445	36.2512	3.3116	1.6433	4.9548	0.8951	1.5464	2.4415

Phase	# of Days (CalEEMod default)	% of year	Adjusted # of Days	Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)	
Site Prep	10	3%	7	Paving	1.6437	17.5209	14.7964	0	0.9561	0.9561	0	0.8797	0.8797	
Grading	30	8%	21		Unmitigated Off-site	0.0773	0.0439	0.6032	0.1141	8.40E-04	0.1149	0.0303	7.70E-04	0.031
Building Const.	300	79%	206		Total	1.721	17.5648	15.3996	0.1141	0.95694	1.071	0.0303	0.88047	0.9107
Paving	20	5%	14	Arch Coating	706.46	2.0058	1.8542	0	0.1506	0.1506	0	0.1506	0.1506	
Arch Coating	20	5%	14		Unmitigated Off-site	0.3504	0.1988	2.7343	0.5173	3.80E-03	0.5211	0.1372	3.51E-03	0.1407
Total	380		261		Adjusted ROG	60.68								
				Total	61.03	2.20	4.59	0.5173	0.1544	0.6717	0.1372	0.15411	0.2913	

Start Date	End Date	Construction Totals	CO2 (MT/yr)	CH4 (MT/yr)	N2O (MT/year)	CO2e (MT/yr)
1/1/2018	12/31/2018	Maximum	79	184	115	39
						8
						47
						18
						8
						24

Adjusted Arch Coating Days

based on 2/3 building construction days and paving and arch coating days

163.4684211 days

9,890.44
60.68 ROG lb/day

Energy Calculation

884.5 MT CO2
0.001 kg per MT
9,031,245.29 gallons of diesel

Grading Adjustment

Equipment Type (that adds to acres graded)	Acres/8hr-day	Number of equipment	Acres Graded	
Crawler Tractor	0.5	0	0	
Grader	0.5	1	10.5	0.5
Rubber Tired Dozer	0.5	1	10.5	0.5
Scraper	1	2	42	2
Total			63	3

Acres to be graded
84.77142857

Emissions Factor

10.21 kg CO2/gallon Source: Climate Registry 2016

Construction Year 2

Land Use	Project Total		Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)	
	Units	Acres											
Residential	2660	397.7	Site Prep	Unmitigate	4.335	45.5727	22.063	18.0663	2.3904	20.4566	9.9307	12.1297	
Elementary	500	10		Unmitigate	0.0843	0.0463	0.6499	0.1369	9.80E-04	0.1379	0.0363	0.0372	
City Park	57.8	57.8		Total	4.4193	45.619	22.7129	18.2032	2.39138	20.5945	9.967	2.2	12.1669
Retail	101.277	9.7											
Construction			Grading	Unmitigate	6.3602	73.1742	39.4989	15.2257	3.1826	18.4082	6.964	2.9279	
2019	Units	Acres		Unmitigate	0.1172	0.0643	0.9027	0.1902	1.35E-03	0.1915	0.0505	1.25E-03	
Retail	0	0		Total	6.4774	73.2385	40.4016	15.4159	3.18395	18.5997	7.0145	2.92915	
City Park	8.257142857	8.257143											
Residential	380	56.81429	Building	Unmitigate	2.3612	21.0788	17.1638	0	1.2899	1.2899	0	1.2127	
Elementary	0	0		Unmitigate	1.8227	12.7193	13.975	2.7927	0.102	2.8947	0.7543	0.0971	
Total Acres	65.07142857			Total	4.1839	33.7981	31.1388	2.7927	1.3919	4.1846	0.7543	1.3098	
Acres Graded	56.81428571												
# of Days (CalEEMod default)			Paving	Unmitigate	1.4544	15.2441	14.6648	0	0.8246	0.8246	0	0.7586	
Phase	% of year	Adjusted # of Days		Unmitigate	0.0703	0.0386	0.5416	0.1141	8.10E-04	0.1149	0.0303	7.50E-04	
				Total	1.5247	15.2827	15.2064	0.1141	0.82541	0.9395	0.0303	0.75935	
Site Prep	10	3%		7									
Grading	30	8%	21	Arch Coating	Unmitigate	611.6892	1.8354	1.8413	0	0.1288	0.1288	0	
Building Const.	300	79%	206		Unmitigate	0.2718	0.1493	2.0942	0.4412	3.14E-03	0.4444	0.117	
Paving	20	5%	14		Adjusted	51.40245378	1.9847	3.9355	0.4412	0.13194	0.5732	0.117	
Arch Coating	20	5%	14		Total	51.67425378	1.9847	3.9355	0.4412	0.13194	0.5732	0.117	
Start Date	End Date			Construction Totals	Maximum	67	155	98	37	7	44	18	
1/1/2019	12/31/2019											7	
Total Working Days												24	
261													

Adjusted Arch Coating Days based on 2/3 building days plus paving and arch	Energy Calculation	CO2 (MT/yr)	CH4 (MT/yr)	N2O (MT/yr)	CO2e (MT/yr)
8402.677958	0.001 kg per MT				
51.40245378 ROG lb/day	7,947,216.92 gallons of diesel				
	Emissions Factor	10.21 kg CO2/gallon	Source: Climate Registry 2016		

Construction Year 3

Project Total														
Land Use	Units	Acres	Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)		
Residential	2660	397.7	Site Prep	Unmitigated On-site	4.0765	42.4173	21.5136	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523	
Elementary	500	10		Unmitigated Off-site	0.0776	0.0412	0.5877	0.1369	9.50E-04	0.1379	0.0363	8.80E-04	0.0372	
City Park	57.8	57.8		Total	4.1541	42.4585	22.1013	18.2032	2.19835	20.4016	9.967	2.02248	11.9895	
Retail	101.277	9.7												
Construction														
2020														
Retail	0	0	Grading	Unmitigated On-site	6.0054	67.8553	37.9043	15.2257	2.9311	18.1568	6.964	2.6966	9.6606	
City Park	8.2571429	8.257143		Unmitigated Off-site	0.1078	0.0572	0.8163	0.1902	1.32E-03	0.1915	0.0505	1.22E-03	0.0517	
Residential	380	56.81429		Total	6.1132	67.9125	38.7206	15.4159	2.93242	18.3483	7.0145	2.69782	9.7123	
Elementary	0	0	Building	Unmitigated On-site	2.1198	19.186	16.8485	0	1.1171	1.1171	0	1.0503	1.0503	
Total Acres	65.071429			Unmitigated Off-site	1.619	11.6394	12.3545	2.7926	0.0725	2.8651	0.7543	0.0688	0.8231	
Acres Graded	56.814286			Total	3.7388	30.8254	29.203	2.7926	1.1896	3.9822	0.7543	1.1191	1.8734	
				Paving	Unmitigated On-site	1.3566	14.0656	14.6521	0	0.7528	0.7528	0	0.6926	0.6926
					Unmitigated Off-site	0.0647	0.0343	0.4898	0.1141	7.90E-04	0.1149	0.0303	7.30E-04	0.031
					Total	1.4213	14.0999	15.1419	0.1141	0.75359	0.8677	0.0303	0.69333	0.7236
				Arch Coating	Unmitigated On-site	611.6649	1.6838	1.8314	0	0.1109	0.1109	0	0.1109	0.1109
					Unmitigated Off-site	0.2501	0.1327	1.8937	0.4412	3.07E-03	0.4443	0.117	2.83E-03	0.1199
					Adjusted	51.40041176								
				Total	51.65051176	1.8165	3.7251	0.4412	0.11397	0.5552	0.117	0.11373	0.2308	
Construction Totals				Maximum	66	143	94	37	6	43	18	6	24	
				Energy Calculation		CO2 (MT/yr)		CH4 (MT/yr)		N2O (MT/yr)		CO2e (MT/yr)		
				768.4 MT CO2		768.4006		0.1056		0		771.0399		
				0.001 kg per MT										
Adjusted Arch Coating Days				7,845,370.13 gallons of diesel										
164.0947368														
based on														
2/3 building														
days plus														
paving and														
arch														
coating														
8434.537042														
51.40041176 ROG lb/day				Emissions Factor		10.21 kg CO2/gallon		Source: Climate Registry 2016						

Construction Year 4

Project Total													
Land Use	Units	Acres	Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)	
Residential	2660	397.7											
Elementary	500	10											
City Park	57.8	57.8											
Retail	101.277	9.7											
Construction													
2021	Units	Acres	Phase										
Retail	0	0	Site Prep	Unmitigated On-site	3.8882	40.4971	21.1543	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116
City Park	8.2571429	8.257143		Unmitigated Off-site	0.0721	0.0369	0.5385	0.1369	9.20E-04	0.1379	0.0363	8.50E-04	0.0372
Residential	380	56.81429		Total	3.9603	40.534	21.6928	18.2032	2.04542	20.2486	9.967	1.88175	11.8488
Elementary	0	0	Grading	Unmitigated On-site	5.6905	63.2957	36.6834	15.2257	2.7055	17.9312	6.964	2.4891	9.453
City Park	8.2571429	8.257143		Unmitigated Off-site	0.1002	0.0513	0.7479	0.1902	1.28E-03	0.1915	0.0505	1.18E-03	0.0516
Residential	380	56.81429		Total	5.7907	63.347	37.4313	15.4159	2.70678	18.1227	7.0145	2.49028	9.5046
Elementary	0	0	Building	Unmitigated On-site	1.9009	17.4321	16.5752	0	0.9586	0.9586	0	0.9013	0.9013
Total Acres	65.071429			Unmitigated Off-site	1.4633	10.6349	11.1804	2.7925	0.0423	2.8349	0.7543	0.05	0.7943
Acres Graded	56.814286			Total	3.3642	28.067	27.7556	2.7925	1.0009	3.7935	0.7543	0.9513	1.6956
			Paving	Unmitigated On-site	1.2556	12.9191	14.6532	0	0.6777	0.6777	0	0.6235	0.6235
				Unmitigated Off-site	0.0601	0.0308	0.4487	0.1141	7.70E-04	0.1149	0.0303	7.10E-04	0.031
				Total	1.3157	12.9499	15.1019	0.1141	0.67847	0.7926	0.0303	0.62421	0.6545
			Arch Coating	Unmitigated On-site	611.6416	1.5268	1.8176	0	0.0941	0.0941	0	0.0941	0.0941
				Unmitigated Off-site	0.2325	0.119	1.7351	0.4412	2.98E-03	0.4442	0.117	2.74E-03	0.1198
				Adjusted	51.39845378								
			Total	51.63095378	1.6458	3.5527	0.4412	0.09708	0.5383	0.117	0.09684	0.2139	
			Construction Totals	Maximum	65	134	90	37	6	43	18	5	23
			Energy Calculation										
				756.4 MT CO2		CO2 (MT/yr)	756.386	CH4 (MT/yr)	0.1034	N2O (MT/yr)	0	CO2e (MT/yr)	758.9694
			Adjusted Arch Coating Days	0.001 kg per MT									
			163.468421	7,722,701.06 gallons of diesel									
			based on										
			2/3 building										
			days plus										
			paving and										
			arch										
			coating										
			8402.02408	Emissions Factor									
			51.3984538 ROG lb/day	10.21 kg CO2/gallon	Source: Climate Registry 2016								

Construction Year 5

Land Use	Units	Acres
Residential	2660	397.7
Elementary	500	10
City Park	57.8	57.8
Retail	101.277	9.7

Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)
Site Prep									
Unmitigated On-site	3.1701	33.0835	19.6978	18.0663	1.6126	19.6788	9.9307	1.4836	11.4143
Unmitigated Off-site	0.0673	0.0332	0.4959	0.1369	9.00E-04	0.1378	0.0363	8.30E-04	0.0372
Total	3.2374	33.1167	20.1937	18.2032	1.6135	19.8166	9.967	1.48443	11.4515

Construction		
2022	Units	Acres
Retail	0	0
City Park	8.2571429	8.257143
Residential	380	56.81429
Elementary	0	0
Total Acres	65.071429	
Acres Gradec	56.814286	

Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)
Grading									
Unmitigated On-site	4.8769	52.8947	34.3453	15.2257	2.2195	17.4451	6.964	2.0419	9.0059
Unmitigated Off-site	0.0935	0.0461	0.6888	0.1902	1.25E-03	0.1914	0.0505	1.15E-03	0.0516
Total	4.9704	52.9408	35.0341	15.4159	2.22075	17.6365	7.0145	2.04305	9.0575
Building									
Unmitigated On-site	1.7062	15.6156	16.3634	0	0.809	0.809	0	0.7612	0.7612
Unmitigated Off-site	1.3642	10.0805	10.2975	2.7925	0.0385	2.831	0.7543	0.0364	0.7906
Total	3.0704	25.6961	26.6609	2.7925	0.8475	3.64	0.7543	0.7976	1.5518

Phase	# of Days (CalEEMod default)	% of year	Adjusted # of Days
Site Prep	10	3%	7
Grading	30	8%	21
Building Con:	300	79%	205
Paving	20	5%	14
Arch Coating	20	5%	14
	380		260
Start Date	End Date		
1/1/2022	12/31/2022		

Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)
Paving									
Unmitigated On-site	1.1028	11.1249	14.5805	0	0.5679	0.5679	0	0.5225	0.5225
Unmitigated Off-site	0.0561	0.0277	0.4133	0.1141	7.50E-04	0.1149	0.0303	6.90E-04	0.031
Total	1.1589	11.1526	14.9938	0.1141	0.56865	0.6828	0.0303	0.52319	0.5535
Arch Coating									
Unmitigated On-site	611.6273	1.4085	1.8136	0	0.0817	0.0817	0	0.0817	0.0817
Unmitigated Off-site	0.217	0.107	1.5979	0.4412	2.90E-03	0.4441	0.117	2.67E-03	0.1197
Adjusted	51.3972521								
Total	51.6142521	1.5155	3.4115	0.4412	0.0846	0.5258	0.117	0.08437	0.2014

Total Working Days
260

Construction Totals	Maximum	63	113	85	37	5	42	18	4	22

Energy Calculation	CO2 (MT/yr)	CH4 (MT/yr)	N2O (MT/yr)	CO2e (MT/yr)
744.3 MT CO2	744.3484		0.1017	0
0.001 kg per MT				746.8911

Adjusted Arch Coating Days
162.842105
based on
2/3
building
days plus
paving and
arch
coating
8369.63674
51.3972521 ROG lb/day

7,599,797.16 gallons of diesel

Emissions Factor
10.21 kg CO2/gallon Source: Climate Registry 2016

Construction Year 6

Project Total												
Land Use	Units	Acres	Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)
Residential	2660	397.7										
Elementary	500	10										
City Park	57.8	57.8										
Retail	101.277	9.7										
Construction												
2023	Units	Acres										
Retail	0	0										
City Park	8.25714286	8.257143										
Residential	380	56.81429										
Elementary	0	0										
Total Acres	65.0714286											
Acres Graded	56.8142857											
# of Days												
Phase	(CalEEMod default)	% of year	Adjusted # of Days									
Site Prep	10	3%	7									
Grading	30	8%	21									
Building Const.	300	79%	205									
Paving	20	5%	14									
Arch Coating	20	5%	14									
Start Date	End Date											
1/1/2023	12/31/2023											
Total Working Days	260											
Adjusted Arch Coating Days	162.8421053											
based on 2/3 building days plus paving and arch coating												
8369.460211												
51.39616807	ROG lb/day											
7,485,265.47 gallons of diesel												
Emissions Factor												
10.21 kg CO2/gallon												
Source: Climate Registry 2016												

Phase	ROG (lb/day)	NOx (lb/day)	CO (lb/day)	PM10 Fugitive (lb/day)	PM10 Exhaust (lb/day)	PM10 Total (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Total (lb/day)	
Site Prep										
Unmitigated On-site	2.6595	27.5242	18.2443	18.0663	1.266	19.3323	9.9307	1.1647	11.0954	
Unmitigated Off-site	0.0629	0.0299	0.4565	0.1369	8.80E-04	0.1378	0.0363	8.10E-04	0.0371	
Total	2.7224	27.5541	18.7008	18.2032	1.26688	19.4701	9.967	1.16551	11.1325	
Grading										
Unmitigated On-site	4.3899	46.2958	32.8501	15.2257	1.8962	17.1218	6.964	1.7445	8.7085	
Unmitigated Off-site	0.0874	0.0415	0.634	0.1902	1.22E-03	0.1914	0.0505	1.12E-03	0.0516	
Total	4.4773	46.3373	33.4841	15.4159	1.89742	17.3132	7.0145	1.74562	8.7601	
Building										
Unmitigated On-site	1.5728	14.3849	16.244	0	0.6997	0.6997	0	0.6584	0.6584	
Unmitigated Off-site	1.2336	8.5783	9.3994	2.7924	0.0254	2.8178	0.7542	0.0238	0.7781	
Total	2.8064	22.9632	25.6434	2.7924	0.7251	3.5175	0.7542	0.6822	1.4365	
Paving										
Unmitigated On-site	1.0327	10.1917	14.5842	0	0.5102	0.5102	0	0.4694	0.4694	
Unmitigated Off-site	0.0525	0.0249	0.3804	0.1141	7.30E-04	0.1148	0.0303	6.70E-04	0.0309	
Total	1.0852	10.2166	14.9646	0.1141	0.51093	0.625	0.0303	0.47007	0.5003	
Arch Coating										
Unmitigated On-site	611.6144	1.303	1.811	0	0.0708	0.0708	0	0.0708	0.0708	
Unmitigated Off-site	0.2028	0.0963	1.4708	0.4412	2.83E-03	0.444	0.117	2.61E-03	0.1196	
Adjusted	51.39616807									
Total	51.59896807	1.3993	3.2818	0.4412	0.07363	0.5148	0.117	0.07341	0.1904	
Construction Totals	Maximum	62	98	81	37	4	41	18	4	22
Energy Calculation										
				CO2 (MT/yr)	CH4 (MT/yr)	N2O (MT/yr)	CO2e (MT/yr)			
				733.1308	0.0995	0	735.6178			
				733.1 MT CO2						
				0.001 kg per MT						

Unmitigated Construction Emission - Sacramento County, Annual

**Unmitigated Construction Emission
Sacramento County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2019
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Unmitigated Construction Emission - Sacramento County, Annual

Project Characteristics -

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Unmitigated Construction Emission - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	110.00	14.00
tblConstructionPhase	NumDays	1,550.00	206.00
tblConstructionPhase	NumDays	155.00	21.00
tblConstructionPhase	NumDays	110.00	14.00
tblConstructionPhase	NumDays	60.00	7.00
tblConstructionPhase	PhaseEndDate	11/30/2018	12/31/2018
tblConstructionPhase	PhaseEndDate	9/28/2018	11/22/2018
tblConstructionPhase	PhaseEndDate	2/28/2018	2/7/2018
tblConstructionPhase	PhaseEndDate	10/31/2018	12/12/2018
tblConstructionPhase	PhaseEndDate	1/31/2018	1/9/2018
tblConstructionPhase	PhaseStartDate	11/1/2018	12/12/2018
tblConstructionPhase	PhaseStartDate	3/1/2018	2/8/2018
tblConstructionPhase	PhaseStartDate	2/1/2018	1/10/2018
tblConstructionPhase	PhaseStartDate	9/29/2018	11/23/2018
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	123.38	56.80
tblLandUse	LotAcreage	2.33	9.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblProjectCharacteristics	OperationalYear	2018	2019

2.0 Emissions Summary

Unmitigated Construction Emission - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	2.0683	2.0683
2	4-1-2018	6-30-2018	1.4634	1.4634
3	7-1-2018	9-30-2018	1.4794	1.4794
		Highest	2.0683	2.0683

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Energy	0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	2,039.6137	2,039.6137	0.0789	0.0266	2,049.4970
Mobile	2.8615	11.2988	30.5907	0.0767	6.0185	0.0974	6.1159	1.6146	0.0918	1.7064	0.0000	7,038.1845	7,038.1845	0.4008	0.0000	7,048.2052
Waste						0.0000	0.0000		0.0000	0.0000	114.4260	0.0000	114.4260	6.7624	0.0000	283.4856
Water						0.0000	0.0000		0.0000	0.0000	11.8427	75.7385	87.5811	0.0445	0.0265	96.5973
Total	6.7827	11.9630	34.8242	0.0809	6.0185	0.1688	6.1873	1.6146	0.1632	1.7777	126.2687	9,159.9531	9,286.2218	7.2929	0.0531	9,484.3596

Unmitigated Construction Emission - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Energy	0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	2,039.6137	2,039.6137	0.0789	0.0266	2,049.4970
Mobile	2.8615	11.2988	30.5907	0.0767	6.0185	0.0974	6.1159	1.6146	0.0918	1.7064	0.0000	7,038.1845	7,038.1845	0.4008	0.0000	7,048.2052
Waste						0.0000	0.0000		0.0000	0.0000	114.4260	0.0000	114.4260	6.7624	0.0000	283.4856
Water						0.0000	0.0000		0.0000	0.0000	11.8427	75.7385	87.5811	0.0445	0.0265	96.5973
Total	6.7827	11.9630	34.8242	0.0809	6.0185	0.1688	6.1873	1.6146	0.1632	1.7777	126.2687	9,159.9531	9,286.2218	7.2929	0.0531	9,484.3596

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Unmitigated Construction Emission - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/9/2018	5	7	
2	Grading	Grading	1/10/2018	2/7/2018	5	21	
3	Building Construction	Building Construction	2/8/2018	11/22/2018	5	206	
4	Paving	Paving	11/23/2018	12/12/2018	5	14	
5	Architectural Coating	Architectural Coating	12/12/2018	12/31/2018	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 84

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 214,618; Non-Residential Outdoor: 71,539; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Unmitigated Construction Emission - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	3	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	28.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	338.00	123.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	68.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Unmitigated Construction Emission - Sacramento County, Annual

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1687	0.0787	1.3000e-004		9.0200e-003	9.0200e-003		8.3000e-003	8.3000e-003	0.0000	12.1660	12.1660	3.7900e-003	0.0000	12.2607
Total	0.0160	0.1687	0.0787	1.3000e-004	0.0632	9.0200e-003	0.0723	0.0348	8.3000e-003	0.0431	0.0000	12.1660	12.1660	3.7900e-003	0.0000	12.2607

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.1600e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4378	0.4378	1.0000e-005	0.0000	0.4382
Total	2.8000e-004	2.0000e-004	2.1600e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4378	0.4378	1.0000e-005	0.0000	0.4382

Unmitigated Construction Emission - Sacramento County, Annual

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1687	0.0787	1.3000e-004		9.0200e-003	9.0200e-003		8.3000e-003	8.3000e-003	0.0000	12.1660	12.1660	3.7900e-003	0.0000	12.2606
Total	0.0160	0.1687	0.0787	1.3000e-004	0.0632	9.0200e-003	0.0723	0.0348	8.3000e-003	0.0431	0.0000	12.1660	12.1660	3.7900e-003	0.0000	12.2606

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.1600e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4378	0.4378	1.0000e-005	0.0000	0.4382
Total	2.8000e-004	2.0000e-004	2.1600e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4378	0.4378	1.0000e-005	0.0000	0.4382

Unmitigated Construction Emission - Sacramento County, Annual

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1710	0.0000	0.1710	0.0743	0.0000	0.0743	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0832	0.9807	0.5268	9.7000e-004		0.0424	0.0424		0.0390	0.0390	0.0000	88.5803	88.5803	0.0276	0.0000	89.2697
Total	0.0832	0.9807	0.5268	9.7000e-004	0.1710	0.0424	0.2134	0.0743	0.0390	0.1133	0.0000	88.5803	88.5803	0.0276	0.0000	89.2697

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.5000e-004	0.0101	2.0000e-005	2.1600e-003	2.0000e-005	2.1800e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0433	2.0433	7.0000e-005	0.0000	2.0450
Total	1.3100e-003	9.5000e-004	0.0101	2.0000e-005	2.1600e-003	2.0000e-005	2.1800e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0433	2.0433	7.0000e-005	0.0000	2.0450

Unmitigated Construction Emission - Sacramento County, Annual

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1710	0.0000	0.1710	0.0743	0.0000	0.0743	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0832	0.9807	0.5268	9.7000e-004		0.0424	0.0424		0.0390	0.0390	0.0000	88.5802	88.5802	0.0276	0.0000	89.2696
Total	0.0832	0.9807	0.5268	9.7000e-004	0.1710	0.0424	0.2134	0.0743	0.0390	0.1133	0.0000	88.5802	88.5802	0.0276	0.0000	89.2696

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.5000e-004	0.0101	2.0000e-005	2.1600e-003	2.0000e-005	2.1800e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0433	2.0433	7.0000e-005	0.0000	2.0450
Total	1.3100e-003	9.5000e-004	0.0101	2.0000e-005	2.1600e-003	2.0000e-005	2.1800e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0433	2.0433	7.0000e-005	0.0000	2.0450

Unmitigated Construction Emission - Sacramento County, Annual

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2760	2.4092	1.8108	2.7700e-003		0.1545	0.1545		0.1452	0.1452	0.0000	244.9003	244.9003	0.0600	0.0000	246.4003
Total	0.2760	2.4092	1.8108	2.7700e-003		0.1545	0.1545		0.1452	0.1452	0.0000	244.9003	244.9003	0.0600	0.0000	246.4003

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0689	1.6446	0.5446	3.1700e-003	0.0741	0.0130	0.0871	0.0214	0.0124	0.0338	0.0000	303.7595	303.7595	0.0196	0.0000	304.2501
Worker	0.1550	0.1124	1.1933	2.6800e-003	0.2557	1.9500e-003	0.2576	0.0680	1.8000e-003	0.0698	0.0000	241.9517	241.9517	8.2500e-003	0.0000	242.1579
Total	0.2239	1.7571	1.7379	5.8500e-003	0.3298	0.0149	0.3447	0.0894	0.0142	0.1036	0.0000	545.7112	545.7112	0.0279	0.0000	546.4080

Unmitigated Construction Emission - Sacramento County, Annual

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2760	2.4092	1.8108	2.7700e-003		0.1545	0.1545		0.1452	0.1452	0.0000	244.9000	244.9000	0.0600	0.0000	246.4000
Total	0.2760	2.4092	1.8108	2.7700e-003		0.1545	0.1545		0.1452	0.1452	0.0000	244.9000	244.9000	0.0600	0.0000	246.4000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0689	1.6446	0.5446	3.1700e-003	0.0741	0.0130	0.0871	0.0214	0.0124	0.0338	0.0000	303.7595	303.7595	0.0196	0.0000	304.2501
Worker	0.1550	0.1124	1.1933	2.6800e-003	0.2557	1.9500e-003	0.2576	0.0680	1.8000e-003	0.0698	0.0000	241.9517	241.9517	8.2500e-003	0.0000	242.1579
Total	0.2239	1.7571	1.7379	5.8500e-003	0.3298	0.0149	0.3447	0.0894	0.0142	0.1036	0.0000	545.7112	545.7112	0.0279	0.0000	546.4080

Unmitigated Construction Emission - Sacramento County, Annual

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0115	0.1227	0.1036	1.6000e-004		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	14.5681	14.5681	4.5400e-003	0.0000	14.6815
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0115	0.1227	0.1036	1.6000e-004		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	14.5681	14.5681	4.5400e-003	0.0000	14.6815

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.4000e-004	3.6000e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7297	0.7297	2.0000e-005	0.0000	0.7304
Total	4.7000e-004	3.4000e-004	3.6000e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7297	0.7297	2.0000e-005	0.0000	0.7304

Unmitigated Construction Emission - Sacramento County, Annual

3.5 Paving - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0115	0.1227	0.1036	1.6000e-004		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	14.5681	14.5681	4.5400e-003	0.0000	14.6815
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0115	0.1227	0.1036	1.6000e-004		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	14.5681	14.5681	4.5400e-003	0.0000	14.6815

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.4000e-004	3.6000e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7297	0.7297	2.0000e-005	0.0000	0.7304
Total	4.7000e-004	3.4000e-004	3.6000e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7297	0.7297	2.0000e-005	0.0000	0.7304

Unmitigated Construction Emission - Sacramento County, Annual

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.9431					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0900e-003	0.0140	0.0130	2.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	1.7873	1.7873	1.7000e-004	0.0000	1.7915
Total	4.9452	0.0140	0.0130	2.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	1.7873	1.7873	1.7000e-004	0.0000	1.7915

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1200e-003	1.5400e-003	0.0163	4.0000e-005	3.5000e-003	3.0000e-005	3.5200e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	3.3081	3.3081	1.1000e-004	0.0000	3.3109
Total	2.1200e-003	1.5400e-003	0.0163	4.0000e-005	3.5000e-003	3.0000e-005	3.5200e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	3.3081	3.3081	1.1000e-004	0.0000	3.3109

Unmitigated Construction Emission - Sacramento County, Annual

3.6 Architectural Coating - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.9431					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0900e-003	0.0140	0.0130	2.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	1.7873	1.7873	1.7000e-004	0.0000	1.7915
Total	4.9452	0.0140	0.0130	2.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	1.7873	1.7873	1.7000e-004	0.0000	1.7915

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1200e-003	1.5400e-003	0.0163	4.0000e-005	3.5000e-003	3.0000e-005	3.5200e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	3.3081	3.3081	1.1000e-004	0.0000	3.3109
Total	2.1200e-003	1.5400e-003	0.0163	4.0000e-005	3.5000e-003	3.0000e-005	3.5200e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	3.3081	3.3081	1.1000e-004	0.0000	3.3109

4.0 Operational Detail - Mobile

Unmitigated Construction Emission - Sacramento County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.8615	11.2988	30.5907	0.0767	6.0185	0.0974	6.1159	1.6146	0.0918	1.7064	0.0000	7,038.1845	7,038.1845	0.4008	0.0000	7,048.2052
Unmitigated	2.8615	11.2988	30.5907	0.0767	6.0185	0.0974	6.1159	1.6146	0.0918	1.7064	0.0000	7,038.1845	7,038.1845	0.4008	0.0000	7,048.2052

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Elementary School	645.00	0.00	0.00	968,813	968,813
Regional Shopping Center	4,324.66	5,060.96	2556.31	5,836,852	5,836,852
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	8,602.87	9,014.68	5,970.18	16,124,321	16,124,321

4.3 Trip Type Information

Unmitigated Construction Emission - Sacramento County, Annual

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Elementary School	10.00	5.00	6.50	65.00	30.00	5.00	63	25	12
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
City Park	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Single Family Housing	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Regional Shopping Center	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Unmitigated Construction Emission - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,327.3362	1,327.3362	0.0652	0.0135	1,332.9868
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,327.3362	1,327.3362	0.0652	0.0135	1,332.9868
NaturalGas Mitigated	0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	712.2775	712.2775	0.0137	0.0131	716.5102
NaturalGas Unmitigated	0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	712.2775	712.2775	0.0137	0.0131	716.5102

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	712.2775	712.2775	0.0137	0.0131	716.5102

Unmitigated Construction Emission - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	712.2775	712.2775	0.0137	0.0131	716.5102

Unmitigated Construction Emission - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		1,327.3362	0.0652	0.0135	1,332.9868

Unmitigated Construction Emission - Sacramento County, Annual

5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		1,327.3362	0.0652	0.0135	1,332.9868

6.0 Area Detail**6.1 Mitigation Measures Area**

Unmitigated Construction Emission - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Unmitigated	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4943					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.2335					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1213	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Total	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745

Unmitigated Construction Emission - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4943					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.2335					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1213	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Total	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745

7.0 Water Detail

7.1 Mitigation Measures Water

Unmitigated Construction Emission - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	87.5811	0.0445	0.0265	96.5973
Unmitigated	87.5811	0.0445	0.0265	96.5973

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		87.5812	0.0445	0.0265	96.5973

Unmitigated Construction Emission - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		87.5812	0.0445	0.0265	96.5973

8.0 Waste Detail

8.1 Mitigation Measures Waste

Unmitigated Construction Emission - Sacramento County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	114.4260	6.7624	0.0000	283.4856
Unmitigated	114.4260	6.7624	0.0000	283.4856

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		114.4260	6.7624	0.0000	283.4856

Unmitigated Construction Emission - Sacramento County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		114.4260	6.7624	0.0000	283.4856

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Unmitigated Construction Emission - Sacramento County, Annual

Equipment Type	Number
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11.0 Vegetation

Unmitigated Construction Emission - Sacramento County, Summer

Unmitigated Construction Emission
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2019
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Unmitigated Construction Emission - Sacramento County, Summer

Project Characteristics -

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Unmitigated Construction Emission - Sacramento County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	110.00	14.00
tblConstructionPhase	NumDays	1,550.00	206.00
tblConstructionPhase	NumDays	155.00	21.00
tblConstructionPhase	NumDays	110.00	14.00
tblConstructionPhase	NumDays	60.00	7.00
tblConstructionPhase	PhaseEndDate	11/30/2018	12/31/2018
tblConstructionPhase	PhaseEndDate	9/28/2018	11/22/2018
tblConstructionPhase	PhaseEndDate	2/28/2018	2/7/2018
tblConstructionPhase	PhaseEndDate	10/31/2018	12/12/2018
tblConstructionPhase	PhaseEndDate	1/31/2018	1/9/2018
tblConstructionPhase	PhaseStartDate	11/1/2018	12/12/2018
tblConstructionPhase	PhaseStartDate	3/1/2018	2/8/2018
tblConstructionPhase	PhaseStartDate	2/1/2018	1/10/2018
tblConstructionPhase	PhaseStartDate	9/29/2018	11/23/2018
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	123.38	56.80
tblLandUse	LotAcreage	2.33	9.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblProjectCharacteristics	OperationalYear	2018	2019

2.0 Emissions Summary

Unmitigated Construction Emission - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.3970	0.3655	31.5686	1.6600e-003		0.1729	0.1729		0.1729	0.1729	0.0000	56.5833	56.5833	0.0558	0.0000	57.9776
Energy	0.3944	3.3893	1.5750	0.0215		0.2725	0.2725		0.2725	0.2725		4,302.2000	4,302.2000	0.0825	0.0789	4,327.7658
Mobile	23.1133	68.6523	212.3557	0.5229	39.1443	0.6104	39.7547	10.4708	0.5752	11.0460		52,816.8296	52,816.8296	2.8567		52,888.2470
Total	44.9046	72.4070	245.4992	0.5460	39.1443	1.0558	40.2001	10.4708	1.0205	11.4913	0.0000	57,175.6129	57,175.6129	2.9949	0.0789	57,273.9904

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.3970	0.3655	31.5686	1.6600e-003		0.1729	0.1729		0.1729	0.1729	0.0000	56.5833	56.5833	0.0558	0.0000	57.9776
Energy	0.3944	3.3893	1.5750	0.0215		0.2725	0.2725		0.2725	0.2725		4,302.2000	4,302.2000	0.0825	0.0789	4,327.7658
Mobile	23.1133	68.6523	212.3557	0.5229	39.1443	0.6104	39.7547	10.4708	0.5752	11.0460		52,816.8296	52,816.8296	2.8567		52,888.2470
Total	44.9046	72.4070	245.4992	0.5460	39.1443	1.0558	40.2001	10.4708	1.0205	11.4913	0.0000	57,175.6129	57,175.6129	2.9949	0.0789	57,273.9904

Unmitigated Construction Emission - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/9/2018	5	7	
2	Grading	Grading	1/10/2018	2/7/2018	5	21	
3	Building Construction	Building Construction	2/8/2018	11/22/2018	5	206	
4	Paving	Paving	11/23/2018	12/12/2018	5	14	
5	Architectural Coating	Architectural Coating	12/12/2018	12/31/2018	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 84

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 214,618; Non-Residential Outdoor: 71,539; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Unmitigated Construction Emission - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	3	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	28.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	338.00	123.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	68.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Unmitigated Construction Emission - Sacramento County, Summer

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	4.5627	48.1988	22.4763	0.0380	18.0663	2.5769	20.6432	9.9307	2.3708	12.3014		3,831.6239	3,831.6239	1.1928		3,861.4448

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0928	0.0526	0.7238	1.5300e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		152.5246	152.5246	5.2500e-003		152.6557
Total	0.0928	0.0526	0.7238	1.5300e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		152.5246	152.5246	5.2500e-003		152.6557

Unmitigated Construction Emission - Sacramento County, Summer

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	4.5627	48.1988	22.4763	0.0380	18.0663	2.5769	20.6432	9.9307	2.3708	12.3014	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0928	0.0526	0.7238	1.5300e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		152.5246	152.5246	5.2500e-003		152.6557
Total	0.0928	0.0526	0.7238	1.5300e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		152.5246	152.5246	5.2500e-003		152.6557

Unmitigated Construction Emission - Sacramento County, Summer

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					16.2862	0.0000	16.2862	7.0785	0.0000	7.0785			0.0000			0.0000
Off-Road	7.9228	93.4008	50.1673	0.0924		4.0353	4.0353		3.7125	3.7125		9,299.3359	9,299.3359	2.8950		9,371.7112
Total	7.9228	93.4008	50.1673	0.0924	16.2862	4.0353	20.3215	7.0785	3.7125	10.7910		9,299.3359	9,299.3359	2.8950		9,371.7112

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1443	0.0819	1.1259	2.3900e-003	0.2130	1.5600e-003	0.2146	0.0565	1.4400e-003	0.0579		237.2604	237.2604	8.1600e-003		237.4644
Total	0.1443	0.0819	1.1259	2.3900e-003	0.2130	1.5600e-003	0.2146	0.0565	1.4400e-003	0.0579		237.2604	237.2604	8.1600e-003		237.4644

Unmitigated Construction Emission - Sacramento County, Summer

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					16.2862	0.0000	16.2862	7.0785	0.0000	7.0785			0.0000			0.0000
Off-Road	7.9228	93.4008	50.1673	0.0924		4.0353	4.0353		3.7125	3.7125	0.0000	9,299.3359	9,299.3359	2.8950		9,371.7112
Total	7.9228	93.4008	50.1673	0.0924	16.2862	4.0353	20.3215	7.0785	3.7125	10.7910	0.0000	9,299.3359	9,299.3359	2.8950		9,371.7112

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1443	0.0819	1.1259	2.3900e-003	0.2130	1.5600e-003	0.2146	0.0565	1.4400e-003	0.0579		237.2604	237.2604	8.1600e-003		237.4644
Total	0.1443	0.0819	1.1259	2.3900e-003	0.2130	1.5600e-003	0.2146	0.0565	1.4400e-003	0.0579		237.2604	237.2604	8.1600e-003		237.4644

Unmitigated Construction Emission - Sacramento County, Summer

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.935 1	2,620.935 1	0.6421		2,636.988 3
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.935 1	2,620.935 1	0.6421		2,636.988 3

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6606	15.5664	5.0799	0.0311	0.7404	0.1245	0.8649	0.2131	0.1191	0.3322		3,285.062 2	3,285.062 2	0.2037		3,290.154 0
Worker	1.7419	0.9881	13.5909	0.0288	2.5712	0.0189	2.5901	0.6820	0.0174	0.6995		2,864.072 1	2,864.072 1	0.0985		2,866.534 8
Total	2.4025	16.5545	18.6708	0.0599	3.3116	0.1434	3.4549	0.8951	0.1365	1.0316		6,149.134 2	6,149.134 2	0.3022		6,156.688 8

Unmitigated Construction Emission - Sacramento County, Summer

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.935 1	2,620.935 1	0.6421		2,636.988 3
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.935 1	2,620.935 1	0.6421		2,636.988 3

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6606	15.5664	5.0799	0.0311	0.7404	0.1245	0.8649	0.2131	0.1191	0.3322		3,285.062 2	3,285.062 2	0.2037		3,290.154 0
Worker	1.7419	0.9881	13.5909	0.0288	2.5712	0.0189	2.5901	0.6820	0.0174	0.6995		2,864.072 1	2,864.072 1	0.0985		2,866.534 8
Total	2.4025	16.5545	18.6708	0.0599	3.3116	0.1434	3.4549	0.8951	0.1365	1.0316		6,149.134 2	6,149.134 2	0.3022		6,156.688 8

Unmitigated Construction Emission - Sacramento County, Summer

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797		2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797		2,294.0887	2,294.0887	0.7142		2,311.9432

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0773	0.0439	0.6032	1.2800e-003	0.1141	8.4000e-004	0.1149	0.0303	7.7000e-004	0.0310		127.1038	127.1038	4.3700e-003		127.2131
Total	0.0773	0.0439	0.6032	1.2800e-003	0.1141	8.4000e-004	0.1149	0.0303	7.7000e-004	0.0310		127.1038	127.1038	4.3700e-003		127.2131

Unmitigated Construction Emission - Sacramento County, Summer

3.5 Paving - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797	0.0000	2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797	0.0000	2,294.0887	2,294.0887	0.7142		2,311.9432

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0773	0.0439	0.6032	1.2800e-003	0.1141	8.4000e-004	0.1149	0.0303	7.7000e-004	0.0310		127.1038	127.1038	4.3700e-003		127.2131
Total	0.0773	0.0439	0.6032	1.2800e-003	0.1141	8.4000e-004	0.1149	0.0303	7.7000e-004	0.0310		127.1038	127.1038	4.3700e-003		127.2131

Unmitigated Construction Emission - Sacramento County, Summer

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	706.1611					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.1171
Total	706.4598	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.1171

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3504	0.1988	2.7343	5.8000e-003	0.5173	3.8000e-003	0.5211	0.1372	3.5100e-003	0.1407		576.2039	576.2039	0.0198		576.6993
Total	0.3504	0.1988	2.7343	5.8000e-003	0.5173	3.8000e-003	0.5211	0.1372	3.5100e-003	0.1407		576.2039	576.2039	0.0198		576.6993

Unmitigated Construction Emission - Sacramento County, Summer

3.6 Architectural Coating - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	706.1611					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.1171
Total	706.4598	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.1171

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3504	0.1988	2.7343	5.8000e-003	0.5173	3.8000e-003	0.5211	0.1372	3.5100e-003	0.1407		576.2039	576.2039	0.0198		576.6993
Total	0.3504	0.1988	2.7343	5.8000e-003	0.5173	3.8000e-003	0.5211	0.1372	3.5100e-003	0.1407		576.2039	576.2039	0.0198		576.6993

4.0 Operational Detail - Mobile

Unmitigated Construction Emission - Sacramento County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	23.1133	68.6523	212.3557	0.5229	39.1443	0.6104	39.7547	10.4708	0.5752	11.0460		52,816.8296	52,816.8296	2.8567		52,888.2470
Unmitigated	23.1133	68.6523	212.3557	0.5229	39.1443	0.6104	39.7547	10.4708	0.5752	11.0460		52,816.8296	52,816.8296	2.8567		52,888.2470

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Elementary School	645.00	0.00	0.00	968,813	968,813
Regional Shopping Center	4,324.66	5,060.96	2556.31	5,836,852	5,836,852
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	8,602.87	9,014.68	5,970.18	16,124,321	16,124,321

4.3 Trip Type Information

Unmitigated Construction Emission - Sacramento County, Summer

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Elementary School	10.00	5.00	6.50	65.00	30.00	5.00	63	25	12
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
City Park	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Single Family Housing	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Regional Shopping Center	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Unmitigated Construction Emission - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3944	3.3893	1.5750	0.0215		0.2725	0.2725		0.2725	0.2725		4,302.2000	4,302.2000	0.0825	0.0789	4,327.7658
NaturalGas Unmitigated	0.3944	3.3893	1.5750	0.0215		0.2725	0.2725		0.2725	0.2725		4,302.2000	4,302.2000	0.0825	0.0789	4,327.7658

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1756.82	0.0190	0.1722	0.1447	1.0300e-003		0.0131	0.0131		0.0131	0.0131		206.6843	206.6843	3.9600e-003	3.7900e-003	207.9125
Regional Shopping Center	1509.44	0.0163	0.1480	0.1243	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.5816	177.5816	3.4000e-003	3.2600e-003	178.6369
Single Family Housing	33302.4	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Total		0.3944	3.3893	1.5750	0.0215		0.2725	0.2725		0.2725	0.2725		4,302.2000	4,302.2000	0.0825	0.0789	4,327.7658

Unmitigated Construction Emission - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1.75682	0.0190	0.1722	0.1447	1.0300e-003		0.0131	0.0131		0.0131	0.0131		206.6843	206.6843	3.9600e-003	3.7900e-003	207.9125
Regional Shopping Center	1.50944	0.0163	0.1480	0.1243	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.5816	177.5816	3.4000e-003	3.2600e-003	178.6369
Single Family Housing	33.3024	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Total		0.3944	3.3893	1.5750	0.0215		0.2725	0.2725		0.2725	0.2725		4,302.2000	4,302.2000	0.0825	0.0789	4,327.7658

6.0 Area Detail

6.1 Mitigation Measures Area

Unmitigated Construction Emission - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	21.3970	0.3655	31.5686	1.6600e-003		0.1729	0.1729		0.1729	0.1729	0.0000	56.5833	56.5833	0.0558	0.0000	57.9776
Unmitigated	21.3970	0.3655	31.5686	1.6600e-003		0.1729	0.1729		0.1729	0.1729	0.0000	56.5833	56.5833	0.0558	0.0000	57.9776

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.7086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	17.7180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9704	0.3655	31.5686	1.6600e-003		0.1729	0.1729		0.1729	0.1729		56.5833	56.5833	0.0558		57.9776
Total	21.3970	0.3655	31.5686	1.6600e-003		0.1729	0.1729		0.1729	0.1729	0.0000	56.5833	56.5833	0.0558	0.0000	57.9776

Unmitigated Construction Emission - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.7086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	17.7180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9704	0.3655	31.5686	1.6600e-003		0.1729	0.1729		0.1729	0.1729		56.5833	56.5833	0.0558		57.9776
Total	21.3970	0.3655	31.5686	1.6600e-003		0.1729	0.1729		0.1729	0.1729	0.0000	56.5833	56.5833	0.0558	0.0000	57.9776

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Unmitigated Construction Emission - Sacramento County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 2 Construction - Sacramento County, Annual

Year 2 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2021
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 2 Construction - Sacramento County, Annual

Project Characteristics - Year 2

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	206.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/1/2020	12/31/2019
tblConstructionPhase	PhaseStartDate	12/13/2019	12/12/2019
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2021

Year 2 Construction - Sacramento County, Annual

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	4.7899	4.5687	3.6974	8.7200e-003	0.5073	0.1920	0.6993	0.1849	0.1797	0.3646	0.0000	793.0455	793.0455	0.1122	0.0000	795.8515
Maximum	4.7899	4.5687	3.6974	8.7200e-003	0.5073	0.1920	0.6993	0.1849	0.1797	0.3646	0.0000	793.0455	793.0455	0.1122	0.0000	795.8515

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	4.7899	4.5687	3.6974	8.7200e-003	0.5073	0.1920	0.6993	0.1849	0.1797	0.3646	0.0000	793.0451	793.0451	0.1122	0.0000	795.8511
Maximum	4.7899	4.5687	3.6974	8.7200e-003	0.5073	0.1920	0.6993	0.1849	0.1797	0.3646	0.0000	793.0451	793.0451	0.1122	0.0000	795.8511

Year 2 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	1.6991	1.6991
2	4-1-2019	6-30-2019	1.2344	1.2344
3	7-1-2019	9-30-2019	1.2480	1.2480
		Highest	1.6991	1.6991

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2217	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	1.1485	4.9460	13.5850	0.0412	3.4759	0.0371	3.5130	0.9321	0.0347	0.9668	0.0000	3,784.3506	3,784.3506	0.1859	0.0000	3,788.9987
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.4357	5.5515	17.7508	0.0450	3.4759	0.1040	3.5799	0.9321	0.1016	1.0337	83.0766	5,417.9518	5,501.0284	4.6748	0.0409	5,630.0826

Year 2 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2217	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	1.1485	4.9460	13.5850	0.0412	3.4759	0.0371	3.5130	0.9321	0.0347	0.9668	0.0000	3,784.3506	3,784.3506	0.1859	0.0000	3,788.9987
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.4357	5.5515	17.7508	0.0450	3.4759	0.1040	3.5799	0.9321	0.1016	1.0337	83.0766	5,417.9518	5,501.0284	4.6748	0.0409	5,630.0826

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 2 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/9/2019	5	7	
2	Grading	Grading	1/10/2019	2/7/2019	5	21	
3	Building Construction	Building Construction	2/8/2019	11/22/2019	5	206	
4	Paving	Paving	11/23/2019	12/12/2019	5	14	
5	Architectural Coating	Architectural Coating	12/12/2019	12/31/2019	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 2 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 2 Construction - Sacramento County, Annual

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1595	0.0772	1.3000e-004		8.3700e-003	8.3700e-003		7.7000e-003	7.7000e-003	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536
Total	0.0152	0.1595	0.0772	1.3000e-004	0.0632	8.3700e-003	0.0716	0.0348	7.7000e-003	0.0425	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.8000e-004	1.9300e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4230	0.4230	1.0000e-005	0.0000	0.4233
Total	2.5000e-004	1.8000e-004	1.9300e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4230	0.4230	1.0000e-005	0.0000	0.4233

Year 2 Construction - Sacramento County, Annual

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1595	0.0772	1.3000e-004		8.3700e-003	8.3700e-003		7.7000e-003	7.7000e-003	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536
Total	0.0152	0.1595	0.0772	1.3000e-004	0.0632	8.3700e-003	0.0716	0.0348	7.7000e-003	0.0425	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.8000e-004	1.9300e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4230	0.4230	1.0000e-005	0.0000	0.4233
Total	2.5000e-004	1.8000e-004	1.9300e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4230	0.4230	1.0000e-005	0.0000	0.4233

Year 2 Construction - Sacramento County, Annual

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0668	0.7683	0.4147	8.1000e-004		0.0334	0.0334		0.0307	0.0307	0.0000	72.8037	72.8037	0.0230	0.0000	73.3795
Total	0.0668	0.7683	0.4147	8.1000e-004	0.1599	0.0334	0.1933	0.0731	0.0307	0.1039	0.0000	72.8037	72.8037	0.0230	0.0000	73.3795

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0600e-003	7.5000e-004	8.0500e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7624	1.7624	5.0000e-005	0.0000	1.7637
Total	1.0600e-003	7.5000e-004	8.0500e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7624	1.7624	5.0000e-005	0.0000	1.7637

Year 2 Construction - Sacramento County, Annual

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0668	0.7683	0.4147	8.1000e-004		0.0334	0.0334		0.0307	0.0307	0.0000	72.8036	72.8036	0.0230	0.0000	73.3794
Total	0.0668	0.7683	0.4147	8.1000e-004	0.1599	0.0334	0.1933	0.0731	0.0307	0.1039	0.0000	72.8036	72.8036	0.0230	0.0000	73.3794

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0600e-003	7.5000e-004	8.0500e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7624	1.7624	5.0000e-005	0.0000	1.7637
Total	1.0600e-003	7.5000e-004	8.0500e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7624	1.7624	5.0000e-005	0.0000	1.7637

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3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2432	2.1711	1.7679	2.7700e-003		0.1329	0.1329		0.1249	0.1249	0.0000	242.1573	242.1573	0.0590	0.0000	243.6321
Total	0.2432	2.1711	1.7679	2.7700e-003		0.1329	0.1329		0.1249	0.1249	0.0000	242.1573	242.1573	0.0590	0.0000	243.6321

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0494	1.2635	0.3862	2.5600e-003	0.0602	9.0000e-003	0.0692	0.0174	8.6100e-003	0.0260	0.0000	245.2332	245.2332	0.0154	0.0000	245.6176
Worker	0.1200	0.0843	0.9102	2.2100e-003	0.2179	1.6100e-003	0.2195	0.0579	1.4800e-003	0.0594	0.0000	199.1564	199.1564	6.1900e-003	0.0000	199.3112
Total	0.1693	1.3478	1.2964	4.7700e-003	0.2781	0.0106	0.2887	0.0754	0.0101	0.0855	0.0000	444.3896	444.3896	0.0216	0.0000	444.9288

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3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2432	2.1711	1.7679	2.7700e-003		0.1329	0.1329		0.1249	0.1249	0.0000	242.1570	242.1570	0.0590	0.0000	243.6318
Total	0.2432	2.1711	1.7679	2.7700e-003		0.1329	0.1329		0.1249	0.1249	0.0000	242.1570	242.1570	0.0590	0.0000	243.6318

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0494	1.2635	0.3862	2.5600e-003	0.0602	9.0000e-003	0.0692	0.0174	8.6100e-003	0.0260	0.0000	245.2332	245.2332	0.0154	0.0000	245.6176
Worker	0.1200	0.0843	0.9102	2.2100e-003	0.2179	1.6100e-003	0.2195	0.0579	1.4800e-003	0.0594	0.0000	199.1564	199.1564	6.1900e-003	0.0000	199.3112
Total	0.1693	1.3478	1.2964	4.7700e-003	0.2781	0.0106	0.2887	0.0754	0.0101	0.0855	0.0000	444.3896	444.3896	0.0216	0.0000	444.9288

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3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0102	0.1067	0.1027	1.6000e-004		5.7700e-003	5.7700e-003		5.3100e-003	5.3100e-003	0.0000	14.3326	14.3326	4.5300e-003	0.0000	14.4460
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0102	0.1067	0.1027	1.6000e-004		5.7700e-003	5.7700e-003		5.3100e-003	5.3100e-003	0.0000	14.3326	14.3326	4.5300e-003	0.0000	14.4460

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.2200e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7055
Total	4.2000e-004	3.0000e-004	3.2200e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7055

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3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0102	0.1067	0.1027	1.6000e-004		5.7700e-003	5.7700e-003		5.3100e-003	5.3100e-003	0.0000	14.3326	14.3326	4.5300e-003	0.0000	14.4460
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0102	0.1067	0.1027	1.6000e-004		5.7700e-003	5.7700e-003		5.3100e-003	5.3100e-003	0.0000	14.3326	14.3326	4.5300e-003	0.0000	14.4460

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.2200e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7055
Total	4.2000e-004	3.0000e-004	3.2200e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7055

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3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8700e-003	0.0129	0.0129	2.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	1.7873	1.7873	1.5000e-004	0.0000	1.7911
Total	4.2818	0.0129	0.0129	2.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	1.7873	1.7873	1.5000e-004	0.0000	1.7911

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.1500e-003	0.0125	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.7258	2.7258	8.0000e-005	0.0000	2.7279
Total	1.6400e-003	1.1500e-003	0.0125	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.7258	2.7258	8.0000e-005	0.0000	2.7279

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3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8700e-003	0.0129	0.0129	2.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	1.7873	1.7873	1.5000e-004	0.0000	1.7911
Total	4.2818	0.0129	0.0129	2.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	1.7873	1.7873	1.5000e-004	0.0000	1.7911

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.1500e-003	0.0125	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.7258	2.7258	8.0000e-005	0.0000	2.7279
Total	1.6400e-003	1.1500e-003	0.0125	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.7258	2.7258	8.0000e-005	0.0000	2.7279

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1485	4.9460	13.5850	0.0412	3.4759	0.0371	3.5130	0.9321	0.0347	0.9668	0.0000	3,784.3506	3,784.3506	0.1859	0.0000	3,788.9987
Unmitigated	1.1485	4.9460	13.5850	0.0412	3.4759	0.0371	3.5130	0.9321	0.0347	0.9668	0.0000	3,784.3506	3,784.3506	0.1859	0.0000	3,788.9987

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 2 Construction - Sacramento County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915
Single Family Housing	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Year 2 Construction - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Year 2 Construction - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

Year 2 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2217	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Unmitigated	3.2217	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1190	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Total	3.2218	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566

Year 2 Construction - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1190	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Total	3.2218	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566

7.0 Water Detail

7.1 Mitigation Measures Water

Year 2 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 2 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 2 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Year 2 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 2 Construction - Sacramento County, Summer

Year 2 Construction
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2021
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 2 Construction - Sacramento County, Summer

Project Characteristics - Year 2

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	206.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/1/2020	12/31/2019
tblConstructionPhase	PhaseStartDate	12/13/2019	12/12/2019
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2021

Year 2 Construction - Sacramento County, Summer

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	613.4857	73.2385	40.4016	0.0792	18.2032	3.1839	20.5945	9.9670	2.9292	12.1670	0.0000	7,847.7355	7,847.7355	2.4246	0.0000	7,908.3513
Maximum	613.4857	73.2385	40.4016	0.0792	18.2032	3.1839	20.5945	9.9670	2.9292	12.1670	0.0000	7,847.7355	7,847.7355	2.4246	0.0000	7,908.3513

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	613.4857	73.2385	40.4016	0.0792	18.2032	3.1839	20.5945	9.9670	2.9292	12.1670	0.0000	7,847.7355	7,847.7355	2.4246	0.0000	7,908.3512
Maximum	613.4857	73.2385	40.4016	0.0792	18.2032	3.1839	20.5945	9.9670	2.9292	12.1670	0.0000	7,847.7355	7,847.7355	2.4246	0.0000	7,908.3512

Year 2 Construction - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9533	0.3627	31.4195	1.6600e-003		0.1732	0.1732		0.1732	0.1732	0.0000	56.4517	56.4517	0.0547	0.0000	57.8194
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	8.5879	28.0867	90.2622	0.2635	21.2379	0.2179	21.4558	5.6785	0.2040	5.8825		26,654.5192	26,654.5192	1.2474		26,685.7049
Total	26.9004	31.5184	122.9876	0.2847	21.2379	0.6392	21.8771	5.6785	0.6253	6.3038	0.0000	30,628.9050	30,628.9050	1.3772	0.0718	30,684.7407

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9533	0.3627	31.4195	1.6600e-003		0.1732	0.1732		0.1732	0.1732	0.0000	56.4517	56.4517	0.0547	0.0000	57.8194
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	8.5879	28.0867	90.2622	0.2635	21.2379	0.2179	21.4558	5.6785	0.2040	5.8825		26,654.5192	26,654.5192	1.2474		26,685.7049
Total	26.9004	31.5184	122.9876	0.2847	21.2379	0.6392	21.8771	5.6785	0.6253	6.3038	0.0000	30,628.9050	30,628.9050	1.3772	0.0718	30,684.7407

Year 2 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/9/2019	5	7	
2	Grading	Grading	1/10/2019	2/7/2019	5	21	
3	Building Construction	Building Construction	2/8/2019	11/22/2019	5	206	
4	Paving	Paving	11/23/2019	12/12/2019	5	14	
5	Architectural Coating	Architectural Coating	12/12/2019	12/31/2019	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 2 Construction - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 2 Construction - Sacramento County, Summer

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298		3,766.4529	3,766.4529	1.1917		3,796.2445

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0843	0.0463	0.6499	1.4800e-003	0.1369	9.8000e-004	0.1379	0.0363	9.0000e-004	0.0372		147.3555	147.3555	4.6400e-003		147.4714
Total	0.0843	0.0463	0.6499	1.4800e-003	0.1369	9.8000e-004	0.1379	0.0363	9.0000e-004	0.0372		147.3555	147.3555	4.6400e-003		147.4714

Year 2 Construction - Sacramento County, Summer

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0843	0.0463	0.6499	1.4800e-003	0.1369	9.8000e-004	0.1379	0.0363	9.0000e-004	0.0372		147.3555	147.3555	4.6400e-003		147.4714
Total	0.0843	0.0463	0.6499	1.4800e-003	0.1369	9.8000e-004	0.1379	0.0363	9.0000e-004	0.0372		147.3555	147.3555	4.6400e-003		147.4714

Year 2 Construction - Sacramento County, Summer

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	6.3602	73.1742	39.4989	0.0772		3.1826	3.1826		2.9279	2.9279		7,643.075 1	7,643.075 1	2.4182		7,703.529 8
Total	6.3602	73.1742	39.4989	0.0772	15.2257	3.1826	18.4082	6.9640	2.9279	9.8919		7,643.075 1	7,643.075 1	2.4182		7,703.529 8

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1172	0.0643	0.9027	2.0600e-003	0.1902	1.3500e-003	0.1915	0.0505	1.2500e-003	0.0517		204.6604	204.6604	6.4400e-003		204.8214
Total	0.1172	0.0643	0.9027	2.0600e-003	0.1902	1.3500e-003	0.1915	0.0505	1.2500e-003	0.0517		204.6604	204.6604	6.4400e-003		204.8214

Year 2 Construction - Sacramento County, Summer

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	6.3602	73.1742	39.4989	0.0772		3.1826	3.1826		2.9279	2.9279	0.0000	7,643.075 1	7,643.075 1	2.4182		7,703.529 8
Total	6.3602	73.1742	39.4989	0.0772	15.2257	3.1826	18.4082	6.9640	2.9279	9.8919	0.0000	7,643.075 1	7,643.075 1	2.4182		7,703.529 8

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1172	0.0643	0.9027	2.0600e-003	0.1902	1.3500e-003	0.1915	0.0505	1.2500e-003	0.0517		204.6604	204.6604	6.4400e-003		204.8214
Total	0.1172	0.0643	0.9027	2.0600e-003	0.1902	1.3500e-003	0.1915	0.0505	1.2500e-003	0.0517		204.6604	204.6604	6.4400e-003		204.8214

Year 2 Construction - Sacramento County, Summer

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4732	11.9781	3.5764	0.0251	0.6019	0.0864	0.6883	0.1732	0.0827	0.2559		2,652.509 3	2,652.509 3	0.1594		2,656.494 4
Worker	1.3495	0.7412	10.3986	0.0237	2.1908	0.0156	2.2064	0.5811	0.0144	0.5955		2,357.688 2	2,357.688 2	0.0742		2,359.543 0
Total	1.8227	12.7193	13.9750	0.0488	2.7927	0.1020	2.8947	0.7543	0.0971	0.8514		5,010.197 4	5,010.197 4	0.2336		5,016.037 4

Year 2 Construction - Sacramento County, Summer

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.580 2	2,591.580 2	0.6313		2,607.363 5

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4732	11.9781	3.5764	0.0251	0.6019	0.0864	0.6883	0.1732	0.0827	0.2559		2,652.509 3	2,652.509 3	0.1594		2,656.494 4
Worker	1.3495	0.7412	10.3986	0.0237	2.1908	0.0156	2.2064	0.5811	0.0144	0.5955		2,357.688 2	2,357.688 2	0.0742		2,359.543 0
Total	1.8227	12.7193	13.9750	0.0488	2.7927	0.1020	2.8947	0.7543	0.0971	0.8514		5,010.197 4	5,010.197 4	0.2336		5,016.037 4

Year 2 Construction - Sacramento County, Summer

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929
Total	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929

Year 2 Construction - Sacramento County, Summer

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929
Total	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929

Year 2 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	611.6892	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2718	0.1493	2.0942	4.7700e-003	0.4412	3.1400e-003	0.4444	0.1170	2.9000e-003	0.1199		474.8122	474.8122	0.0149		475.1857
Total	0.2718	0.1493	2.0942	4.7700e-003	0.4412	3.1400e-003	0.4444	0.1170	2.9000e-003	0.1199		474.8122	474.8122	0.0149		475.1857

Year 2 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	611.6892	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2718	0.1493	2.0942	4.7700e-003	0.4412	3.1400e-003	0.4444	0.1170	2.9000e-003	0.1199		474.8122	474.8122	0.0149		475.1857
Total	0.2718	0.1493	2.0942	4.7700e-003	0.4412	3.1400e-003	0.4444	0.1170	2.9000e-003	0.1199		474.8122	474.8122	0.0149		475.1857

4.0 Operational Detail - Mobile

Year 2 Construction - Sacramento County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.5879	28.0867	90.2622	0.2635	21.2379	0.2179	21.4558	5.6785	0.2040	5.8825		26,654.5192	26,654.5192	1.2474		26,685.7049
Unmitigated	8.5879	28.0867	90.2622	0.2635	21.2379	0.2179	21.4558	5.6785	0.2040	5.8825		26,654.5192	26,654.5192	1.2474		26,685.7049

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3,275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 2 Construction - Sacramento County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915
Single Family Housing	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
NaturalGas Unmitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164

Year 2 Construction - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33302.4	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33.3024	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

6.0 Area Detail

6.1 Mitigation Measures Area

Year 2 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.9533	0.3627	31.4195	1.6600e-003		0.1732	0.1732		0.1732	0.1732	0.0000	56.4517	56.4517	0.0547	0.0000	57.8194
Unmitigated	17.9533	0.3627	31.4195	1.6600e-003		0.1732	0.1732		0.1732	0.1732	0.0000	56.4517	56.4517	0.0547	0.0000	57.8194

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9520	0.3627	31.4195	1.6600e-003		0.1732	0.1732		0.1732	0.1732		56.4517	56.4517	0.0547		57.8194
Total	17.9533	0.3627	31.4195	1.6600e-003		0.1732	0.1732		0.1732	0.1732	0.0000	56.4517	56.4517	0.0547	0.0000	57.8194

Year 2 Construction - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9520	0.3627	31.4195	1.6600e-003		0.1732	0.1732		0.1732	0.1732		56.4517	56.4517	0.0547		57.8194
Total	17.9533	0.3627	31.4195	1.6600e-003		0.1732	0.1732		0.1732	0.1732	0.0000	56.4517	56.4517	0.0547	0.0000	57.8194

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Year 2 Construction - Sacramento County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 3 Construction - Sacramento County, Annual

Year 3 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 3 Construction - Sacramento County, Annual

Project Characteristics - Year 3

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	207.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	11/23/2020	11/24/2020
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2022

Year 3 Construction - Sacramento County, Annual

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	4.7416	4.1950	3.5045	8.6700e-003	0.5087	0.1678	0.6764	0.1852	0.1570	0.3422	0.0000	782.7452	782.7452	0.1101	0.0000	785.4980
Maximum	4.7416	4.1950	3.5045	8.6700e-003	0.5087	0.1678	0.6764	0.1852	0.1570	0.3422	0.0000	782.7452	782.7452	0.1101	0.0000	785.4980

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	4.7416	4.1950	3.5045	8.6700e-003	0.5087	0.1678	0.6764	0.1852	0.1570	0.3422	0.0000	782.7448	782.7448	0.1101	0.0000	785.4976
Maximum	4.7416	4.1950	3.5045	8.6700e-003	0.5087	0.1678	0.6764	0.1852	0.1570	0.3422	0.0000	782.7448	782.7448	0.1101	0.0000	785.4976

Year 3 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	1.5765	1.5765
2	4-1-2020	6-30-2020	1.1233	1.1233
3	7-1-2020	9-30-2020	1.1357	1.1357
		Highest	1.5765	1.5765

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2212	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	1.0643	4.6389	12.4954	0.0399	3.4749	0.0350	3.5100	0.9316	0.0328	0.9644	0.0000	3,672.1191	3,672.1191	0.1735	0.0000	3,676.4554
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.3511	5.2443	16.6569	0.0437	3.4749	0.1020	3.5769	0.9316	0.0997	1.0313	83.0766	5,305.7202	5,388.7969	4.6623	0.0409	5,517.5387

Year 3 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2212	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	1.0643	4.6389	12.4954	0.0399	3.4749	0.0350	3.5100	0.9316	0.0328	0.9644	0.0000	3,672.1191	3,672.1191	0.1735	0.0000	3,676.4554
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.3511	5.2443	16.6569	0.0437	3.4749	0.1020	3.5769	0.9316	0.0997	1.0313	83.0766	5,305.7202	5,388.7969	4.6623	0.0409	5,517.5387

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 3 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	1/9/2020	5	7	
2	Grading	Grading	1/10/2020	2/7/2020	5	21	
3	Building Construction	Building Construction	2/8/2020	11/24/2020	5	207	
4	Paving	Paving	11/24/2020	12/11/2020	5	14	
5	Architectural Coating	Architectural Coating	12/12/2020	12/31/2020	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 3 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 3 Construction - Sacramento County, Annual

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0143	0.1485	0.0753	1.3000e-004		7.6900e-003	7.6900e-003		7.0800e-003	7.0800e-003	0.0000	11.7007	11.7007	3.7800e-003	0.0000	11.7953
Total	0.0143	0.1485	0.0753	1.3000e-004	0.0632	7.6900e-003	0.0709	0.0348	7.0800e-003	0.0418	0.0000	11.7007	11.7007	3.7800e-003	0.0000	11.7953

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.7400e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4100	0.4100	1.0000e-005	0.0000	0.4103
Total	2.3000e-004	1.6000e-004	1.7400e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4100	0.4100	1.0000e-005	0.0000	0.4103

Year 3 Construction - Sacramento County, Annual

3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0143	0.1485	0.0753	1.3000e-004		7.6900e-003	7.6900e-003		7.0800e-003	7.0800e-003	0.0000	11.7007	11.7007	3.7800e-003	0.0000	11.7953
Total	0.0143	0.1485	0.0753	1.3000e-004	0.0632	7.6900e-003	0.0709	0.0348	7.0800e-003	0.0418	0.0000	11.7007	11.7007	3.7800e-003	0.0000	11.7953

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.7400e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4100	0.4100	1.0000e-005	0.0000	0.4103
Total	2.3000e-004	1.6000e-004	1.7400e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4100	0.4100	1.0000e-005	0.0000	0.4103

Year 3 Construction - Sacramento County, Annual

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0631	0.7125	0.3980	8.1000e-004		0.0308	0.0308		0.0283	0.0283	0.0000	71.2115	71.2115	0.0230	0.0000	71.7873
Total	0.0631	0.7125	0.3980	8.1000e-004	0.1599	0.0308	0.1907	0.0731	0.0283	0.1014	0.0000	71.2115	71.2115	0.0230	0.0000	71.7873

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.8000e-004	6.6000e-004	7.2700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7082	1.7082	5.0000e-005	0.0000	1.7094
Total	9.8000e-004	6.6000e-004	7.2700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7082	1.7082	5.0000e-005	0.0000	1.7094

Year 3 Construction - Sacramento County, Annual

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0631	0.7125	0.3980	8.1000e-004		0.0308	0.0308		0.0283	0.0283	0.0000	71.2114	71.2114	0.0230	0.0000	71.7872
Total	0.0631	0.7125	0.3980	8.1000e-004	0.1599	0.0308	0.1907	0.0731	0.0283	0.1014	0.0000	71.2114	71.2114	0.0230	0.0000	71.7872

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.8000e-004	6.6000e-004	7.2700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7082	1.7082	5.0000e-005	0.0000	1.7094
Total	9.8000e-004	6.6000e-004	7.2700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7082	1.7082	5.0000e-005	0.0000	1.7094

Year 3 Construction - Sacramento County, Annual

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2194	1.9858	1.7438	2.7900e-003		0.1156	0.1156		0.1087	0.1087	0.0000	239.7163	239.7163	0.0585	0.0000	241.1784
Total	0.2194	1.9858	1.7438	2.7900e-003		0.1156	0.1156		0.1087	0.1087	0.0000	239.7163	239.7163	0.0585	0.0000	241.1784

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0396	1.1607	0.3237	2.5500e-003	0.0605	6.0100e-003	0.0665	0.0175	5.7500e-003	0.0232	0.0000	244.8949	244.8949	0.0145	0.0000	245.2574
Worker	0.1110	0.0753	0.8251	2.1500e-003	0.2189	1.5800e-003	0.2205	0.0582	1.4500e-003	0.0597	0.0000	193.9714	193.9714	5.4800e-003	0.0000	194.1085
Total	0.1506	1.2360	1.1488	4.7000e-003	0.2794	7.5900e-003	0.2870	0.0757	7.2000e-003	0.0829	0.0000	438.8662	438.8662	0.0200	0.0000	439.3659

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3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2194	1.9858	1.7438	2.7900e-003		0.1156	0.1156		0.1087	0.1087	0.0000	239.7161	239.7161	0.0585	0.0000	241.1781
Total	0.2194	1.9858	1.7438	2.7900e-003		0.1156	0.1156		0.1087	0.1087	0.0000	239.7161	239.7161	0.0585	0.0000	241.1781

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0396	1.1607	0.3237	2.5500e-003	0.0605	6.0100e-003	0.0665	0.0175	5.7500e-003	0.0232	0.0000	244.8949	244.8949	0.0145	0.0000	245.2574
Worker	0.1110	0.0753	0.8251	2.1500e-003	0.2189	1.5800e-003	0.2205	0.0582	1.4500e-003	0.0597	0.0000	193.9714	193.9714	5.4800e-003	0.0000	194.1085
Total	0.1506	1.2360	1.1488	4.7000e-003	0.2794	7.5900e-003	0.2870	0.0757	7.2000e-003	0.0829	0.0000	438.8662	438.8662	0.0200	0.0000	439.3659

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3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.5000e-003	0.0985	0.1026	1.6000e-004		5.2700e-003	5.2700e-003		4.8500e-003	4.8500e-003	0.0000	14.0198	14.0198	4.5300e-003	0.0000	14.1331
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.5000e-003	0.0985	0.1026	1.6000e-004		5.2700e-003	5.2700e-003		4.8500e-003	4.8500e-003	0.0000	14.0198	14.0198	4.5300e-003	0.0000	14.1331

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	2.9100e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6833	0.6833	2.0000e-005	0.0000	0.6838
Total	3.9000e-004	2.7000e-004	2.9100e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6833	0.6833	2.0000e-005	0.0000	0.6838

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3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.5000e-003	0.0985	0.1026	1.6000e-004		5.2700e-003	5.2700e-003		4.8500e-003	4.8500e-003	0.0000	14.0197	14.0197	4.5300e-003	0.0000	14.1331
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.5000e-003	0.0985	0.1026	1.6000e-004		5.2700e-003	5.2700e-003		4.8500e-003	4.8500e-003	0.0000	14.0197	14.0197	4.5300e-003	0.0000	14.1331

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	2.9100e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6833	0.6833	2.0000e-005	0.0000	0.6838
Total	3.9000e-004	2.7000e-004	2.9100e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6833	0.6833	2.0000e-005	0.0000	0.6838

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3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	4.2817	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5100e-003	1.0200e-003	0.0112	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6420	2.6420	7.0000e-005	0.0000	2.6439
Total	1.5100e-003	1.0200e-003	0.0112	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6420	2.6420	7.0000e-005	0.0000	2.6439

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3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	4.2817	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5100e-003	1.0200e-003	0.0112	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6420	2.6420	7.0000e-005	0.0000	2.6439
Total	1.5100e-003	1.0200e-003	0.0112	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6420	2.6420	7.0000e-005	0.0000	2.6439

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0643	4.6389	12.4954	0.0399	3.4749	0.0350	3.5100	0.9316	0.0328	0.9644	0.0000	3,672.1191	3,672.1191	0.1735	0.0000	3,676.4554
Unmitigated	1.0643	4.6389	12.4954	0.0399	3.4749	0.0350	3.5100	0.9316	0.0328	0.9644	0.0000	3,672.1191	3,672.1191	0.1735	0.0000	3,676.4554

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Single Family Housing	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2212	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Unmitigated	3.2212	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1185	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Total	3.2213	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1185	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Total	3.2213	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559

7.0 Water Detail

7.1 Mitigation Measures Water

Year 3 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Year 3 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Year 3 Construction - Sacramento County, Summer

Year 3 Construction
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 3 Construction - Sacramento County, Summer

Project Characteristics - Year 3

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	207.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	11/23/2020	11/24/2020
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2022

Year 3 Construction - Sacramento County, Summer

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	611.9150	67.9125	44.3448	0.0988	18.2032	2.9324	20.4016	9.9670	2.6978	11.9895	0.0000	9,801.6950	9,801.6950	2.4236	0.0000	9,840.5741
Maximum	611.9150	67.9125	44.3448	0.0988	18.2032	2.9324	20.4016	9.9670	2.6978	11.9895	0.0000	9,801.6950	9,801.6950	2.4236	0.0000	9,840.5741

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	611.9150	67.9125	44.3448	0.0988	18.2032	2.9324	20.4016	9.9670	2.6978	11.9895	0.0000	9,801.6950	9,801.6950	2.4236	0.0000	9,840.5741
Maximum	611.9150	67.9125	44.3448	0.0988	18.2032	2.9324	20.4016	9.9670	2.6978	11.9895	0.0000	9,801.6950	9,801.6950	2.4236	0.0000	9,840.5741

Year 3 Construction - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9493	0.3620	31.3851	1.6600e-003		0.1734	0.1734		0.1734	0.1734	0.0000	56.4517	56.4517	0.0545	0.0000	57.8133
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	7.9783	26.4043	83.1593	0.2553	21.2321	0.2060	21.4381	5.6759	0.1927	5.8686		25,851.2858	25,851.2858	1.1619		25,880.3334
Total	26.2868	29.8353	115.8503	0.2766	21.2321	0.6275	21.8596	5.6759	0.6142	6.2901	0.0000	29,825.6717	29,825.6717	1.2915	0.0718	29,879.3632

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9493	0.3620	31.3851	1.6600e-003		0.1734	0.1734		0.1734	0.1734	0.0000	56.4517	56.4517	0.0545	0.0000	57.8133
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	7.9783	26.4043	83.1593	0.2553	21.2321	0.2060	21.4381	5.6759	0.1927	5.8686		25,851.2858	25,851.2858	1.1619		25,880.3334
Total	26.2868	29.8353	115.8503	0.2766	21.2321	0.6275	21.8596	5.6759	0.6142	6.2901	0.0000	29,825.6717	29,825.6717	1.2915	0.0718	29,879.3632

Year 3 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	1/9/2020	5	7	
2	Grading	Grading	1/10/2020	2/7/2020	5	21	
3	Building Construction	Building Construction	2/8/2020	11/24/2020	5	207	
4	Paving	Paving	11/24/2020	12/11/2020	5	14	
5	Architectural Coating	Architectural Coating	12/12/2020	12/31/2020	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 3 Construction - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 3 Construction - Sacramento County, Summer

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523		3,685.1016	3,685.1016	1.1918		3,714.8975

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346

Year 3 Construction - Sacramento County, Summer

3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346

Year 3 Construction - Sacramento County, Summer

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	6.0054	67.8553	37.9043	0.0772		2.9311	2.9311		2.6966	2.6966		7,475.9265	7,475.9265	2.4179		7,536.3731
Total	6.0054	67.8553	37.9043	0.0772	15.2257	2.9311	18.1568	6.9640	2.6966	9.6606		7,475.9265	7,475.9265	2.4179		7,536.3731

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1078	0.0572	0.8163	1.9900e-003	0.1902	1.3200e-003	0.1915	0.0505	1.2200e-003	0.0517		198.3782	198.3782	5.6800e-003		198.5203
Total	0.1078	0.0572	0.8163	1.9900e-003	0.1902	1.3200e-003	0.1915	0.0505	1.2200e-003	0.0517		198.3782	198.3782	5.6800e-003		198.5203

Year 3 Construction - Sacramento County, Summer

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	6.0054	67.8553	37.9043	0.0772		2.9311	2.9311		2.6966	2.6966	0.0000	7,475.926 4	7,475.926 4	2.4179		7,536.373 1
Total	6.0054	67.8553	37.9043	0.0772	15.2257	2.9311	18.1568	6.9640	2.6966	9.6606	0.0000	7,475.926 4	7,475.926 4	2.4179		7,536.373 1

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1078	0.0572	0.8163	1.9900e-003	0.1902	1.3200e-003	0.1915	0.0505	1.2200e-003	0.0517		198.3782	198.3782	5.6800e-003		198.5203
Total	0.1078	0.0572	0.8163	1.9900e-003	0.1902	1.3200e-003	0.1915	0.0505	1.2200e-003	0.0517		198.3782	198.3782	5.6800e-003		198.5203

Year 3 Construction - Sacramento County, Summer

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3771	10.9804	2.9512	0.0249	0.6018	0.0572	0.6590	0.1732	0.0548	0.2279		2,636.554 3	2,636.554 3	0.1494		2,640.289 2
Worker	1.2419	0.6590	9.4033	0.0230	2.1908	0.0152	2.2060	0.5811	0.0140	0.5952		2,285.317 3	2,285.317 3	0.0655		2,286.954 1
Total	1.6190	11.6394	12.3545	0.0479	2.7926	0.0725	2.8651	0.7543	0.0688	0.8231		4,921.871 6	4,921.871 6	0.2149		4,927.243 4

Year 3 Construction - Sacramento County, Summer

3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3771	10.9804	2.9512	0.0249	0.6018	0.0572	0.6590	0.1732	0.0548	0.2279		2,636.554 3	2,636.554 3	0.1494		2,640.289 2
Worker	1.2419	0.6590	9.4033	0.0230	2.1908	0.0152	2.2060	0.5811	0.0140	0.5952		2,285.317 3	2,285.317 3	0.0655		2,286.954 1
Total	1.6190	11.6394	12.3545	0.0479	2.7926	0.0725	2.8651	0.7543	0.0688	0.8231		4,921.871 6	4,921.871 6	0.2149		4,927.243 4

Year 3 Construction - Sacramento County, Summer

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122

Year 3 Construction - Sacramento County, Summer

3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122

Year 3 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	611.6649	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2501	0.1327	1.8937	4.6200e-003	0.4412	3.0700e-003	0.4443	0.1170	2.8300e-003	0.1199		460.2375	460.2375	0.0132		460.5672
Total	0.2501	0.1327	1.8937	4.6200e-003	0.4412	3.0700e-003	0.4443	0.1170	2.8300e-003	0.1199		460.2375	460.2375	0.0132		460.5672

Year 3 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	611.6649	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2501	0.1327	1.8937	4.6200e-003	0.4412	3.0700e-003	0.4443	0.1170	2.8300e-003	0.1199		460.2375	460.2375	0.0132		460.5672
Total	0.2501	0.1327	1.8937	4.6200e-003	0.4412	3.0700e-003	0.4443	0.1170	2.8300e-003	0.1199		460.2375	460.2375	0.0132		460.5672

4.0 Operational Detail - Mobile

Year 3 Construction - Sacramento County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.9783	26.4043	83.1593	0.2553	21.2321	0.2060	21.4381	5.6759	0.1927	5.8686		25,851.28 58	25,851.28 58	1.1619		25,880.33 34
Unmitigated	7.9783	26.4043	83.1593	0.2553	21.2321	0.2060	21.4381	5.6759	0.1927	5.8686		25,851.28 58	25,851.28 58	1.1619		25,880.33 34

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 3 Construction - Sacramento County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Single Family Housing	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
NaturalGas Unmitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164

Year 3 Construction - Sacramento County, Summer

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33302.4	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33.3024	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

6.0 Area Detail

6.1 Mitigation Measures Area

Year 3 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.9493	0.3620	31.3851	1.6600e-003		0.1734	0.1734		0.1734	0.1734	0.0000	56.4517	56.4517	0.0545	0.0000	57.8133
Unmitigated	17.9493	0.3620	31.3851	1.6600e-003		0.1734	0.1734		0.1734	0.1734	0.0000	56.4517	56.4517	0.0545	0.0000	57.8133

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9480	0.3620	31.3851	1.6600e-003		0.1734	0.1734		0.1734	0.1734		56.4517	56.4517	0.0545		57.8133
Total	17.9493	0.3620	31.3851	1.6600e-003		0.1734	0.1734		0.1734	0.1734	0.0000	56.4517	56.4517	0.0545	0.0000	57.8133

Year 3 Construction - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9480	0.3620	31.3851	1.6600e-003		0.1734	0.1734		0.1734	0.1734		56.4517	56.4517	0.0545		57.8133
Total	17.9493	0.3620	31.3851	1.6600e-003		0.1734	0.1734		0.1734	0.1734	0.0000	56.4517	56.4517	0.0545	0.0000	57.8133

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Year 3 Construction - Sacramento County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 4 Construction - Sacramento County, Annual

Year 4 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2023
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 4 Construction - Sacramento County, Annual

Project Characteristics - Year 4

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Year 4 Construction - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	206.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/4/2022	12/29/2021
tblConstructionPhase	PhaseEndDate	11/25/2021	11/24/2021
tblConstructionPhase	PhaseStartDate	12/16/2021	12/10/2021
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2023

2.0 Emissions Summary

Year 4 Construction - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	1.4563	1.4563
2	4-1-2021	6-30-2021	1.0215	1.0215
3	7-1-2021	9-30-2021	1.0327	1.0327
		Highest	1.4563	1.4563

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2208	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.9798	4.0229	11.5539	0.0386	3.4740	0.0302	3.5042	0.9312	0.0282	0.9594	0.0000	3,551.1051	3,551.1051	0.1597	0.0000	3,555.0978
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.2662	4.6282	15.7120	0.0424	3.4740	0.0972	3.5712	0.9312	0.0951	1.0263	83.0766	5,184.7062	5,267.7828	4.6485	0.0409	5,396.1805

Year 4 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2208	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.9798	4.0229	11.5539	0.0386	3.4740	0.0302	3.5042	0.9312	0.0282	0.9594	0.0000	3,551.1051	3,551.1051	0.1597	0.0000	3,555.0978
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.2662	4.6282	15.7120	0.0424	3.4740	0.0972	3.5712	0.9312	0.0951	1.0263	83.0766	5,184.7062	5,267.7828	4.6485	0.0409	5,396.1805

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 4 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/11/2021	5	7	
2	Grading	Grading	1/12/2021	2/9/2021	5	21	
3	Building Construction	Building Construction	2/10/2021	11/24/2021	5	206	
4	Paving	Paving	11/26/2021	12/15/2021	5	14	
5	Architectural Coating	Architectural Coating	12/10/2021	12/29/2021	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 4 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 4 Construction - Sacramento County, Annual

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1417	0.0740	1.3000e-004		7.1600e-003	7.1600e-003		6.5800e-003	6.5800e-003	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971
Total	0.0136	0.1417	0.0740	1.3000e-004	0.0632	7.1600e-003	0.0704	0.0348	6.5800e-003	0.0413	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.4000e-004	1.5900e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3960	0.3960	1.0000e-005	0.0000	0.3963
Total	2.2000e-004	1.4000e-004	1.5900e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3960	0.3960	1.0000e-005	0.0000	0.3963

Year 4 Construction - Sacramento County, Annual

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1417	0.0740	1.3000e-004		7.1600e-003	7.1600e-003		6.5800e-003	6.5800e-003	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971
Total	0.0136	0.1417	0.0740	1.3000e-004	0.0632	7.1600e-003	0.0704	0.0348	6.5800e-003	0.0413	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.4000e-004	1.5900e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3960	0.3960	1.0000e-005	0.0000	0.3963
Total	2.2000e-004	1.4000e-004	1.5900e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3960	0.3960	1.0000e-005	0.0000	0.3963

Year 4 Construction - Sacramento County, Annual

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0598	0.6646	0.3852	8.1000e-004		0.0284	0.0284		0.0261	0.0261	0.0000	71.2130	71.2130	0.0230	0.0000	71.7887
Total	0.0598	0.6646	0.3852	8.1000e-004	0.1599	0.0284	0.1883	0.0731	0.0261	0.0993	0.0000	71.2130	71.2130	0.0230	0.0000	71.7887

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	5.9000e-004	6.6400e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.6500	1.6500	4.0000e-005	0.0000	1.6511
Total	9.1000e-004	5.9000e-004	6.6400e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.6500	1.6500	4.0000e-005	0.0000	1.6511

Year 4 Construction - Sacramento County, Annual

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0598	0.6646	0.3852	8.1000e-004		0.0284	0.0284		0.0261	0.0261	0.0000	71.2129	71.2129	0.0230	0.0000	71.7887
Total	0.0598	0.6646	0.3852	8.1000e-004	0.1599	0.0284	0.1883	0.0731	0.0261	0.0993	0.0000	71.2129	71.2129	0.0230	0.0000	71.7887

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	5.9000e-004	6.6400e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.6500	1.6500	4.0000e-005	0.0000	1.6511
Total	9.1000e-004	5.9000e-004	6.6400e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.6500	1.6500	4.0000e-005	0.0000	1.6511

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3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1958	1.7955	1.7073	2.7700e-003		0.0987	0.0987		0.0928	0.0928	0.0000	238.5864	238.5864	0.0576	0.0000	240.0254
Total	0.1958	1.7955	1.7073	2.7700e-003		0.0987	0.0987		0.0928	0.0928	0.0000	238.5864	238.5864	0.0576	0.0000	240.0254

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0324	1.0537	0.2816	2.5100e-003	0.0602	2.9100e-003	0.0631	0.0174	2.7800e-003	0.0202	0.0000	241.6839	241.6839	0.0138	0.0000	242.0294
Worker	0.1027	0.0671	0.7508	2.0600e-003	0.2179	1.5200e-003	0.2194	0.0579	1.4000e-003	0.0594	0.0000	186.4617	186.4617	4.8900e-003	0.0000	186.5840
Total	0.1351	1.1208	1.0324	4.5700e-003	0.2781	4.4300e-003	0.2825	0.0753	4.1800e-003	0.0795	0.0000	428.1456	428.1456	0.0187	0.0000	428.6134

Year 4 Construction - Sacramento County, Annual

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1958	1.7955	1.7072	2.7700e-003		0.0987	0.0987		0.0928	0.0928	0.0000	238.5861	238.5861	0.0576	0.0000	240.0251
Total	0.1958	1.7955	1.7072	2.7700e-003		0.0987	0.0987		0.0928	0.0928	0.0000	238.5861	238.5861	0.0576	0.0000	240.0251

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0324	1.0537	0.2816	2.5100e-003	0.0602	2.9100e-003	0.0631	0.0174	2.7800e-003	0.0202	0.0000	241.6839	241.6839	0.0138	0.0000	242.0294
Worker	0.1027	0.0671	0.7508	2.0600e-003	0.2179	1.5200e-003	0.2194	0.0579	1.4000e-003	0.0594	0.0000	186.4617	186.4617	4.8900e-003	0.0000	186.5840
Total	0.1351	1.1208	1.0324	4.5700e-003	0.2781	4.4300e-003	0.2825	0.0753	4.1800e-003	0.0795	0.0000	428.1456	428.1456	0.0187	0.0000	428.6134

Year 4 Construction - Sacramento County, Annual

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.7900e-003	0.0904	0.1026	1.6000e-004		4.7400e-003	4.7400e-003		4.3600e-003	4.3600e-003	0.0000	14.0164	14.0164	4.5300e-003	0.0000	14.1298
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	8.7900e-003	0.0904	0.1026	1.6000e-004		4.7400e-003	4.7400e-003		4.3600e-003	4.3600e-003	0.0000	14.0164	14.0164	4.5300e-003	0.0000	14.1298

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.4000e-004	2.6600e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6600	0.6600	2.0000e-005	0.0000	0.6604
Total	3.6000e-004	2.4000e-004	2.6600e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6600	0.6600	2.0000e-005	0.0000	0.6604

Year 4 Construction - Sacramento County, Annual

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.7900e-003	0.0904	0.1026	1.6000e-004		4.7400e-003	4.7400e-003		4.3600e-003	4.3600e-003	0.0000	14.0164	14.0164	4.5300e-003	0.0000	14.1298
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	8.7900e-003	0.0904	0.1026	1.6000e-004		4.7400e-003	4.7400e-003		4.3600e-003	4.3600e-003	0.0000	14.0164	14.0164	4.5300e-003	0.0000	14.1298

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.4000e-004	2.6600e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6600	0.6600	2.0000e-005	0.0000	0.6604
Total	3.6000e-004	2.4000e-004	2.6600e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6600	0.6600	2.0000e-005	0.0000	0.6604

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3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0107	0.0127	2.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7903
Total	4.2815	0.0107	0.0127	2.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7903

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4100e-003	9.2000e-004	0.0103	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.5520	2.5520	7.0000e-005	0.0000	2.5537
Total	1.4100e-003	9.2000e-004	0.0103	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.5520	2.5520	7.0000e-005	0.0000	2.5537

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3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0107	0.0127	2.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7903
Total	4.2815	0.0107	0.0127	2.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7903

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4100e-003	9.2000e-004	0.0103	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.5520	2.5520	7.0000e-005	0.0000	2.5537
Total	1.4100e-003	9.2000e-004	0.0103	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.5520	2.5520	7.0000e-005	0.0000	2.5537

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9798	4.0229	11.5539	0.0386	3.4740	0.0302	3.5042	0.9312	0.0282	0.9594	0.0000	3,551.1051	3,551.1051	0.1597	0.0000	3,555.0978
Unmitigated	0.9798	4.0229	11.5539	0.0386	3.4740	0.0302	3.5042	0.9312	0.0282	0.9594	0.0000	3,551.1051	3,551.1051	0.1597	0.0000	3,555.0978

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3,275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 4 Construction - Sacramento County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.562895	0.037862	0.207220	0.115570	0.017815	0.005092	0.018559	0.023754	0.002009	0.001969	0.005819	0.000618	0.000817
Single Family Housing	0.562895	0.037862	0.207220	0.115570	0.017815	0.005092	0.018559	0.023754	0.002009	0.001969	0.005819	0.000618	0.000817

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Year 4 Construction - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

Year 4 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2208	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Unmitigated	3.2208	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1181	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Total	3.2209	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554

Year 4 Construction - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1181	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Total	3.2209	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554

7.0 Water Detail

7.1 Mitigation Measures Water

Year 4 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 4 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 4 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Year 4 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Year 4 Construction - Sacramento County, Summer

Year 4 Construction
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2023
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 4 Construction - Sacramento County, Summer

Project Characteristics - Year 4

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Year 4 Construction - Sacramento County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	206.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/4/2022	12/29/2021
tblConstructionPhase	PhaseEndDate	11/25/2021	11/24/2021
tblConstructionPhase	PhaseStartDate	12/16/2021	12/10/2021
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2023

2.0 Emissions Summary

Year 4 Construction - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9461	0.3615	31.3583	1.6600e-003		0.1736	0.1736		0.1736	0.1736	0.0000	56.4517	56.4517	0.0543	0.0000	57.8089
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	7.3790	22.9444	77.0375	0.2467	21.2268	0.1779	21.4046	5.6735	0.1658	5.8393		24,989.4295	24,989.4295	1.0691		25,016.1556
Total	25.6842	26.3750	109.7018	0.2679	21.2268	0.5996	21.8263	5.6735	0.5875	6.2610	0.0000	28,963.8153	28,963.8153	1.1984	0.0718	29,015.1810

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9461	0.3615	31.3583	1.6600e-003		0.1736	0.1736		0.1736	0.1736	0.0000	56.4517	56.4517	0.0543	0.0000	57.8089
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	7.3790	22.9444	77.0375	0.2467	21.2268	0.1779	21.4046	5.6735	0.1658	5.8393		24,989.4295	24,989.4295	1.0691		25,016.1556
Total	25.6842	26.3750	109.7018	0.2679	21.2268	0.5996	21.8263	5.6735	0.5875	6.2610	0.0000	28,963.8153	28,963.8153	1.1984	0.0718	29,015.1810

Year 4 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/11/2021	5	7	
2	Grading	Grading	1/12/2021	2/9/2021	5	21	
3	Building Construction	Building Construction	2/10/2021	11/24/2021	5	206	
4	Paving	Paving	11/26/2021	12/15/2021	5	14	
5	Architectural Coating	Architectural Coating	12/10/2021	12/29/2021	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 4 Construction - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 4 Construction - Sacramento County, Summer

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580
Total	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580

Year 4 Construction - Sacramento County, Summer

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580
Total	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580

Year 4 Construction - Sacramento County, Summer

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	5.6905	63.2957	36.6834	0.0772		2.7055	2.7055		2.4891	2.4891		7,476.0798	7,476.0798	2.4179		7,536.5276
Total	5.6905	63.2957	36.6834	0.0772	15.2257	2.7055	17.9312	6.9640	2.4891	9.4530		7,476.0798	7,476.0798	2.4179		7,536.5276

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1002	0.0513	0.7479	1.9200e-003	0.1902	1.2800e-003	0.1915	0.0505	1.1800e-003	0.0516		191.6198	191.6198	5.1000e-003		191.7472
Total	0.1002	0.0513	0.7479	1.9200e-003	0.1902	1.2800e-003	0.1915	0.0505	1.1800e-003	0.0516		191.6198	191.6198	5.1000e-003		191.7472

Year 4 Construction - Sacramento County, Summer

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	5.6905	63.2957	36.6834	0.0772		2.7055	2.7055		2.4891	2.4891	0.0000	7,476.079 7	7,476.079 7	2.4179		7,536.527 6
Total	5.6905	63.2957	36.6834	0.0772	15.2257	2.7055	17.9312	6.9640	2.4891	9.4530	0.0000	7,476.079 7	7,476.079 7	2.4179		7,536.527 6

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1002	0.0513	0.7479	1.9200e-003	0.1902	1.2800e-003	0.1915	0.0505	1.1800e-003	0.0516		191.6198	191.6198	5.1000e-003		191.7472
Total	0.1002	0.0513	0.7479	1.9200e-003	0.1902	1.2800e-003	0.1915	0.0505	1.1800e-003	0.0516		191.6198	191.6198	5.1000e-003		191.7472

Year 4 Construction - Sacramento County, Summer

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3090	10.0440	2.5648	0.0247	0.6017	0.0276	0.6293	0.1732	0.0264	0.1995		2,614.7791	2,614.7791	0.1429		2,618.3518
Worker	1.1543	0.5909	8.6156	0.0222	2.1908	0.0148	2.2056	0.5811	0.0136	0.5948		2,207.4596	2,207.4596	0.0587		2,208.9281
Total	1.4633	10.6349	11.1804	0.0469	2.7925	0.0423	2.8349	0.7543	0.0400	0.7943		4,822.2387	4,822.2387	0.2017		4,827.2799

Year 4 Construction - Sacramento County, Summer

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3090	10.0440	2.5648	0.0247	0.6017	0.0276	0.6293	0.1732	0.0264	0.1995		2,614.7791	2,614.7791	0.1429		2,618.3518
Worker	1.1543	0.5909	8.6156	0.0222	2.1908	0.0148	2.2056	0.5811	0.0136	0.5948		2,207.4596	2,207.4596	0.0587		2,208.9281
Total	1.4633	10.6349	11.1804	0.0469	2.7925	0.0423	2.8349	0.7543	0.0400	0.7943		4,822.2387	4,822.2387	0.2017		4,827.2799

Year 4 Construction - Sacramento County, Summer

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483

Year 4 Construction - Sacramento County, Summer

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483

Year 4 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	611.6416	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2325	0.1190	1.7351	4.4700e-003	0.4412	2.9800e-003	0.4442	0.1170	2.7400e-003	0.1198		444.5578	444.5578	0.0118		444.8536
Total	0.2325	0.1190	1.7351	4.4700e-003	0.4412	2.9800e-003	0.4442	0.1170	2.7400e-003	0.1198		444.5578	444.5578	0.0118		444.8536

Year 4 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	611.6416	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2325	0.1190	1.7351	4.4700e-003	0.4412	2.9800e-003	0.4442	0.1170	2.7400e-003	0.1198		444.5578	444.5578	0.0118		444.8536
Total	0.2325	0.1190	1.7351	4.4700e-003	0.4412	2.9800e-003	0.4442	0.1170	2.7400e-003	0.1198		444.5578	444.5578	0.0118		444.8536

4.0 Operational Detail - Mobile

Year 4 Construction - Sacramento County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.3790	22.9444	77.0375	0.2467	21.2268	0.1779	21.4046	5.6735	0.1658	5.8393		24,989.42 95	24,989.42 95	1.0691		25,016.15 56
Unmitigated	7.3790	22.9444	77.0375	0.2467	21.2268	0.1779	21.4046	5.6735	0.1658	5.8393		24,989.42 95	24,989.42 95	1.0691		25,016.15 56

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3,275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 4 Construction - Sacramento County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.562895	0.037862	0.207220	0.115570	0.017815	0.005092	0.018559	0.023754	0.002009	0.001969	0.005819	0.000618	0.000817
Single Family Housing	0.562895	0.037862	0.207220	0.115570	0.017815	0.005092	0.018559	0.023754	0.002009	0.001969	0.005819	0.000618	0.000817

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
NaturalGas Unmitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164

Year 4 Construction - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33302.4	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33.3024	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

6.0 Area Detail

6.1 Mitigation Measures Area

Year 4 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.9461	0.3615	31.3583	1.6600e-003		0.1736	0.1736		0.1736	0.1736	0.0000	56.4517	56.4517	0.0543	0.0000	57.8089
Unmitigated	17.9461	0.3615	31.3583	1.6600e-003		0.1736	0.1736		0.1736	0.1736	0.0000	56.4517	56.4517	0.0543	0.0000	57.8089

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9448	0.3615	31.3583	1.6600e-003		0.1736	0.1736		0.1736	0.1736		56.4517	56.4517	0.0543		57.8089
Total	17.9461	0.3615	31.3583	1.6600e-003		0.1736	0.1736		0.1736	0.1736	0.0000	56.4517	56.4517	0.0543	0.0000	57.8089

Year 4 Construction - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9448	0.3615	31.3583	1.6600e-003		0.1736	0.1736		0.1736	0.1736		56.4517	56.4517	0.0543		57.8089
Total	17.9461	0.3615	31.3583	1.6600e-003		0.1736	0.1736		0.1736	0.1736	0.0000	56.4517	56.4517	0.0543	0.0000	57.8089

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Year 4 Construction - Sacramento County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 5 Construction - Sacramento County, Annual

Year 5 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 5 Construction - Sacramento County, Annual

Project Characteristics - Year 5

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Year 5 Construction - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	205.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/3/2023	12/29/2022
tblConstructionPhase	PhaseEndDate	11/24/2022	11/23/2022
tblConstructionPhase	PhaseStartDate	12/15/2022	12/12/2022
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2024

2.0 Emissions Summary

Year 5 Construction - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2022	3-31-2022	1.2599	1.2599
2	4-1-2022	6-30-2022	0.9349	0.9349
3	7-1-2022	9-30-2022	0.9452	0.9452
		Highest	1.2599	1.2599

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.9185	3.8371	10.7642	0.0373	3.4730	0.0292	3.5021	0.9308	0.0272	0.9579	0.0000	3,436.4741	3,436.4741	0.1503	0.0000	3,440.2319
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.2046	4.4423	14.9198	0.0411	3.4730	0.0961	3.5691	0.9308	0.0942	1.0249	83.0766	5,070.0752	5,153.1518	4.6391	0.0409	5,281.3143

Year 5 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.9185	3.8371	10.7642	0.0373	3.4730	0.0292	3.5021	0.9308	0.0272	0.9579	0.0000	3,436.4741	3,436.4741	0.1503	0.0000	3,440.2319
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.2046	4.4423	14.9198	0.0411	3.4730	0.0961	3.5691	0.9308	0.0942	1.0249	83.0766	5,070.0752	5,153.1518	4.6391	0.0409	5,281.3143

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 5 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2022	1/11/2022	5	7	
2	Grading	Grading	1/12/2022	2/9/2022	5	21	
3	Building Construction	Building Construction	2/10/2022	11/23/2022	5	205	
4	Paving	Paving	11/25/2022	12/14/2022	5	14	
5	Architectural Coating	Architectural Coating	12/12/2022	12/29/2022	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 5 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 5 Construction - Sacramento County, Annual

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1158	0.0689	1.3000e-004		5.6400e-003	5.6400e-003		5.1900e-003	5.1900e-003	0.0000	11.7038	11.7038	3.7900e-003	0.0000	11.7984
Total	0.0111	0.1158	0.0689	1.3000e-004	0.0632	5.6400e-003	0.0689	0.0348	5.1900e-003	0.0400	0.0000	11.7038	11.7038	3.7900e-003	0.0000	11.7984

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.3000e-004	1.4700e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3818	0.3818	1.0000e-005	0.0000	0.3821
Total	2.0000e-004	1.3000e-004	1.4700e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3818	0.3818	1.0000e-005	0.0000	0.3821

Year 5 Construction - Sacramento County, Annual

3.2 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1158	0.0689	1.3000e-004		5.6400e-003	5.6400e-003		5.1900e-003	5.1900e-003	0.0000	11.7038	11.7038	3.7900e-003	0.0000	11.7984
Total	0.0111	0.1158	0.0689	1.3000e-004	0.0632	5.6400e-003	0.0689	0.0348	5.1900e-003	0.0400	0.0000	11.7038	11.7038	3.7900e-003	0.0000	11.7984

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.3000e-004	1.4700e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3818	0.3818	1.0000e-005	0.0000	0.3821
Total	2.0000e-004	1.3000e-004	1.4700e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3818	0.3818	1.0000e-005	0.0000	0.3821

Year 5 Construction - Sacramento County, Annual

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0512	0.5554	0.3606	8.1000e-004		0.0233	0.0233		0.0214	0.0214	0.0000	71.2477	71.2477	0.0230	0.0000	71.8237
Total	0.0512	0.5554	0.3606	8.1000e-004	0.1599	0.0233	0.1832	0.0731	0.0214	0.0946	0.0000	71.2477	71.2477	0.0230	0.0000	71.8237

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.3000e-004	6.1100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5909	1.5909	4.0000e-005	0.0000	1.5919
Total	8.5000e-004	5.3000e-004	6.1100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5909	1.5909	4.0000e-005	0.0000	1.5919

Year 5 Construction - Sacramento County, Annual

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0512	0.5554	0.3606	8.1000e-004		0.0233	0.0233		0.0214	0.0214	0.0000	71.2476	71.2476	0.0230	0.0000	71.8237
Total	0.0512	0.5554	0.3606	8.1000e-004	0.1599	0.0233	0.1832	0.0731	0.0214	0.0946	0.0000	71.2476	71.2476	0.0230	0.0000	71.8237

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.3000e-004	6.1100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5909	1.5909	4.0000e-005	0.0000	1.5919
Total	8.5000e-004	5.3000e-004	6.1100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5909	1.5909	4.0000e-005	0.0000	1.5919

Year 5 Construction - Sacramento County, Annual

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1749	1.6006	1.6773	2.7600e-003		0.0829	0.0829		0.0780	0.0780	0.0000	237.5184	237.5184	0.0569	0.0000	238.9409
Total	0.1749	1.6006	1.6773	2.7600e-003		0.0829	0.0829		0.0780	0.0780	0.0000	237.5184	237.5184	0.0569	0.0000	238.9409

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0299	0.9956	0.2584	2.4800e-003	0.0599	2.5400e-003	0.0625	0.0173	2.4300e-003	0.0198	0.0000	238.3966	238.3966	0.0134	0.0000	238.7306
Worker	0.0955	0.0601	0.6866	1.9800e-003	0.2168	1.4800e-003	0.2183	0.0577	1.3600e-003	0.0590	0.0000	178.9102	178.9102	4.3800e-003	0.0000	179.0196
Total	0.1255	1.0556	0.9450	4.4600e-003	0.2767	4.0200e-003	0.2807	0.0750	3.7900e-003	0.0788	0.0000	417.3068	417.3068	0.0177	0.0000	417.7502

Year 5 Construction - Sacramento County, Annual

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1749	1.6006	1.6773	2.7600e-003		0.0829	0.0829		0.0780	0.0780	0.0000	237.5181	237.5181	0.0569	0.0000	238.9407
Total	0.1749	1.6006	1.6773	2.7600e-003		0.0829	0.0829		0.0780	0.0780	0.0000	237.5181	237.5181	0.0569	0.0000	238.9407

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0299	0.9956	0.2584	2.4800e-003	0.0599	2.5400e-003	0.0625	0.0173	2.4300e-003	0.0198	0.0000	238.3966	238.3966	0.0134	0.0000	238.7306
Worker	0.0955	0.0601	0.6866	1.9800e-003	0.2168	1.4800e-003	0.2183	0.0577	1.3600e-003	0.0590	0.0000	178.9102	178.9102	4.3800e-003	0.0000	179.0196
Total	0.1255	1.0556	0.9450	4.4600e-003	0.2767	4.0200e-003	0.2807	0.0750	3.7900e-003	0.0788	0.0000	417.3068	417.3068	0.0177	0.0000	417.7502

Year 5 Construction - Sacramento County, Annual

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7200e-003	0.0779	0.1021	1.6000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	14.0193	14.0193	4.5300e-003	0.0000	14.1326
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.7200e-003	0.0779	0.1021	1.6000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	14.0193	14.0193	4.5300e-003	0.0000	14.1326

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6364	0.6364	2.0000e-005	0.0000	0.6368
Total	3.4000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6364	0.6364	2.0000e-005	0.0000	0.6368

Year 5 Construction - Sacramento County, Annual

3.5 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7200e-003	0.0779	0.1021	1.6000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	14.0193	14.0193	4.5300e-003	0.0000	14.1326
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.7200e-003	0.0779	0.1021	1.6000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	14.0193	14.0193	4.5300e-003	0.0000	14.1326

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6364	0.6364	2.0000e-005	0.0000	0.6368
Total	3.4000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6364	0.6364	2.0000e-005	0.0000	0.6368

Year 5 Construction - Sacramento County, Annual

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4300e-003	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902
Total	4.2814	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	8.3000e-004	9.4400e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4606	2.4606	6.0000e-005	0.0000	2.4621
Total	1.3100e-003	8.3000e-004	9.4400e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4606	2.4606	6.0000e-005	0.0000	2.4621

Year 5 Construction - Sacramento County, Annual

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4300e-003	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902
Total	4.2814	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	8.3000e-004	9.4400e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4606	2.4606	6.0000e-005	0.0000	2.4621
Total	1.3100e-003	8.3000e-004	9.4400e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4606	2.4606	6.0000e-005	0.0000	2.4621

4.0 Operational Detail - Mobile

Year 5 Construction - Sacramento County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9185	3.8371	10.7642	0.0373	3.4730	0.0292	3.5021	0.9308	0.0272	0.9579	0.0000	3,436.474 1	3,436.474 1	0.1503	0.0000	3,440.231 9
Unmitigated	0.9185	3.8371	10.7642	0.0373	3.4730	0.0292	3.5021	0.9308	0.0272	0.9579	0.0000	3,436.474 1	3,436.474 1	0.1503	0.0000	3,440.231 9

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 5 Construction - Sacramento County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776
Single Family Housing	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Year 5 Construction - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Year 5 Construction - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

Year 5 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Unmitigated	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1178	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Total	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551

Year 5 Construction - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1178	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Total	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551

7.0 Water Detail

7.1 Mitigation Measures Water

Year 5 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 5 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 5 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Year 5 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Year 5 Construction - Sacramento County, Summer

Year 5 Construction
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 5 Construction - Sacramento County, Summer

Project Characteristics - Year 5

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Year 5 Construction - Sacramento County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	205.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/3/2023	12/29/2022
tblConstructionPhase	PhaseEndDate	11/24/2022	11/23/2022
tblConstructionPhase	PhaseStartDate	12/15/2022	12/12/2022
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2024

2.0 Emissions Summary

Year 5 Construction - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9436	0.3611	31.3381	1.6600e-003		0.1737	0.1737		0.1737	0.1737	0.0000	56.4517	56.4517	0.0542	0.0000	57.8059
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	6.9288	21.9258	71.8445	0.2384	21.2205	0.1718	21.3923	5.6708	0.1600	5.8308		24,170.4575	24,170.4575	1.0041		24,195.5600
Total	25.2316	25.3559	104.4887	0.2597	21.2205	0.5936	21.8141	5.6708	0.5819	6.2526	0.0000	28,144.8433	28,144.8433	1.1334	0.0718	28,194.5823

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9436	0.3611	31.3381	1.6600e-003		0.1737	0.1737		0.1737	0.1737	0.0000	56.4517	56.4517	0.0542	0.0000	57.8059
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	6.9288	21.9258	71.8445	0.2384	21.2205	0.1718	21.3923	5.6708	0.1600	5.8308		24,170.4575	24,170.4575	1.0041		24,195.5600
Total	25.2316	25.3559	104.4887	0.2597	21.2205	0.5936	21.8141	5.6708	0.5819	6.2526	0.0000	28,144.8433	28,144.8433	1.1334	0.0718	28,194.5823

Year 5 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2022	1/11/2022	5	7	
2	Grading	Grading	1/12/2022	2/9/2022	5	21	
3	Building Construction	Building Construction	2/10/2022	11/23/2022	5	205	
4	Paving	Paving	11/25/2022	12/14/2022	5	14	
5	Architectural Coating	Architectural Coating	12/12/2022	12/29/2022	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 5 Construction - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 5 Construction - Sacramento County, Summer

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	18.0663	1.6126	19.6788	9.9307	1.4836	11.4143		3,686.0619	3,686.0619	1.1922		3,715.8655

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0673	0.0332	0.4959	1.3400e-003	0.1369	9.0000e-004	0.1378	0.0363	8.3000e-004	0.0372		133.0184	133.0184	3.3000e-003		133.1009
Total	0.0673	0.0332	0.4959	1.3400e-003	0.1369	9.0000e-004	0.1378	0.0363	8.3000e-004	0.0372		133.0184	133.0184	3.3000e-003		133.1009

Year 5 Construction - Sacramento County, Summer

3.2 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	18.0663	1.6126	19.6788	9.9307	1.4836	11.4143	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0673	0.0332	0.4959	1.3400e-003	0.1369	9.0000e-004	0.1378	0.0363	8.3000e-004	0.0372		133.0184	133.0184	3.3000e-003		133.1009
Total	0.0673	0.0332	0.4959	1.3400e-003	0.1369	9.0000e-004	0.1378	0.0363	8.3000e-004	0.0372		133.0184	133.0184	3.3000e-003		133.1009

Year 5 Construction - Sacramento County, Summer

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	4.8769	52.8947	34.3453	0.0772		2.2195	2.2195		2.0419	2.0419		7,479.7248	7,479.7248	2.4191		7,540.2022
Total	4.8769	52.8947	34.3453	0.0772	15.2257	2.2195	17.4451	6.9640	2.0419	9.0059		7,479.7248	7,479.7248	2.4191		7,540.2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0935	0.0461	0.6888	1.8600e-003	0.1902	1.2500e-003	0.1914	0.0505	1.1500e-003	0.0516		184.7478	184.7478	4.5800e-003		184.8624
Total	0.0935	0.0461	0.6888	1.8600e-003	0.1902	1.2500e-003	0.1914	0.0505	1.1500e-003	0.0516		184.7478	184.7478	4.5800e-003		184.8624

Year 5 Construction - Sacramento County, Summer

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	4.8769	52.8947	34.3453	0.0772		2.2195	2.2195		2.0419	2.0419	0.0000	7,479.7248	7,479.7248	2.4191		7,540.2022
Total	4.8769	52.8947	34.3453	0.0772	15.2257	2.2195	17.4451	6.9640	2.0419	9.0059	0.0000	7,479.7248	7,479.7248	2.4191		7,540.2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0935	0.0461	0.6888	1.8600e-003	0.1902	1.2500e-003	0.1914	0.0505	1.1500e-003	0.0516		184.7478	184.7478	4.5800e-003		184.8624
Total	0.0935	0.0461	0.6888	1.8600e-003	0.1902	1.2500e-003	0.1914	0.0505	1.1500e-003	0.0516		184.7478	184.7478	4.5800e-003		184.8624

Year 5 Construction - Sacramento County, Summer

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2867	9.5490	2.3631	0.0245	0.6017	0.0241	0.6258	0.1731	0.0231	0.1962		2,591.9701	2,591.9701	0.1388		2,595.4398
Worker	1.0774	0.5314	7.9344	0.0214	2.1908	0.0144	2.2052	0.5811	0.0133	0.5944		2,128.2948	2,128.2948	0.0528		2,129.6148
Total	1.3642	10.0805	10.2975	0.0458	2.7925	0.0385	2.8310	0.7543	0.0364	0.7906		4,720.2649	4,720.2649	0.1916		4,725.0545

Year 5 Construction - Sacramento County, Summer

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2867	9.5490	2.3631	0.0245	0.6017	0.0241	0.6258	0.1731	0.0231	0.1962		2,591.9701	2,591.9701	0.1388		2,595.4398
Worker	1.0774	0.5314	7.9344	0.0214	2.1908	0.0144	2.2052	0.5811	0.0133	0.5944		2,128.2948	2,128.2948	0.0528		2,129.6148
Total	1.3642	10.0805	10.2975	0.0458	2.7925	0.0385	2.8310	0.7543	0.0364	0.7906		4,720.2649	4,720.2649	0.1916		4,725.0545

Year 5 Construction - Sacramento County, Summer

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174

Year 5 Construction - Sacramento County, Summer

3.5 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174

Year 5 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	611.6273	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2170	0.1070	1.5979	4.3000e-003	0.4412	2.9000e-003	0.4441	0.1170	2.6700e-003	0.1197		428.6149	428.6149	0.0106		428.8808
Total	0.2170	0.1070	1.5979	4.3000e-003	0.4412	2.9000e-003	0.4441	0.1170	2.6700e-003	0.1197		428.6149	428.6149	0.0106		428.8808

Year 5 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	611.6273	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2170	0.1070	1.5979	4.3000e-003	0.4412	2.9000e-003	0.4441	0.1170	2.6700e-003	0.1197		428.6149	428.6149	0.0106		428.8808
Total	0.2170	0.1070	1.5979	4.3000e-003	0.4412	2.9000e-003	0.4441	0.1170	2.6700e-003	0.1197		428.6149	428.6149	0.0106		428.8808

4.0 Operational Detail - Mobile

Year 5 Construction - Sacramento County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.9288	21.9258	71.8445	0.2384	21.2205	0.1718	21.3923	5.6708	0.1600	5.8308		24,170.4575	24,170.4575	1.0041		24,195.5600
Unmitigated	6.9288	21.9258	71.8445	0.2384	21.2205	0.1718	21.3923	5.6708	0.1600	5.8308		24,170.4575	24,170.4575	1.0041		24,195.5600

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3,275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 5 Construction - Sacramento County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776
Single Family Housing	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
NaturalGas Unmitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164

Year 5 Construction - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33302.4	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33.3024	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

6.0 Area Detail

6.1 Mitigation Measures Area

Year 5 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.9436	0.3611	31.3381	1.6600e-003		0.1737	0.1737		0.1737	0.1737	0.0000	56.4517	56.4517	0.0542	0.0000	57.8059
Unmitigated	17.9436	0.3611	31.3381	1.6600e-003		0.1737	0.1737		0.1737	0.1737	0.0000	56.4517	56.4517	0.0542	0.0000	57.8059

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9423	0.3611	31.3381	1.6600e-003		0.1737	0.1737		0.1737	0.1737		56.4517	56.4517	0.0542		57.8059
Total	17.9436	0.3611	31.3381	1.6600e-003		0.1737	0.1737		0.1737	0.1737	0.0000	56.4517	56.4517	0.0542	0.0000	57.8059

Year 5 Construction - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9423	0.3611	31.3381	1.6600e-003		0.1737	0.1737		0.1737	0.1737		56.4517	56.4517	0.0542		57.8059
Total	17.9436	0.3611	31.3381	1.6600e-003		0.1737	0.1737		0.1737	0.1737	0.0000	56.4517	56.4517	0.0542	0.0000	57.8059

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Year 5 Construction - Sacramento County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 6 Construction - Sacramento County, Annual

Year 6 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 6 Construction - Sacramento County, Annual

Project Characteristics - Year 6

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	205.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/1/2024	12/29/2023
tblConstructionPhase	PhaseStartDate	12/13/2023	12/12/2023
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2025

Year 6 Construction - Sacramento County, Annual

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	4.6207	3.0344	3.0656	8.2800e-003	0.5060	0.1028	0.6088	0.1845	0.0962	0.2807	0.0000	747.4190	747.4190	0.1040	0.0000	750.0193
Maximum	4.6207	3.0344	3.0656	8.2800e-003	0.5060	0.1028	0.6088	0.1845	0.0962	0.2807	0.0000	747.4190	747.4190	0.1040	0.0000	750.0193

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	4.6207	3.0344	3.0656	8.2800e-003	0.5060	0.1028	0.6088	0.1845	0.0962	0.2807	0.0000	747.4186	747.4186	0.1040	0.0000	750.0189
Maximum	4.6207	3.0344	3.0656	8.2800e-003	0.5060	0.1028	0.6088	0.1845	0.0962	0.2807	0.0000	747.4186	747.4186	0.1040	0.0000	750.0189

Year 6 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	1.1062	1.1062
2	4-1-2023	6-30-2023	0.8375	0.8375
3	7-1-2023	9-30-2023	0.8467	0.8467
		Highest	1.1062	1.1062

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.8654	3.6682	10.0538	0.0361	3.4720	0.0283	3.5002	0.9303	0.0263	0.9566	0.0000	3,323.3017	3,323.3017	0.1419	0.0000	3,326.8502
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.1513	4.2734	14.2073	0.0399	3.4720	0.0953	3.5672	0.9303	0.0933	1.0236	83.0766	4,956.9029	5,039.9795	4.6307	0.0409	5,167.9323

Year 6 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.8654	3.6682	10.0538	0.0361	3.4720	0.0283	3.5002	0.9303	0.0263	0.9566	0.0000	3,323.3017	3,323.3017	0.1419	0.0000	3,326.8502
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.1513	4.2734	14.2073	0.0399	3.4720	0.0953	3.5672	0.9303	0.0933	1.0236	83.0766	4,956.9029	5,039.9795	4.6307	0.0409	5,167.9323

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 6 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/10/2023	5	7	
2	Grading	Grading	1/11/2023	2/8/2023	5	21	
3	Building Construction	Building Construction	2/9/2023	11/22/2023	5	205	
4	Paving	Paving	11/23/2023	12/12/2023	5	14	
5	Architectural Coating	Architectural Coating	12/12/2023	12/29/2023	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 6 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 6 Construction - Sacramento County, Annual

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0963	0.0639	1.3000e-004		4.4300e-003	4.4300e-003		4.0800e-003	4.0800e-003	0.0000	11.7077	11.7077	3.7900e-003	0.0000	11.8024
Total	9.3100e-003	0.0963	0.0639	1.3000e-004	0.0632	4.4300e-003	0.0677	0.0348	4.0800e-003	0.0388	0.0000	11.7077	11.7077	3.7900e-003	0.0000	11.8024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.2000e-004	1.3500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3675	0.3675	1.0000e-005	0.0000	0.3677
Total	1.9000e-004	1.2000e-004	1.3500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3675	0.3675	1.0000e-005	0.0000	0.3677

Year 6 Construction - Sacramento County, Annual

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0963	0.0639	1.3000e-004		4.4300e-003	4.4300e-003		4.0800e-003	4.0800e-003	0.0000	11.7077	11.7077	3.7900e-003	0.0000	11.8024
Total	9.3100e-003	0.0963	0.0639	1.3000e-004	0.0632	4.4300e-003	0.0677	0.0348	4.0800e-003	0.0388	0.0000	11.7077	11.7077	3.7900e-003	0.0000	11.8024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.2000e-004	1.3500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3675	0.3675	1.0000e-005	0.0000	0.3677
Total	1.9000e-004	1.2000e-004	1.3500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3675	0.3675	1.0000e-005	0.0000	0.3677

Year 6 Construction - Sacramento County, Annual

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0461	0.4861	0.3449	8.1000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	71.2439	71.2439	0.0230	0.0000	71.8200
Total	0.0461	0.4861	0.3449	8.1000e-004	0.1599	0.0199	0.1798	0.0731	0.0183	0.0914	0.0000	71.2439	71.2439	0.0230	0.0000	71.8200

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	4.8000e-004	5.6100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5312	1.5312	3.0000e-005	0.0000	1.5321
Total	8.0000e-004	4.8000e-004	5.6100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5312	1.5312	3.0000e-005	0.0000	1.5321

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3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0461	0.4861	0.3449	8.1000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	71.2439	71.2439	0.0230	0.0000	71.8199
Total	0.0461	0.4861	0.3449	8.1000e-004	0.1599	0.0199	0.1798	0.0731	0.0183	0.0914	0.0000	71.2439	71.2439	0.0230	0.0000	71.8199

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	4.8000e-004	5.6100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5312	1.5312	3.0000e-005	0.0000	1.5321
Total	8.0000e-004	4.8000e-004	5.6100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5312	1.5312	3.0000e-005	0.0000	1.5321

Year 6 Construction - Sacramento County, Annual

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5999	237.5999	0.0565	0.0000	239.0129
Total	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5999	237.5999	0.0565	0.0000	239.0129

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0237	0.8414	0.2286	2.4300e-003	0.0599	1.2100e-003	0.0611	0.0173	1.1600e-003	0.0185	0.0000	233.9902	233.9902	0.0120	0.0000	234.2898
Worker	0.0894	0.0540	0.6305	1.9000e-003	0.2168	1.4400e-003	0.2183	0.0577	1.3300e-003	0.0590	0.0000	172.1918	172.1918	3.9200e-003	0.0000	172.2899
Total	0.1131	0.8955	0.8591	4.3300e-003	0.2767	2.6500e-003	0.2794	0.0750	2.4900e-003	0.0775	0.0000	406.1820	406.1820	0.0159	0.0000	406.5797

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3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5996	237.5996	0.0565	0.0000	239.0126
Total	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5996	237.5996	0.0565	0.0000	239.0126

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0237	0.8414	0.2286	2.4300e-003	0.0599	1.2100e-003	0.0611	0.0173	1.1600e-003	0.0185	0.0000	233.9902	233.9902	0.0120	0.0000	234.2898
Worker	0.0894	0.0540	0.6305	1.9000e-003	0.2168	1.4400e-003	0.2183	0.0577	1.3300e-003	0.0590	0.0000	172.1918	172.1918	3.9200e-003	0.0000	172.2899
Total	0.1131	0.8955	0.8591	4.3300e-003	0.2767	2.6500e-003	0.2794	0.0750	2.4900e-003	0.0775	0.0000	406.1820	406.1820	0.0159	0.0000	406.5797

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3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.2300e-003	0.0713	0.1021	1.6000e-004		3.5700e-003	3.5700e-003		3.2900e-003	3.2900e-003	0.0000	14.0188	14.0188	4.5300e-003	0.0000	14.1322
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.2300e-003	0.0713	0.1021	1.6000e-004		3.5700e-003	3.5700e-003		3.2900e-003	3.2900e-003	0.0000	14.0188	14.0188	4.5300e-003	0.0000	14.1322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6125	0.6125	1.0000e-005	0.0000	0.6128
Total	3.2000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6125	0.6125	1.0000e-005	0.0000	0.6128

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3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.2300e-003	0.0713	0.1021	1.6000e-004		3.5700e-003	3.5700e-003		3.2900e-003	3.2900e-003	0.0000	14.0188	14.0188	4.5300e-003	0.0000	14.1321
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.2300e-003	0.0713	0.1021	1.6000e-004		3.5700e-003	3.5700e-003		3.2900e-003	3.2900e-003	0.0000	14.0188	14.0188	4.5300e-003	0.0000	14.1321

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6125	0.6125	1.0000e-005	0.0000	0.6128
Total	3.2000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6125	0.6125	1.0000e-005	0.0000	0.6128

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3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	4.2813	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	7.4000e-004	8.6700e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.3682	2.3682	5.0000e-005	0.0000	2.3696
Total	1.2300e-003	7.4000e-004	8.6700e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.3682	2.3682	5.0000e-005	0.0000	2.3696

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3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr										MT/yr						
Archit. Coating	4.2800						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005			5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	4.2813	9.1200e-003	0.0127	2.0000e-005			5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	7.4000e-004	8.6700e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.3682	2.3682	5.0000e-005	0.0000	2.3696
Total	1.2300e-003	7.4000e-004	8.6700e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.3682	2.3682	5.0000e-005	0.0000	2.3696

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8654	3.6682	10.0538	0.0361	3.4720	0.0283	3.5002	0.9303	0.0263	0.9566	0.0000	3,323.3017	3,323.3017	0.1419	0.0000	3,326.8502
Unmitigated	0.8654	3.6682	10.0538	0.0361	3.4720	0.0283	3.5002	0.9303	0.0263	0.9566	0.0000	3,323.3017	3,323.3017	0.1419	0.0000	3,326.8502

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Year 6 Construction - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Year 6 Construction - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

Year 6 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Unmitigated	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1176	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Total	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

Year 6 Construction - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1176	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Total	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

7.0 Water Detail

7.1 Mitigation Measures Water

Year 6 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 6 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 6 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Year 6 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Year 6 Construction - Sacramento County, Summer

Year 6 Construction
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 6 Construction - Sacramento County, Summer

Project Characteristics - Year 6

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	205.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/1/2024	12/29/2023
tblConstructionPhase	PhaseStartDate	12/13/2023	12/12/2023
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2025

Year 6 Construction - Sacramento County, Summer

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	612.9024	46.3373	33.4841	0.0790	18.2032	1.8974	19.4701	9.9670	1.7456	11.1326	0.0000	7,657.1356	7,657.1356	2.4231	0.0000	7,717.7126
Maximum	612.9024	46.3373	33.4841	0.0790	18.2032	1.8974	19.4701	9.9670	1.7456	11.1326	0.0000	7,657.1356	7,657.1356	2.4231	0.0000	7,717.7126

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	612.9024	46.3373	33.4841	0.0790	18.2032	1.8974	19.4701	9.9670	1.7456	11.1326	0.0000	7,657.1356	7,657.1356	2.4231	0.0000	7,717.7126
Maximum	612.9024	46.3373	33.4841	0.0790	18.2032	1.8974	19.4701	9.9670	1.7456	11.1326	0.0000	7,657.1356	7,657.1356	2.4231	0.0000	7,717.7126

Year 6 Construction - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	6.5439	20.9970	67.1379	0.2303	21.2146	0.1665	21.3811	5.6682	0.1550	5.8232		23,361.9175	23,361.9175	0.9466		23,385.5812
Total	24.8449	24.4268	99.7655	0.2516	21.2146	0.5885	21.8031	5.6682	0.5770	6.2451	0.0000	27,336.3033	27,336.3033	1.0757	0.0718	27,384.6009

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	6.5439	20.9970	67.1379	0.2303	21.2146	0.1665	21.3811	5.6682	0.1550	5.8232		23,361.9175	23,361.9175	0.9466		23,385.5812
Total	24.8449	24.4268	99.7655	0.2516	21.2146	0.5885	21.8031	5.6682	0.5770	6.2451	0.0000	27,336.3033	27,336.3033	1.0757	0.0718	27,384.6009

Year 6 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/10/2023	5	7	
2	Grading	Grading	1/11/2023	2/8/2023	5	21	
3	Building Construction	Building Construction	2/9/2023	11/22/2023	5	205	
4	Paving	Paving	11/23/2023	12/12/2023	5	14	
5	Architectural Coating	Architectural Coating	12/12/2023	12/29/2023	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 6 Construction - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 6 Construction - Sacramento County, Summer

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	2.6595	27.5242	18.2443	0.0381	18.0663	1.2660	19.3323	9.9307	1.1647	11.0954		3,687.3081	3,687.3081	1.1926		3,717.1219

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0629	0.0299	0.4565	1.2900e-003	0.1369	8.8000e-004	0.1378	0.0363	8.1000e-004	0.0371		128.0175	128.0175	2.9600e-003		128.0914
Total	0.0629	0.0299	0.4565	1.2900e-003	0.1369	8.8000e-004	0.1378	0.0363	8.1000e-004	0.0371		128.0175	128.0175	2.9600e-003		128.0914

Year 6 Construction - Sacramento County, Summer

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.308 1	3,687.308 1	1.1926		3,717.121 9
Total	2.6595	27.5242	18.2443	0.0381	18.0663	1.2660	19.3323	9.9307	1.1647	11.0954	0.0000	3,687.308 1	3,687.308 1	1.1926		3,717.121 9

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0629	0.0299	0.4565	1.2900e-003	0.1369	8.8000e-004	0.1378	0.0363	8.1000e-004	0.0371		128.0175	128.0175	2.9600e-003		128.0914
Total	0.0629	0.0299	0.4565	1.2900e-003	0.1369	8.8000e-004	0.1378	0.0363	8.1000e-004	0.0371		128.0175	128.0175	2.9600e-003		128.0914

Year 6 Construction - Sacramento County, Summer

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	4.3899	46.2958	32.8501	0.0772		1.8962	1.8962		1.7445	1.7445		7,479.3336	7,479.3336	2.4190		7,539.8078
Total	4.3899	46.2958	32.8501	0.0772	15.2257	1.8962	17.1218	6.9640	1.7445	8.7085		7,479.3336	7,479.3336	2.4190		7,539.8078

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0874	0.0415	0.6340	1.7800e-003	0.1902	1.2200e-003	0.1914	0.0505	1.1200e-003	0.0516		177.8021	177.8021	4.1100e-003		177.9048
Total	0.0874	0.0415	0.6340	1.7800e-003	0.1902	1.2200e-003	0.1914	0.0505	1.1200e-003	0.0516		177.8021	177.8021	4.1100e-003		177.9048

Year 6 Construction - Sacramento County, Summer

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	4.3899	46.2958	32.8501	0.0772		1.8962	1.8962		1.7445	1.7445	0.0000	7,479.3336	7,479.3336	2.4190		7,539.8078
Total	4.3899	46.2958	32.8501	0.0772	15.2257	1.8962	17.1218	6.9640	1.7445	8.7085	0.0000	7,479.3336	7,479.3336	2.4190		7,539.8078

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0874	0.0415	0.6340	1.7800e-003	0.1902	1.2200e-003	0.1914	0.0505	1.1200e-003	0.0516		177.8021	177.8021	4.1100e-003		177.9048
Total	0.0874	0.0415	0.6340	1.7800e-003	0.1902	1.2200e-003	0.1914	0.0505	1.1200e-003	0.0516		177.8021	177.8021	4.1100e-003		177.9048

Year 6 Construction - Sacramento County, Summer

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2266	8.0999	2.0962	0.0240	0.6016	0.0114	0.6130	0.1731	0.0109	0.1840		2,543.9883	2,543.9883	0.1247		2,547.1046
Worker	1.0071	0.4784	7.3032	0.0206	2.1908	0.0141	2.2049	0.5811	0.0129	0.5941		2,048.2797	2,048.2797	0.0473		2,049.4629
Total	1.2336	8.5783	9.3994	0.0445	2.7924	0.0254	2.8178	0.7542	0.0238	0.7781		4,592.2680	4,592.2680	0.1720		4,596.5675

Year 6 Construction - Sacramento County, Summer

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2266	8.0999	2.0962	0.0240	0.6016	0.0114	0.6130	0.1731	0.0109	0.1840		2,543.9883	2,543.9883	0.1247		2,547.1046
Worker	1.0071	0.4784	7.3032	0.0206	2.1908	0.0141	2.2049	0.5811	0.0129	0.5941		2,048.2797	2,048.2797	0.0473		2,049.4629
Total	1.2336	8.5783	9.3994	0.0445	2.7924	0.0254	2.8178	0.7542	0.0238	0.7781		4,592.2680	4,592.2680	0.1720		4,596.5675

Year 6 Construction - Sacramento County, Summer

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429

Year 6 Construction - Sacramento County, Summer

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429

Year 6 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	611.6144	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2028	0.0963	1.4708	4.1400e-003	0.4412	2.8300e-003	0.4440	0.1170	2.6100e-003	0.1196		412.5008	412.5008	9.5300e-003		412.7391
Total	0.2028	0.0963	1.4708	4.1400e-003	0.4412	2.8300e-003	0.4440	0.1170	2.6100e-003	0.1196		412.5008	412.5008	9.5300e-003		412.7391

Year 6 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	611.6144	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2028	0.0963	1.4708	4.1400e-003	0.4412	2.8300e-003	0.4440	0.1170	2.6100e-003	0.1196		412.5008	412.5008	9.5300e-003		412.7391
Total	0.2028	0.0963	1.4708	4.1400e-003	0.4412	2.8300e-003	0.4440	0.1170	2.6100e-003	0.1196		412.5008	412.5008	9.5300e-003		412.7391

4.0 Operational Detail - Mobile

Year 6 Construction - Sacramento County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.5439	20.9970	67.1379	0.2303	21.2146	0.1665	21.3811	5.6682	0.1550	5.8232		23,361.9175	23,361.9175	0.9466		23,385.5812
Unmitigated	6.5439	20.9970	67.1379	0.2303	21.2146	0.1665	21.3811	5.6682	0.1550	5.8232		23,361.9175	23,361.9175	0.9466		23,385.5812

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 6 Construction - Sacramento County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
NaturalGas Unmitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

Year 6 Construction - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33302.4	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33.3024	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

6.0 Area Detail

6.1 Mitigation Measures Area

Year 6 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032
Unmitigated	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9405	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738		56.4517	56.4517	0.0541		57.8032
Total	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032

Year 6 Construction - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9405	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738		56.4517	56.4517	0.0541		57.8032
Total	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Year 6 Construction - Sacramento County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 7 Construction - Sacramento County, Annual

Year 7 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2026
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 7 Construction - Sacramento County, Annual

Project Characteristics - Year 7

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	207.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	11/20/2024	11/22/2024
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2026

Year 7 Construction - Sacramento County, Annual

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	4.6046	2.9043	3.0158	8.2500e-003	0.5087	0.0929	0.6016	0.1852	0.0869	0.2721	0.0000	745.4075	745.4075	0.1038	0.0000	748.0032
Maximum	4.6046	2.9043	3.0158	8.2500e-003	0.5087	0.0929	0.6016	0.1852	0.0869	0.2721	0.0000	745.4075	745.4075	0.1038	0.0000	748.0032

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	4.6046	2.9043	3.0158	8.2500e-003	0.5087	0.0929	0.6016	0.1852	0.0869	0.2721	0.0000	745.4071	745.4071	0.1038	0.0000	748.0028
Maximum	4.6046	2.9043	3.0158	8.2500e-003	0.5087	0.0929	0.6016	0.1852	0.0869	0.2721	0.0000	745.4071	745.4071	0.1038	0.0000	748.0028

Year 7 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2024	3-31-2024	1.0591	1.0591
2	4-1-2024	6-30-2024	0.7949	0.7949
3	7-1-2024	9-30-2024	0.8036	0.8036
		Highest	1.0591	1.0591

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.8200	3.5294	9.4626	0.0350	3.4713	0.0272	3.4985	0.9300	0.0253	0.9553	0.0000	3,225.2883	3,225.2883	0.1353	0.0000	3,228.6709
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.1059	4.1346	13.6161	0.0388	3.4713	0.0942	3.5655	0.9300	0.0923	1.0223	83.0766	4,858.8895	4,941.9661	4.6241	0.0409	5,069.7531

Year 7 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.8200	3.5294	9.4626	0.0350	3.4713	0.0272	3.4985	0.9300	0.0253	0.9553	0.0000	3,225.2883	3,225.2883	0.1353	0.0000	3,228.6709
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.1059	4.1346	13.6161	0.0388	3.4713	0.0942	3.5655	0.9300	0.0923	1.0223	83.0766	4,858.8895	4,941.9661	4.6241	0.0409	5,069.7531

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 7 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	1/9/2024	5	7	
2	Grading	Grading	1/10/2024	2/7/2024	5	21	
3	Building Construction	Building Construction	2/8/2024	11/22/2024	5	207	
4	Paving	Paving	11/21/2024	12/10/2024	5	14	
5	Architectural Coating	Architectural Coating	12/11/2024	12/30/2024	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 7 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 7 Construction - Sacramento County, Annual

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0951	0.0642	1.3000e-004		4.3000e-003	4.3000e-003		3.9600e-003	3.9600e-003	0.0000	11.7100	11.7100	3.7900e-003	0.0000	11.8047
Total	9.3100e-003	0.0951	0.0642	1.3000e-004	0.0632	4.3000e-003	0.0675	0.0348	3.9600e-003	0.0387	0.0000	11.7100	11.7100	3.7900e-003	0.0000	11.8047

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.0000e-004	1.2500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3532	0.3532	1.0000e-005	0.0000	0.3534
Total	1.8000e-004	1.0000e-004	1.2500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3532	0.3532	1.0000e-005	0.0000	0.3534

Year 7 Construction - Sacramento County, Annual

3.2 Site Preparation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0951	0.0642	1.3000e-004		4.3000e-003	4.3000e-003		3.9600e-003	3.9600e-003	0.0000	11.7100	11.7100	3.7900e-003	0.0000	11.8046
Total	9.3100e-003	0.0951	0.0642	1.3000e-004	0.0632	4.3000e-003	0.0675	0.0348	3.9600e-003	0.0387	0.0000	11.7100	11.7100	3.7900e-003	0.0000	11.8046

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.0000e-004	1.2500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3532	0.3532	1.0000e-005	0.0000	0.3534
Total	1.8000e-004	1.0000e-004	1.2500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3532	0.3532	1.0000e-005	0.0000	0.3534

Year 7 Construction - Sacramento County, Annual

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0448	0.4584	0.3414	8.1000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	71.2240	71.2240	0.0230	0.0000	71.7999
Total	0.0448	0.4584	0.3414	8.1000e-004	0.1599	0.0188	0.1787	0.0731	0.0173	0.0904	0.0000	71.2240	71.2240	0.0230	0.0000	71.7999

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	4.3000e-004	5.1900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.4717	1.4717	3.0000e-005	0.0000	1.4724
Total	7.5000e-004	4.3000e-004	5.1900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.4717	1.4717	3.0000e-005	0.0000	1.4724

Year 7 Construction - Sacramento County, Annual

3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0448	0.4584	0.3414	8.1000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	71.2239	71.2239	0.0230	0.0000	71.7998
Total	0.0448	0.4584	0.3414	8.1000e-004	0.1599	0.0188	0.1787	0.0731	0.0173	0.0904	0.0000	71.2239	71.2239	0.0230	0.0000	71.7998

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	4.3000e-004	5.1900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.4717	1.4717	3.0000e-005	0.0000	1.4724
Total	7.5000e-004	4.3000e-004	5.1900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.4717	1.4717	3.0000e-005	0.0000	1.4724

Year 7 Construction - Sacramento County, Annual

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1523	1.3914	1.6733	2.7900e-003		0.0635	0.0635		0.0597	0.0597	0.0000	239.9638	239.9638	0.0567	0.0000	241.3824
Total	0.1523	1.3914	1.6733	2.7900e-003		0.0635	0.0635		0.0597	0.0597	0.0000	239.9638	239.9638	0.0567	0.0000	241.3824

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0228	0.8334	0.2158	2.4400e-003	0.0605	1.1600e-003	0.0617	0.0175	1.1100e-003	0.0186	0.0000	234.9014	234.9014	0.0120	0.0000	235.2002
Worker	0.0849	0.0493	0.5896	1.8500e-003	0.2189	1.4200e-003	0.2203	0.0582	1.3100e-003	0.0595	0.0000	167.1128	167.1128	3.5700e-003	0.0000	167.2022
Total	0.1077	0.8828	0.8054	4.2900e-003	0.2794	2.5800e-003	0.2820	0.0757	2.4200e-003	0.0781	0.0000	402.0142	402.0142	0.0155	0.0000	402.4024

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3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1523	1.3914	1.6733	2.7900e-003		0.0635	0.0635		0.0597	0.0597	0.0000	239.9635	239.9635	0.0567	0.0000	241.3822
Total	0.1523	1.3914	1.6733	2.7900e-003		0.0635	0.0635		0.0597	0.0597	0.0000	239.9635	239.9635	0.0567	0.0000	241.3822

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0228	0.8334	0.2158	2.4400e-003	0.0605	1.1600e-003	0.0617	0.0175	1.1100e-003	0.0186	0.0000	234.9014	234.9014	0.0120	0.0000	235.2002
Worker	0.0849	0.0493	0.5896	1.8500e-003	0.2189	1.4200e-003	0.2203	0.0582	1.3100e-003	0.0595	0.0000	167.1128	167.1128	3.5700e-003	0.0000	167.2022
Total	0.1077	0.8828	0.8054	4.2900e-003	0.2794	2.5800e-003	0.2820	0.0757	2.4200e-003	0.0781	0.0000	402.0142	402.0142	0.0155	0.0000	402.4024

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3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9200e-003	0.0667	0.1024	1.6000e-004		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	14.0186	14.0186	4.5300e-003	0.0000	14.1319
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.9200e-003	0.0667	0.1024	1.6000e-004		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	14.0186	14.0186	4.5300e-003	0.0000	14.1319

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.7000e-004	2.0800e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.5887	0.5887	1.0000e-005	0.0000	0.5890
Total	3.0000e-004	1.7000e-004	2.0800e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.5887	0.5887	1.0000e-005	0.0000	0.5890

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3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9200e-003	0.0667	0.1024	1.6000e-004		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	14.0186	14.0186	4.5300e-003	0.0000	14.1319
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.9200e-003	0.0667	0.1024	1.6000e-004		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	14.0186	14.0186	4.5300e-003	0.0000	14.1319

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.7000e-004	2.0800e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.5887	0.5887	1.0000e-005	0.0000	0.5890
Total	3.0000e-004	1.7000e-004	2.0800e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.5887	0.5887	1.0000e-005	0.0000	0.5890

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3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2700e-003	8.5300e-003	0.0127	2.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	1.7873	1.7873	1.0000e-004	0.0000	1.7898
Total	4.2812	8.5300e-003	0.0127	2.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	1.7873	1.7873	1.0000e-004	0.0000	1.7898

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	6.7000e-004	8.0300e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.2762	2.2762	5.0000e-005	0.0000	2.2774
Total	1.1600e-003	6.7000e-004	8.0300e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.2762	2.2762	5.0000e-005	0.0000	2.2774

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3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2700e-003	8.5300e-003	0.0127	2.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	1.7873	1.7873	1.0000e-004	0.0000	1.7898
Total	4.2812	8.5300e-003	0.0127	2.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	1.7873	1.7873	1.0000e-004	0.0000	1.7898

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	6.7000e-004	8.0300e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.2762	2.2762	5.0000e-005	0.0000	2.2774
Total	1.1600e-003	6.7000e-004	8.0300e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.2762	2.2762	5.0000e-005	0.0000	2.2774

4.0 Operational Detail - Mobile

Year 7 Construction - Sacramento County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8200	3.5294	9.4626	0.0350	3.4713	0.0272	3.4985	0.9300	0.0253	0.9553	0.0000	3,225.2883	3,225.2883	0.1353	0.0000	3,228.6709
Unmitigated	0.8200	3.5294	9.4626	0.0350	3.4713	0.0272	3.4985	0.9300	0.0253	0.9553	0.0000	3,225.2883	3,225.2883	0.1353	0.0000	3,228.6709

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3,275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.570990	0.036039	0.209774	0.110012	0.014862	0.004732	0.018347	0.024592	0.001934	0.001739	0.005654	0.000617	0.000710
Single Family Housing	0.570990	0.036039	0.209774	0.110012	0.014862	0.004732	0.018347	0.024592	0.001934	0.001739	0.005654	0.000617	0.000710

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Unmitigated	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1176	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Total	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1176	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Total	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

7.0 Water Detail

7.1 Mitigation Measures Water

Year 7 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 7 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 7 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Year 7 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 7 Construction - Sacramento County, Summer

Year 7 Construction
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2026
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 7 Construction - Sacramento County, Summer

Project Characteristics - Year 7

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	207.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	11/20/2024	11/22/2024
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2026

Year 7 Construction - Sacramento County, Summer

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	611.7939	43.6979	39.8797	0.0944	18.2032	1.7925	19.4334	9.9670	1.6491	11.0988	0.0000	9,363.4419	9,363.4419	2.4220	0.0000	9,400.6008
Maximum	611.7939	43.6979	39.8797	0.0944	18.2032	1.7925	19.4334	9.9670	1.6491	11.0988	0.0000	9,363.4419	9,363.4419	2.4220	0.0000	9,400.6008

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	611.7939	43.6979	39.8797	0.0944	18.2032	1.7925	19.4334	9.9670	1.6491	11.0988	0.0000	9,363.4419	9,363.4419	2.4220	0.0000	9,400.6008
Maximum	611.7939	43.6979	39.8797	0.0944	18.2032	1.7925	19.4334	9.9670	1.6491	11.0988	0.0000	9,363.4419	9,363.4419	2.4220	0.0000	9,400.6008

Year 7 Construction - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	6.2131	20.2354	63.2120	0.2232	21.2106	0.1602	21.3708	5.6664	0.1490	5.8154		22,660.0654	22,660.0654	0.9008		22,682.5848
Total	24.5140	23.6653	95.8396	0.2445	21.2106	0.5821	21.7927	5.6664	0.5710	6.2374	0.0000	26,634.4512	26,634.4512	1.0299	0.0718	26,681.6044

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032
Energy	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
Mobile	6.2131	20.2354	63.2120	0.2232	21.2106	0.1602	21.3708	5.6664	0.1490	5.8154		22,660.0654	22,660.0654	0.9008		22,682.5848
Total	24.5140	23.6653	95.8396	0.2445	21.2106	0.5821	21.7927	5.6664	0.5710	6.2374	0.0000	26,634.4512	26,634.4512	1.0299	0.0718	26,681.6044

Year 7 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	1/9/2024	5	7	
2	Grading	Grading	1/10/2024	2/7/2024	5	21	
3	Building Construction	Building Construction	2/8/2024	11/22/2024	5	207	
4	Paving	Paving	11/21/2024	12/10/2024	5	14	
5	Architectural Coating	Architectural Coating	12/11/2024	12/30/2024	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 7 Construction - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 7 Construction - Sacramento County, Summer

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310		3,688.0100	3,688.0100	1.1928		3,717.8294
Total	2.6609	27.1760	18.3356	0.0381	18.0663	1.2294	19.2956	9.9307	1.1310	11.0617		3,688.0100	3,688.0100	1.1928		3,717.8294

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0591	0.0270	0.4234	1.2300e-003	0.1369	8.6000e-004	0.1378	0.0363	7.9000e-004	0.0371		123.0345	123.0345	2.6700e-003		123.1012
Total	0.0591	0.0270	0.4234	1.2300e-003	0.1369	8.6000e-004	0.1378	0.0363	7.9000e-004	0.0371		123.0345	123.0345	2.6700e-003		123.1012

Year 7 Construction - Sacramento County, Summer

3.2 Site Preparation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310	0.0000	3,688.010 0	3,688.010 0	1.1928		3,717.829 4
Total	2.6609	27.1760	18.3356	0.0381	18.0663	1.2294	19.2956	9.9307	1.1310	11.0617	0.0000	3,688.010 0	3,688.010 0	1.1928		3,717.829 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0591	0.0270	0.4234	1.2300e-003	0.1369	8.6000e-004	0.1378	0.0363	7.9000e-004	0.0371		123.0345	123.0345	2.6700e-003		123.1012
Total	0.0591	0.0270	0.4234	1.2300e-003	0.1369	8.6000e-004	0.1378	0.0363	7.9000e-004	0.0371		123.0345	123.0345	2.6700e-003		123.1012

Year 7 Construction - Sacramento County, Summer

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	4.2678	43.6603	32.5103	0.0772		1.7913	1.7913		1.6480	1.6480		7,477.237 2	7,477.237 2	2.4183		7,537.694 4
Total	4.2678	43.6603	32.5103	0.0772	15.2257	1.7913	17.0170	6.9640	1.6480	8.6120		7,477.237 2	7,477.237 2	2.4183		7,537.694 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0821	0.0375	0.5881	1.7200e-003	0.1902	1.1900e-003	0.1914	0.0505	1.1000e-003	0.0515		170.8813	170.8813	3.7100e-003		170.9739
Total	0.0821	0.0375	0.5881	1.7200e-003	0.1902	1.1900e-003	0.1914	0.0505	1.1000e-003	0.0515		170.8813	170.8813	3.7100e-003		170.9739

Year 7 Construction - Sacramento County, Summer

3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.2257	0.0000	15.2257	6.9640	0.0000	6.9640			0.0000			0.0000
Off-Road	4.2678	43.6603	32.5103	0.0772		1.7913	1.7913		1.6480	1.6480	0.0000	7,477.237 1	7,477.237 1	2.4183		7,537.694 4
Total	4.2678	43.6603	32.5103	0.0772	15.2257	1.7913	17.0170	6.9640	1.6480	8.6120	0.0000	7,477.237 1	7,477.237 1	2.4183		7,537.694 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0821	0.0375	0.5881	1.7200e-003	0.1902	1.1900e-003	0.1914	0.0505	1.1000e-003	0.0515		170.8813	170.8813	3.7100e-003		170.9739
Total	0.0821	0.0375	0.5881	1.7200e-003	0.1902	1.1900e-003	0.1914	0.0505	1.1000e-003	0.0515		170.8813	170.8813	3.7100e-003		170.9739

Year 7 Construction - Sacramento County, Summer

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2159	7.9481	1.9593	0.0238	0.6015	0.0108	0.6124	0.1731	0.0104	0.1834		2,529.1150	2,529.1150	0.1231		2,532.1930
Worker	0.9457	0.4325	6.7749	0.0198	2.1908	0.0137	2.2046	0.5811	0.0127	0.5938		1,968.5521	1,968.5521	0.0427		1,969.6195
Total	1.1616	8.3806	8.7343	0.0436	2.7923	0.0246	2.8169	0.7542	0.0230	0.7772		4,497.6670	4,497.6670	0.1658		4,501.8125

Year 7 Construction - Sacramento County, Summer

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2159	7.9481	1.9593	0.0238	0.6015	0.0108	0.6124	0.1731	0.0104	0.1834		2,529.1150	2,529.1150	0.1231		2,532.1930
Worker	0.9457	0.4325	6.7749	0.0198	2.1908	0.0137	2.2046	0.5811	0.0127	0.5938		1,968.5521	1,968.5521	0.0427		1,969.6195
Total	1.1616	8.3806	8.7343	0.0436	2.7923	0.0246	2.8169	0.7542	0.0230	0.7772		4,497.6670	4,497.6670	0.1658		4,501.8125

Year 7 Construction - Sacramento County, Summer

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0493	0.0225	0.3529	1.0300e-003	0.1141	7.2000e-004	0.1148	0.0303	6.6000e-004	0.0309		102.5288	102.5288	2.2200e-003		102.5844
Total	0.0493	0.0225	0.3529	1.0300e-003	0.1141	7.2000e-004	0.1148	0.0303	6.6000e-004	0.0309		102.5288	102.5288	2.2200e-003		102.5844

Year 7 Construction - Sacramento County, Summer

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0493	0.0225	0.3529	1.0300e-003	0.1141	7.2000e-004	0.1148	0.0303	6.6000e-004	0.0309		102.5288	102.5288	2.2200e-003		102.5844
Total	0.0493	0.0225	0.3529	1.0300e-003	0.1141	7.2000e-004	0.1148	0.0303	6.6000e-004	0.0309		102.5288	102.5288	2.2200e-003		102.5844

Year 7 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	611.6035	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1904	0.0871	1.3644	3.9800e-003	0.4412	2.7700e-003	0.4440	0.1170	2.5500e-003	0.1196		396.4445	396.4445	8.6000e-003		396.6595
Total	0.1904	0.0871	1.3644	3.9800e-003	0.4412	2.7700e-003	0.4440	0.1170	2.5500e-003	0.1196		396.4445	396.4445	8.6000e-003		396.6595

Year 7 Construction - Sacramento County, Summer

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	611.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	611.6035	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1904	0.0871	1.3644	3.9800e-003	0.4412	2.7700e-003	0.4440	0.1170	2.5500e-003	0.1196		396.4445	396.4445	8.6000e-003		396.6595
Total	0.1904	0.0871	1.3644	3.9800e-003	0.4412	2.7700e-003	0.4440	0.1170	2.5500e-003	0.1196		396.4445	396.4445	8.6000e-003		396.6595

4.0 Operational Detail - Mobile

Year 7 Construction - Sacramento County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.2131	20.2354	63.2120	0.2232	21.2106	0.1602	21.3708	5.6664	0.1490	5.8154		22,660.06 54	22,660.06 54	0.9008		22,682.58 48
Unmitigated	6.2131	20.2354	63.2120	0.2232	21.2106	0.1602	21.3708	5.6664	0.1490	5.8154		22,660.06 54	22,660.06 54	0.9008		22,682.58 48

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3,275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 7 Construction - Sacramento County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.570990	0.036039	0.209774	0.110012	0.014862	0.004732	0.018347	0.024592	0.001934	0.001739	0.005654	0.000617	0.000710
Single Family Housing	0.570990	0.036039	0.209774	0.110012	0.014862	0.004732	0.018347	0.024592	0.001934	0.001739	0.005654	0.000617	0.000710

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
NaturalGas Mitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164
NaturalGas Unmitigated	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.9341	3,917.9341	0.0751	0.0718	3,941.2164

Year 7 Construction - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33302.4	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	33.3024	0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4
Total		0.3591	3.0691	1.3060	0.0196		0.2481	0.2481		0.2481	0.2481		3,917.934 1	3,917.934 1	0.0751	0.0718	3,941.216 4

6.0 Area Detail

6.1 Mitigation Measures Area

Year 7 Construction - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032
Unmitigated	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9405	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738		56.4517	56.4517	0.0541		57.8032
Total	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032

Year 7 Construction - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.3452					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.9405	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738		56.4517	56.4517	0.0541		57.8032
Total	17.9418	0.3608	31.3216	1.6600e-003		0.1738	0.1738		0.1738	0.1738	0.0000	56.4517	56.4517	0.0541	0.0000	57.8032

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Year 7 Construction - Sacramento County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Panhandle AQMP Emissions Summary

Unmitigated Emissions			
Annual			
	<u>ROG (tons/year)</u>	<u>NOx (tons/year)</u>	<u>PM10 (tons/year)</u>
Area	24.6000	0.3158	0.2
Energy	0.4900	4.2267	0.3
Mobile	4.7765	24.8363	29.6
Total	29.8727	29.3788	30.1

Traffic Study Adjusted Emissions			
Annual			
	<u>ROG (tons/year)</u>	<u>NOx (tons/year)</u>	<u>PM10 (tons/year)</u>
Area	24.6038	0.3158	0.2
Energy	0.4925	4.2267	0.3
Mobile	4.1395	21.7212	19.4
Total	29.2358	26.2641	19.9073

Mitigated Emissions			
Annual			
	<u>ROG (tons/year)</u>	<u>NOx (tons/year)</u>	<u>PM10 (tons/year)</u>
Area	24.6000	0.3158	0.2
Energy	0.3732	3.2607	0.3
Mobile	4.0402	21.2361	17.8
Total	29.0172	24.7585	18.2383

Mitigation Measures - Mobile Emissions					
Annual					
	<u>ROG (tons/year)</u>	<u>ROG Reduction</u>	<u>NOx (tons/year)</u>	<u>NOx Reduction</u>	
SDT-1	4.1153	0.02	21.603	0.12	
SDT-2	4.0788	0.06	21.4249	0.30	
TRT-1 & TRT-2	4.0989	0.04	21.5229	0.20	

35% reduction target (based on unmitigated mobile emissions)

reduction from traffic study

onsite mitigation achieved (based on project-total emissions, includes Title 24 adjustment)

remaining mitigation needed (offsite)

<u>ROG (tons/year)</u>	<u>NOx (tons/year)</u>
1.67	8.69
0.64	3.12
0.22	1.51
0.82	4.07

Project Emissions after Onsite and Offsite Mitigation

	<u>ROG (tons/year)</u>	<u>ROG (lb/day)</u>	<u>NOx (tons/year)</u>	<u>NOx (lb/day)</u>
Projectwide	28.20	154.53	20.69	113.35

Intersections Per Square Mile Calculation

30 intersections evaluated in traffic study on project site
515.6 project acres*
0.0015625 acre to sq mile
37.2 intersections per sq mi

*removes detention basin and middle/high school

2000 lb/ton
365 day/year

Panhandle Unmitigated - Sacramento County, Annual

**Panhandle Unmitigated
Sacramento County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
Junior High School	2,800.00	Student	7.56	329,172.71	0
City Park	57.80	Acre	57.80	2,517,768.00	0
Single Family Housing	2,660.00	Dwelling Unit	397.70	4,788,000.00	7102
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses match project description and traffic study

Panhandle Unmitigated - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	863.64	397.70
tblLandUse	LotAcreage	2.32	9.70
tblProjectCharacteristics	OperationalYear	2018	2035

2.0 Emissions Summary

Panhandle Unmitigated - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	12,392.9046	12,392.9046	0.4628	0.1658	12,453.8765
Mobile	4.7765	24.8363	54.0590	0.2523	29.4630	0.1297	29.5927	7.8886	0.1205	8.0091	0.0000	23,357.2711	23,357.2711	0.8633	0.0000	23,378.8545
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	442.4240	509.2259	0.2517	0.1498	560.1486
Total	29.8727	29.3788	83.3635	0.2806	29.4630	0.6222	30.0852	7.8886	0.6131	8.5016	730.6392	36,237.4948	36,968.1339	40.8523	0.3156	38,083.4752

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	12,392.9046	12,392.9046	0.4628	0.1658	12,453.8765
Mobile	4.7765	24.8363	54.0590	0.2523	29.4630	0.1297	29.5927	7.8886	0.1205	8.0091	0.0000	23,357.2711	23,357.2711	0.8633	0.0000	23,378.8545
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	442.4240	509.2259	0.2517	0.1498	560.1486
Total	29.8727	29.3788	83.3635	0.2806	29.4630	0.6222	30.0852	7.8886	0.6131	8.5016	730.6392	36,237.4948	36,968.1339	40.8523	0.3156	38,083.4752

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Panhandle Unmitigated - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	6/15/2017	6/14/2017	5	550	
2	Building Construction	Building Construction	6/15/2017	6/14/2017	5	7750	
3	Demolition	Demolition	6/15/2017	6/14/2017	5	500	
4	Grading	Grading	6/15/2017	6/14/2017	5	775	
5	Paving	Paving	6/15/2017	6/14/2017	5	550	
6	Site Preparation	Site Preparation	6/15/2017	6/14/2017	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1937.5

Acres of Paving: 0

Residential Indoor: 9,695,700; Residential Outdoor: 3,231,900; Non-Residential Indoor: 708,377; Non-Residential Outdoor: 236,126; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

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3.7 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.7765	24.8363	54.0590	0.2523	29.4630	0.1297	29.5927	7.8886	0.1205	8.0091	0.0000	23,357.271 1	23,357.271 1	0.8633	0.0000	23,378.85 45
Unmitigated	4.7765	24.8363	54.0590	0.2523	29.4630	0.1297	29.5927	7.8886	0.1205	8.0091	0.0000	23,357.271 1	23,357.271 1	0.8633	0.0000	23,378.85 45

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	109.24	1,314.95	967.57	745,554	745,554
Elementary School	645.00	0.00	0.00	968,813	968,813
Junior High School	4,536.00	0.00	0.00	7,131,752	7,131,752
Regional Shopping Center	4,324.53	5,060.81	2556.23	5,836,679	5,836,679
Single Family Housing	25,323.20	26,360.60	22929.20	64,484,780	64,484,780
Total	34,937.97	32,736.36	26,453.00	79,167,578	79,167,578

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Elementary School	10.00	5.00	6.50	65.00	30.00	5.00	63	25	12
Junior High School	10.00	5.00	6.50	72.80	22.20	5.00	63	25	12
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Junior High School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,519.2185	7,519.2185	0.3694	0.0764	7,551.2285
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,519.2185	7,519.2185	0.3694	0.0764	7,551.2285
NaturalGas Mitigated	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480
NaturalGas Unmitigated	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

Panhandle Unmitigated - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Junior High School	5.04951e+006	0.0272	0.2475	0.2079	1.4900e-003		0.0188	0.0188		0.0188	0.0188	0.0000	269.4611	269.4611	5.1600e-003	4.9400e-003	271.0623
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	8.50877e+007	0.4588	3.9207	1.6684	0.0250		0.3170	0.3170		0.3170	0.3170	0.0000	4,540.6055	4,540.6055	0.0870	0.0832	4,567.5881
Total		0.4925	4.2267	1.9254	0.0269		0.3402	0.3402		0.3402	0.3402	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

Panhandle Unmitigated - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Junior High School	5.04951e+006	0.0272	0.2475	0.2079	1.4900e-003		0.0188	0.0188		0.0188	0.0188	0.0000	269.4611	269.4611	5.1600e-003	4.9400e-003	271.0623
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	8.50877e+007	0.4588	3.9207	1.6684	0.0250		0.3170	0.3170		0.3170	0.3170	0.0000	4,540.6055	4,540.6055	0.0870	0.0832	4,567.5881
Total		0.4925	4.2267	1.9254	0.0269		0.3402	0.3402		0.3402	0.3402	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

Panhandle Unmitigated - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Junior High School	2.47209e+006	661.9263	0.0325	6.7300e-003	664.7442
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	2.40948e+007	6,451.6153	0.3170	0.0656	6,479.0804
Total		7,519.2185	0.3694	0.0764	7,551.2285

Panhandle Unmitigated - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Junior High School	2.47209e+006	661.9263	0.0325	6.7300e-003	664.7442
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	2.40948e+007	6,451.6153	0.3170	0.0656	6,479.0804
Total		7,519.2185	0.3694	0.0764	7,551.2285

6.0 Area Detail

6.1 Mitigation Measures Area

Panhandle Unmitigated - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Unmitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

7.0 Water Detail

7.1 Mitigation Measures Water

Panhandle Unmitigated - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	509.2259	0.2517	0.1498	560.1486
Unmitigated	509.2259	0.2517	0.1498	560.1486

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	64.5400	3.1700e-003	6.6000e-004	64.8148
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Junior High School	6.78787 / 17.4545	27.8152	9.5100e-003	5.4800e-003	29.6864
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	173.31 / 109.26	394.9315	0.2274	0.1367	441.3647
Total		509.2259	0.2517	0.1498	560.1486

Panhandle Unmitigated - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	64.5400	3.1700e-003	6.6000e-004	64.8148
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Junior High School	6.78787 / 17.4545	27.8152	9.5100e-003	5.4800e-003	29.6864
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	173.31 / 109.26	394.9315	0.2274	0.1367	441.3647
Total		509.2259	0.2517	0.1498	560.1486

8.0 Waste Detail

8.1 Mitigation Measures Waste

Panhandle Unmitigated - Sacramento County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	663.8373	39.2317	0.0000	1,644.6288
Unmitigated	663.8373	39.2317	0.0000	1,644.6288

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

Panhandle Unmitigated - Sacramento County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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Panhandle Unmitigated - Sacramento County, Annual

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Panhandle Baseline Operational - Sacramento County, Summer

Panhandle Baseline Operational
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
Junior High School	2,800.00	Student	7.56	329,172.71	0
City Park	57.80	Acre	57.80	2,517,768.00	0
Single Family Housing	2,660.00	Dwelling Unit	397.70	4,788,000.00	7102
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses match project description and traffic study

Panhandle Baseline Operational - Sacramento County, Summer

Table Name	Column Name	Default Value	New Value
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	863.64	397.70
tblLandUse	LotAcreage	2.33	9.70
tblProjectCharacteristics	OperationalYear	2018	2035

2.0 Emissions Summary

Panhandle Baseline Operational - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589
Energy	2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977
Mobile	38.1572	150.5472	376.0858	1.6710	187.3161	0.7978	188.1140	50.0105	0.7413	50.7518		170,296.0051	170,296.0051	5.9145		170,443.8675
Total	177.7410	176.2332	605.6691	1.8298	187.3161	3.8804	191.1966	50.0105	3.8239	53.8344	0.0000	200,129.2774	200,129.2774	6.8568	0.5397	200,461.5240

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589
Energy	2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977
Mobile	38.1572	150.5472	376.0858	1.6710	187.3161	0.7978	188.1140	50.0105	0.7413	50.7518		170,296.0051	170,296.0051	5.9145		170,443.8675
Total	177.7410	176.2332	605.6691	1.8298	187.3161	3.8804	191.1966	50.0105	3.8239	53.8344	0.0000	200,129.2774	200,129.2774	6.8568	0.5397	200,461.5240

Panhandle Baseline Operational - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	3/16/2017	3/15/2017	5	550	
2	Building Construction	Building Construction	3/16/2017	3/15/2017	5	7750	
3	Demolition	Demolition	3/16/2017	3/15/2017	5	500	
4	Grading	Grading	3/16/2017	3/15/2017	5	775	
5	Paving	Paving	3/16/2017	3/15/2017	5	550	
6	Site Preparation	Site Preparation	3/16/2017	3/15/2017	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1937.5

Acres of Paving: 0

Residential Indoor: 9,695,700; Residential Outdoor: 3,231,900; Non-Residential Indoor: 708,377; Non-Residential Outdoor: 236,126; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Panhandle Baseline Operational - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Panhandle Baseline Operational - Sacramento County, Summer

3.7 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Panhandle Baseline Operational - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	38.1572	150.5472	376.0858	1.6710	187.3161	0.7978	188.1140	50.0105	0.7413	50.7518		170,296.0051	170,296.0051	5.9145		170,443.8675
Unmitigated	38.1572	150.5472	376.0858	1.6710	187.3161	0.7978	188.1140	50.0105	0.7413	50.7518		170,296.0051	170,296.0051	5.9145		170,443.8675

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	109.24	1,314.95	967.57	745,554	745,554
Elementary School	645.00	0.00	0.00	968,813	968,813
Junior High School	4,536.00	0.00	0.00	7,131,752	7,131,752
Regional Shopping Center	4,324.66	5,060.96	2556.31	5,836,852	5,836,852
Single Family Housing	25,323.20	26,360.60	22929.20	64,484,780	64,484,780
Total	34,938.10	32,736.51	26,453.08	79,167,751	79,167,751

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Elementary School	10.00	5.00	6.50	65.00	30.00	5.00	63	25	12
Junior High School	10.00	5.00	6.50	72.80	22.20	5.00	63	25	12
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

Panhandle Baseline Operational - Sacramento County, Summer

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Junior High School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977
NaturalGas Unmitigated	2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977

Panhandle Baseline Operational - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1756.82	0.0190	0.1722	0.1447	1.0300e-003		0.0131	0.0131		0.0131	0.0131		206.6843	206.6843	3.9600e-003	3.7900e-003	207.9125
Junior High School	13834.3	0.1492	1.3563	1.1393	8.1400e-003		0.1031	0.1031		0.1031	0.1031		1,627.5614	1,627.5614	0.0312	0.0298	1,637.2332
Regional Shopping Center	1509.44	0.0163	0.1480	0.1243	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.5816	177.5816	3.4000e-003	3.2600e-003	178.6369
Single Family Housing	233117	2.5140	21.4833	9.1419	0.1371		1.7370	1.7370		1.7370	1.7370		27,425.5388	27,425.5388	0.5257	0.5028	27,588.5151
Total		2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977

Panhandle Baseline Operational - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1.75682	0.0190	0.1722	0.1447	1.0300e-003		0.0131	0.0131		0.0131	0.0131		206.6843	206.6843	3.9600e-003	3.7900e-003	207.9125
Junior High School	13.8343	0.1492	1.3563	1.1393	8.1400e-003		0.1031	0.1031		0.1031	0.1031		1,627.5614	1,627.5614	0.0312	0.0298	1,637.2332
Regional Shopping Center	1.50944	0.0163	0.1480	0.1243	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.5816	177.5816	3.4000e-003	3.2600e-003	178.6369
Single Family Housing	233.117	2.5140	21.4833	9.1419	0.1371		1.7370	1.7370		1.7370	1.7370		27,425.5388	27,425.5388	0.5257	0.5028	27,588.5151
Total		2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977

6.0 Area Detail

6.1 Mitigation Measures Area

Panhandle Baseline Operational - Sacramento County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589
Unmitigated	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	17.6157					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	112.6991					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.5706	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182		395.9062	395.9062	0.3781		405.3589
Total	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589

Panhandle Baseline Operational - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	17.6157					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	112.6991					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.5706	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182		395.9062	395.9062	0.3781		405.3589
Total	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Panhandle Baseline Operational - Sacramento County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Panhandle Baseline Operational - Sacramento County, Winter

Panhandle Baseline Operational
Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
Junior High School	2,800.00	Student	7.56	329,172.71	0
City Park	57.80	Acre	57.80	2,517,768.00	0
Single Family Housing	2,660.00	Dwelling Unit	397.70	4,788,000.00	7102
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses match project description and traffic study

Panhandle Baseline Operational - Sacramento County, Winter

Table Name	Column Name	Default Value	New Value
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	863.64	397.70
tblLandUse	LotAcreage	2.33	9.70
tblProjectCharacteristics	OperationalYear	2018	2035

2.0 Emissions Summary

Panhandle Baseline Operational - Sacramento County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589
Energy	2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977
Mobile	27.4523	156.1711	342.4897	1.5161	187.3161	0.8017	188.1179	50.0105	0.7450	50.7555		154,760.2928	154,760.2928	6.0191		154,910.7699
Total	167.0361	181.8570	572.0730	1.6749	187.3161	3.8843	191.2005	50.0105	3.8276	53.8381	0.0000	184,593.5651	184,593.5651	6.9614	0.5397	184,928.4264

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589
Energy	2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977
Mobile	27.4523	156.1711	342.4897	1.5161	187.3161	0.8017	188.1179	50.0105	0.7450	50.7555		154,760.2928	154,760.2928	6.0191		154,910.7699
Total	167.0361	181.8570	572.0730	1.6749	187.3161	3.8843	191.2005	50.0105	3.8276	53.8381	0.0000	184,593.5651	184,593.5651	6.9614	0.5397	184,928.4264

Panhandle Baseline Operational - Sacramento County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	3/16/2017	3/15/2017	5	550	
2	Building Construction	Building Construction	3/16/2017	3/15/2017	5	7750	
3	Demolition	Demolition	3/16/2017	3/15/2017	5	500	
4	Grading	Grading	3/16/2017	3/15/2017	5	775	
5	Paving	Paving	3/16/2017	3/15/2017	5	550	
6	Site Preparation	Site Preparation	3/16/2017	3/15/2017	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1937.5

Acres of Paving: 0

Residential Indoor: 9,695,700; Residential Outdoor: 3,231,900; Non-Residential Indoor: 708,377; Non-Residential Outdoor: 236,126; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Panhandle Baseline Operational - Sacramento County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Panhandle Baseline Operational - Sacramento County, Winter

3.7 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Panhandle Baseline Operational - Sacramento County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	27.4523	156.1711	342.4897	1.5161	187.3161	0.8017	188.1179	50.0105	0.7450	50.7555		154,760.2928	154,760.2928	6.0191		154,910.7699
Unmitigated	27.4523	156.1711	342.4897	1.5161	187.3161	0.8017	188.1179	50.0105	0.7450	50.7555		154,760.2928	154,760.2928	6.0191		154,910.7699

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	109.24	1,314.95	967.57	745,554	745,554
Elementary School	645.00	0.00	0.00	968,813	968,813
Junior High School	4,536.00	0.00	0.00	7,131,752	7,131,752
Regional Shopping Center	4,324.66	5,060.96	2556.31	5,836,852	5,836,852
Single Family Housing	25,323.20	26,360.60	22929.20	64,484,780	64,484,780
Total	34,938.10	32,736.51	26,453.08	79,167,751	79,167,751

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Elementary School	10.00	5.00	6.50	65.00	30.00	5.00	63	25	12
Junior High School	10.00	5.00	6.50	72.80	22.20	5.00	63	25	12
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

Panhandle Baseline Operational - Sacramento County, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Junior High School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977
NaturalGas Unmitigated	2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977

Panhandle Baseline Operational - Sacramento County, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1756.82	0.0190	0.1722	0.1447	1.0300e-003		0.0131	0.0131		0.0131	0.0131		206.6843	206.6843	3.9600e-003	3.7900e-003	207.9125
Junior High School	13834.3	0.1492	1.3563	1.1393	8.1400e-003		0.1031	0.1031		0.1031	0.1031		1,627.5614	1,627.5614	0.0312	0.0298	1,637.2332
Regional Shopping Center	1509.44	0.0163	0.1480	0.1243	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.5816	177.5816	3.4000e-003	3.2600e-003	178.6369
Single Family Housing	233117	2.5140	21.4833	9.1419	0.1371		1.7370	1.7370		1.7370	1.7370		27,425.5388	27,425.5388	0.5257	0.5028	27,588.5151
Total		2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977

Panhandle Baseline Operational - Sacramento County, Winter

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1.75682	0.0190	0.1722	0.1447	1.0300e-003		0.0131	0.0131		0.0131	0.0131		206.6843	206.6843	3.9600e-003	3.7900e-003	207.9125
Junior High School	13.8343	0.1492	1.3563	1.1393	8.1400e-003		0.1031	0.1031		0.1031	0.1031		1,627.5614	1,627.5614	0.0312	0.0298	1,637.2332
Regional Shopping Center	1.50944	0.0163	0.1480	0.1243	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.5816	177.5816	3.4000e-003	3.2600e-003	178.6369
Single Family Housing	233.117	2.5140	21.4833	9.1419	0.1371		1.7370	1.7370		1.7370	1.7370		27,425.5388	27,425.5388	0.5257	0.5028	27,588.5151
Total		2.6984	23.1599	10.5501	0.1472		1.8644	1.8644		1.8644	1.8644		29,437.3661	29,437.3661	0.5642	0.5397	29,612.2977

6.0 Area Detail

6.1 Mitigation Measures Area

Panhandle Baseline Operational - Sacramento County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589
Unmitigated	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	17.6157					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	112.6991					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.5706	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182		395.9062	395.9062	0.3781		405.3589
Total	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589

Panhandle Baseline Operational - Sacramento County, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	17.6157					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	112.6991					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.5706	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182		395.9062	395.9062	0.3781		405.3589
Total	136.8854	2.5261	219.0332	0.0116		1.2182	1.2182		1.2182	1.2182	0.0000	395.9062	395.9062	0.3781	0.0000	405.3589

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Panhandle Baseline Operational - Sacramento County, Winter

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Panhandle TS Adjusted Operational - Sacramento County, Annual

**Panhandle TS Adjusted Operational
Sacramento County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
Junior High School	2,800.00	Student	7.56	329,172.71	0
City Park	57.80	Acre	57.80	2,517,768.00	0
Single Family Housing	2,660.00	Dwelling Unit	397.70	4,788,000.00	7102
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Panhandle TS Adjusted Operational - Sacramento County, Annual

Project Characteristics - Operational year 2036

Land Use - Land uses match project description and traffic study.

Construction Phase - Operational only

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Trip lengths match VMT calculated in traffic study.

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use - No Title 24 adjustment

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Panhandle TS Adjusted Operational - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	550.00	50.00
tblConstructionPhase	NumDays	7,750.00	50.00
tblConstructionPhase	NumDays	775.00	50.00
tblConstructionPhase	NumDays	550.00	50.00
tblConstructionPhase	NumDays	300.00	50.00
tblGrading	AcresOfGrading	125.00	1,937.50
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	863.64	397.70
tblLandUse	LotAcreage	2.33	9.70
tblProjectCharacteristics	OperationalYear	2018	2035
tblVehicleTrips	CC_TL	5.00	3.03
tblVehicleTrips	CC_TL	5.00	4.00
tblVehicleTrips	CNW_TL	6.50	4.01
tblVehicleTrips	CNW_TL	6.50	4.02
tblVehicleTrips	CNW_TL	6.50	4.00
tblVehicleTrips	CW_TL	10.00	4.00
tblVehicleTrips	CW_TL	10.00	4.00
tblVehicleTrips	CW_TL	10.00	5.26
tblVehicleTrips	HO_TL	6.50	4.00
tblVehicleTrips	HS_TL	5.00	4.00
tblVehicleTrips	HW_TL	10.00	5.80

2.0 Emissions Summary

Panhandle TS Adjusted Operational - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-16-2020	6-15-2020	1.6016	1.6016
2	6-16-2020	9-15-2020	2.9330	2.9330
3	9-16-2020	12-15-2020	1.4397	1.4397
4	12-16-2020	3-15-2021	32.2795	32.2795
		Highest	32.2795	32.2795

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	12,392.9046	12,392.9046	0.4628	0.1658	12,453.8765
Mobile	4.1395	21.7217	39.3213	0.1720	19.3225	0.0922	19.4147	5.1735	0.0856	5.2591	0.0000	15,935.1982	15,935.1982	0.6437	0.0000	15,951.2904
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	442.4240	509.2259	0.2517	0.1498	560.1486
Total	29.2358	26.2641	68.6259	0.2003	19.3225	0.5847	19.9072	5.1735	0.5781	5.7516	730.6392	28,815.4219	29,546.0611	40.6327	0.3156	30,655.9112

Panhandle TS Adjusted Operational - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	12,392.9046	12,392.9046	0.4628	0.1658	12,453.8765
Mobile	4.1395	21.7217	39.3213	0.1720	19.3225	0.0922	19.4147	5.1735	0.0856	5.2591	0.0000	15,935.1982	15,935.1982	0.6437	0.0000	15,951.2904
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	442.4240	509.2259	0.2517	0.1498	560.1486
Total	29.2358	26.2641	68.6259	0.2003	19.3225	0.5847	19.9072	5.1735	0.5781	5.7516	730.6392	28,815.4219	29,546.0611	40.6327	0.3156	30,655.9112

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Panhandle TS Adjusted Operational - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/16/2020	5/22/2020	5	50	
2	Grading	Grading	5/23/2020	7/31/2020	5	50	
3	Building Construction	Building Construction	8/1/2020	10/9/2020	5	50	
4	Paving	Paving	10/10/2020	12/18/2020	5	50	
5	Architectural Coating	Architectural Coating	12/19/2020	2/26/2021	5	50	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1937.5

Acres of Paving: 0

Residential Indoor: 9,695,700; Residential Outdoor: 3,231,900; Non-Residential Indoor: 708,377; Non-Residential Outdoor: 236,126; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Panhandle TS Adjusted Operational - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	2,203.00	774.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	441.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Panhandle TS Adjusted Operational - Sacramento County, Annual

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4517	0.0000	0.4517	0.2483	0.0000	0.2483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1019	1.0604	0.5378	9.5000e-004		0.0549	0.0549		0.0505	0.0505	0.0000	83.5767	83.5767	0.0270	0.0000	84.2525
Total	0.1019	1.0604	0.5378	9.5000e-004	0.4517	0.0549	0.5066	0.2483	0.0505	0.2988	0.0000	83.5767	83.5767	0.0270	0.0000	84.2525

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304
Total	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304

Panhandle TS Adjusted Operational - Sacramento County, Annual

3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4517	0.0000	0.4517	0.2483	0.0000	0.2483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1019	1.0604	0.5378	9.5000e-004		0.0549	0.0549		0.0505	0.0505	0.0000	83.5766	83.5766	0.0270	0.0000	84.2524
Total	0.1019	1.0604	0.5378	9.5000e-004	0.4517	0.0549	0.5066	0.2483	0.0505	0.2988	0.0000	83.5766	83.5766	0.0270	0.0000	84.2524

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304
Total	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304

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3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1779	0.0000	1.1779	0.1937	0.0000	0.1937	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1113	1.2549	0.7990	1.5500e-003		0.0544	0.0544		0.0500	0.0500	0.0000	136.2107	136.2107	0.0441	0.0000	137.3121
Total	0.1113	1.2549	0.7990	1.5500e-003	1.1779	0.0544	1.2323	0.1937	0.0500	0.2437	0.0000	136.2107	136.2107	0.0441	0.0000	137.3121

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560
Total	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560

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3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1779	0.0000	1.1779	0.1937	0.0000	0.1937	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1113	1.2549	0.7990	1.5500e-003		0.0544	0.0544		0.0500	0.0500	0.0000	136.2106	136.2106	0.0441	0.0000	137.3119
Total	0.1113	1.2549	0.7990	1.5500e-003	1.1779	0.0544	1.2323	0.1937	0.0500	0.2437	0.0000	136.2106	136.2106	0.0441	0.0000	137.3119

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560
Total	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560

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3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9025	57.9025	0.0141	0.0000	58.2557
Total	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9025	57.9025	0.0141	0.0000	58.2557

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0741	2.1700	0.6052	4.7700e-003	0.1132	0.0112	0.1244	0.0327	0.0107	0.0434	0.0000	457.8469	457.8469	0.0271	0.0000	458.5246
Worker	0.2050	0.1390	1.5245	3.9700e-003	0.4045	2.9100e-003	0.4074	0.1076	2.6800e-003	0.1103	0.0000	358.3928	358.3928	0.0101	0.0000	358.6462
Total	0.2791	2.3090	2.1297	8.7400e-003	0.5176	0.0141	0.5318	0.1403	0.0134	0.1537	0.0000	816.2397	816.2397	0.0372	0.0000	817.1708

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3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9024	57.9024	0.0141	0.0000	58.2556
Total	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9024	57.9024	0.0141	0.0000	58.2556

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0741	2.1700	0.6052	4.7700e-003	0.1132	0.0112	0.1244	0.0327	0.0107	0.0434	0.0000	457.8469	457.8469	0.0271	0.0000	458.5246
Worker	0.2050	0.1390	1.5245	3.9700e-003	0.4045	2.9100e-003	0.4074	0.1076	2.6800e-003	0.1103	0.0000	358.3928	358.3928	0.0101	0.0000	358.6462
Total	0.2791	2.3090	2.1297	8.7400e-003	0.5176	0.0141	0.5318	0.1403	0.0134	0.1537	0.0000	816.2397	816.2397	0.0372	0.0000	817.1708

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3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0706	50.0706	0.0162	0.0000	50.4754
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0706	50.0706	0.0162	0.0000	50.4754

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420
Total	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420

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3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0705	50.0705	0.0162	0.0000	50.4753
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0705	50.0705	0.0162	0.0000	50.4753

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420
Total	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420

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3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.7868					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512
Total	5.7878	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230
Total	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230

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3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.7868					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512
Total	5.7878	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230
Total	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230

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3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	26.3619					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4900e-003	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2432
Total	26.3663	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2432

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640
Total	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640

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3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	26.3619					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4900e-003	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2431
Total	26.3663	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2431

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640
Total	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.1395	21.7217	39.3213	0.1720	19.3225	0.0922	19.4147	5.1735	0.0856	5.2591	0.0000	15,935.1982	15,935.1982	0.6437	0.0000	15,951.2904
Unmitigated	4.1395	21.7217	39.3213	0.1720	19.3225	0.0922	19.4147	5.1735	0.0856	5.2591	0.0000	15,935.1982	15,935.1982	0.6437	0.0000	15,951.2904

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	109.24	1,314.95	967.57	380,606	380,606
Elementary School	645.00	0.00	0.00	466,658	466,658
Junior High School	4,536.00	0.00	0.00	7,131,752	7,131,752
Regional Shopping Center	4,324.66	5,060.96	2556.31	4,646,474	4,646,474
Single Family Housing	25,323.20	26,360.60	22929.20	39,294,462	39,294,462
Total	34,938.10	32,736.51	26,453.08	51,919,951	51,919,951

4.3 Trip Type Information

Panhandle TS Adjusted Operational - Sacramento County, Annual

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	4.00	3.03	4.01	33.00	48.00	19.00	66	28	6
Elementary School	4.00	4.00	4.02	65.00	30.00	5.00	63	25	12
Junior High School	10.00	5.00	6.50	72.80	22.20	5.00	63	25	12
Regional Shopping Center	5.26	5.00	4.00	16.30	64.70	19.00	54	35	11
Single Family Housing	5.80	4.00	4.00	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Junior High School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Panhandle TS Adjusted Operational - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000	7,519.2185	7,519.2185	0.3694	0.0764	7,551.2285
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000	7,519.2185	7,519.2185	0.3694	0.0764	7,551.2285
NaturalGas Mitigated	0.4925	4.2267	1.9254	0.0269			0.3403	0.3403		0.3403	0.3403	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480
NaturalGas Unmitigated	0.4925	4.2267	1.9254	0.0269			0.3403	0.3403		0.3403	0.3403	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

Panhandle TS Adjusted Operational - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Junior High School	5.04951e+006	0.0272	0.2475	0.2079	1.4900e-003		0.0188	0.0188		0.0188	0.0188	0.0000	269.4611	269.4611	5.1600e-003	4.9400e-003	271.0623
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	8.50877e+007	0.4588	3.9207	1.6684	0.0250		0.3170	0.3170		0.3170	0.3170	0.0000	4,540.6055	4,540.6055	0.0870	0.0832	4,567.5881
Total		0.4925	4.2267	1.9254	0.0269		0.3402	0.3402		0.3402	0.3402	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

Panhandle TS Adjusted Operational - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Junior High School	5.04951e+006	0.0272	0.2475	0.2079	1.4900e-003		0.0188	0.0188		0.0188	0.0188	0.0000	269.4611	269.4611	5.1600e-003	4.9400e-003	271.0623
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	8.50877e+007	0.4588	3.9207	1.6684	0.0250		0.3170	0.3170		0.3170	0.3170	0.0000	4,540.6055	4,540.6055	0.0870	0.0832	4,567.5881
Total		0.4925	4.2267	1.9254	0.0269		0.3402	0.3402		0.3402	0.3402	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Junior High School	2.47209e+006	661.9263	0.0325	6.7300e-003	664.7442
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	2.40948e+007	6,451.6153	0.3170	0.0656	6,479.0804
Total		7,519.2185	0.3694	0.0764	7,551.2285

Panhandle TS Adjusted Operational - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Junior High School	2.47209e+006	661.9263	0.0325	6.7300e-003	664.7442
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	2.40948e+007	6,451.6153	0.3170	0.0656	6,479.0804
Total		7,519.2185	0.3694	0.0764	7,551.2285

6.0 Area Detail

6.1 Mitigation Measures Area

Panhandle TS Adjusted Operational - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Unmitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

Panhandle TS Adjusted Operational - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

7.0 Water Detail

7.1 Mitigation Measures Water

Panhandle TS Adjusted Operational - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	509.2259	0.2517	0.1498	560.1486
Unmitigated	509.2259	0.2517	0.1498	560.1486

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	64.5400	3.1700e-003	6.6000e-004	64.8148
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Junior High School	6.78787 / 17.4545	27.8152	9.5100e-003	5.4800e-003	29.6864
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	173.31 / 109.26	394.9315	0.2274	0.1367	441.3647
Total		509.2259	0.2517	0.1498	560.1486

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	64.5400	3.1700e-003	6.6000e-004	64.8148
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Junior High School	6.78787 / 17.4545	27.8152	9.5100e-003	5.4800e-003	29.6864
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	173.31 / 109.26	394.9315	0.2274	0.1367	441.3647
Total		509.2259	0.2517	0.1498	560.1486

8.0 Waste Detail

8.1 Mitigation Measures Waste

Panhandle TS Adjusted Operational - Sacramento County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	663.8373	39.2317	0.0000	1,644.6288
Unmitigated	663.8373	39.2317	0.0000	1,644.6288

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

Panhandle TS Adjusted Operational - Sacramento County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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Panhandle TS Adjusted Operational - Sacramento County, Annual

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

**Panhandle TS Title 24 Adjusted Operational
Sacramento County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
Junior High School	2,800.00	Student	7.56	329,172.71	0
City Park	57.80	Acre	57.80	2,517,768.00	0
Single Family Housing	2,660.00	Dwelling Unit	397.70	4,788,000.00	7102
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

Project Characteristics - Operational year 2036

Land Use - Land uses match project description and traffic study.

Construction Phase - Operational only

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Trip lengths match VMT calculated in traffic study.

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use - Adjustments made for 2016 Title 24 standards. 28% reduction for residential, 5% reduction for non-residential. natural gas usage allowed in residential units.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	550.00	50.00
tblConstructionPhase	NumDays	7,750.00	50.00
tblConstructionPhase	NumDays	775.00	50.00
tblConstructionPhase	NumDays	550.00	50.00
tblConstructionPhase	NumDays	300.00	50.00
tblEnergyUse	T24E	2.15	2.04
tblEnergyUse	T24E	2.15	2.04
tblEnergyUse	T24E	3.41	3.24
tblEnergyUse	T24E	768.93	553.63
tblEnergyUse	T24NG	14.68	13.95

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tblEnergyUse	T24NG	14.68	13.95
tblEnergyUse	T24NG	4.51	4.28
tblEnergyUse	T24NG	29,300.87	21,096.62
tblGrading	AcresOfGrading	125.00	1,937.50
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	863.64	397.70
tblLandUse	LotAcreage	2.33	9.70
tblProjectCharacteristics	OperationalYear	2018	2035
tblVehicleTrips	CC_TL	5.00	3.03
tblVehicleTrips	CC_TL	5.00	4.00
tblVehicleTrips	CNW_TL	6.50	4.01
tblVehicleTrips	CNW_TL	6.50	4.02
tblVehicleTrips	CNW_TL	6.50	4.00
tblVehicleTrips	CW_TL	10.00	4.00
tblVehicleTrips	CW_TL	10.00	4.00
tblVehicleTrips	CW_TL	10.00	5.26
tblVehicleTrips	HO_TL	6.50	4.00
tblVehicleTrips	HS_TL	5.00	4.00
tblVehicleTrips	HW_TL	10.00	5.80

2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-16-2020	6-15-2020	1.6016	1.6016
2	6-16-2020	9-15-2020	2.9330	2.9330
3	9-16-2020	12-15-2020	1.4397	1.4397
4	12-16-2020	3-15-2021	32.2795	32.2795
		Highest	32.2795	32.2795

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.3732	3.2067	1.4854	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	11,043.7531	11,043.7531	0.4319	0.1424	11,096.9923
Mobile	4.1395	21.7217	39.3213	0.1720	19.3225	0.0922	19.4147	5.1735	0.0856	5.2591	0.0000	15,935.1982	15,935.1982	0.6437	0.0000	15,951.2904
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	442.4240	509.2259	0.2517	0.1498	560.1486
Total	29.1165	25.2441	68.1858	0.1938	19.3225	0.5023	19.8248	5.1735	0.4957	5.6692	730.6392	27,466.2704	28,196.9096	40.6018	0.2922	29,299.0270

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.3732	3.2067	1.4854	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	11,043.7531	11,043.7531	0.4319	0.1424	11,096.9923
Mobile	4.0402	21.2361	37.0239	0.1595	17.7418	0.0863	17.8281	4.7503	0.0801	4.8304	0.0000	14,778.1855	14,778.1855	0.6095	0.0000	14,793.4217
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	442.4240	509.2259	0.2517	0.1498	560.1486
Total	29.0172	24.7585	65.8884	0.1813	17.7418	0.4964	18.2382	4.7503	0.4903	5.2405	730.6392	26,309.2577	27,039.8969	40.5675	0.2922	28,141.1583

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.34	1.92	3.37	6.45	8.18	1.17	8.00	8.18	1.10	7.56	0.00	4.21	4.10	0.08	0.00	3.95

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/16/2020	5/22/2020	5	50	
2	Grading	Grading	5/23/2020	7/31/2020	5	50	
3	Building Construction	Building Construction	8/1/2020	10/9/2020	5	50	
4	Paving	Paving	10/10/2020	12/18/2020	5	50	
5	Architectural Coating	Architectural Coating	12/19/2020	2/26/2021	5	50	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1937.5

Acres of Paving: 0

Residential Indoor: 9,695,700; Residential Outdoor: 3,231,900; Non-Residential Indoor: 708,377; Non-Residential Outdoor: 236,126; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	2,203.00	774.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	441.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4517	0.0000	0.4517	0.2483	0.0000	0.2483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1019	1.0604	0.5378	9.5000e-004		0.0549	0.0549		0.0505	0.0505	0.0000	83.5767	83.5767	0.0270	0.0000	84.2525
Total	0.1019	1.0604	0.5378	9.5000e-004	0.4517	0.0549	0.5066	0.2483	0.0505	0.2988	0.0000	83.5767	83.5767	0.0270	0.0000	84.2525

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304
Total	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304

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3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4517	0.0000	0.4517	0.2483	0.0000	0.2483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1019	1.0604	0.5378	9.5000e-004		0.0549	0.0549		0.0505	0.0505	0.0000	83.5766	83.5766	0.0270	0.0000	84.2524
Total	0.1019	1.0604	0.5378	9.5000e-004	0.4517	0.0549	0.5066	0.2483	0.0505	0.2988	0.0000	83.5766	83.5766	0.0270	0.0000	84.2524

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304
Total	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1779	0.0000	1.1779	0.1937	0.0000	0.1937	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1113	1.2549	0.7990	1.5500e-003		0.0544	0.0544		0.0500	0.0500	0.0000	136.2107	136.2107	0.0441	0.0000	137.3121
Total	0.1113	1.2549	0.7990	1.5500e-003	1.1779	0.0544	1.2323	0.1937	0.0500	0.2437	0.0000	136.2107	136.2107	0.0441	0.0000	137.3121

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560
Total	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560

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3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1779	0.0000	1.1779	0.1937	0.0000	0.1937	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1113	1.2549	0.7990	1.5500e-003		0.0544	0.0544		0.0500	0.0500	0.0000	136.2106	136.2106	0.0441	0.0000	137.3119
Total	0.1113	1.2549	0.7990	1.5500e-003	1.1779	0.0544	1.2323	0.1937	0.0500	0.2437	0.0000	136.2106	136.2106	0.0441	0.0000	137.3119

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560
Total	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560

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3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9025	57.9025	0.0141	0.0000	58.2557
Total	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9025	57.9025	0.0141	0.0000	58.2557

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0741	2.1700	0.6052	4.7700e-003	0.1132	0.0112	0.1244	0.0327	0.0107	0.0434	0.0000	457.8469	457.8469	0.0271	0.0000	458.5246
Worker	0.2050	0.1390	1.5245	3.9700e-003	0.4045	2.9100e-003	0.4074	0.1076	2.6800e-003	0.1103	0.0000	358.3928	358.3928	0.0101	0.0000	358.6462
Total	0.2791	2.3090	2.1297	8.7400e-003	0.5176	0.0141	0.5318	0.1403	0.0134	0.1537	0.0000	816.2397	816.2397	0.0372	0.0000	817.1708

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3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9024	57.9024	0.0141	0.0000	58.2556
Total	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9024	57.9024	0.0141	0.0000	58.2556

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0741	2.1700	0.6052	4.7700e-003	0.1132	0.0112	0.1244	0.0327	0.0107	0.0434	0.0000	457.8469	457.8469	0.0271	0.0000	458.5246
Worker	0.2050	0.1390	1.5245	3.9700e-003	0.4045	2.9100e-003	0.4074	0.1076	2.6800e-003	0.1103	0.0000	358.3928	358.3928	0.0101	0.0000	358.6462
Total	0.2791	2.3090	2.1297	8.7400e-003	0.5176	0.0141	0.5318	0.1403	0.0134	0.1537	0.0000	816.2397	816.2397	0.0372	0.0000	817.1708

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3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0706	50.0706	0.0162	0.0000	50.4754
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0706	50.0706	0.0162	0.0000	50.4754

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420
Total	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420

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3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0705	50.0705	0.0162	0.0000	50.4753
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0705	50.0705	0.0162	0.0000	50.4753

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420
Total	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420

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3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.7868					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512
Total	5.7878	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230
Total	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230

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3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.7868					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512
Total	5.7878	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230
Total	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230

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3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	26.3619					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4900e-003	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2432
Total	26.3663	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2432

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640
Total	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640

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3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	26.3619					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4900e-003	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2431
Total	26.3663	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2431

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640
Total	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0402	21.2361	37.0239	0.1595	17.7418	0.0863	17.8281	4.7503	0.0801	4.8304	0.0000	14,778.1855	14,778.1855	0.6095	0.0000	14,793.4217
Unmitigated	4.1395	21.7217	39.3213	0.1720	19.3225	0.0922	19.4147	5.1735	0.0856	5.2591	0.0000	15,935.1982	15,935.1982	0.6437	0.0000	15,951.2904

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	109.24	1,314.95	967.57	380,606	346,823
Elementary School	645.00	0.00	0.00	466,658	421,430
Junior High School	4,536.00	0.00	0.00	7,131,752	6,436,003
Regional Shopping Center	4,324.66	5,060.96	2556.31	4,646,474	4,220,593
Single Family Housing	25,323.20	26,360.60	22929.20	39,294,462	36,247,526
Total	34,938.10	32,736.51	26,453.08	51,919,951	47,672,375

4.3 Trip Type Information

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Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	4.00	3.03	4.01	33.00	48.00	19.00	66	28	6
Elementary School	4.00	4.00	4.02	65.00	30.00	5.00	63	25	12
Junior High School	10.00	5.00	6.50	72.80	22.20	5.00	63	25	12
Regional Shopping Center	5.26	5.00	4.00	16.30	64.70	19.00	54	35	11
Single Family Housing	5.80	4.00	4.00	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Junior High School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000	7,350.3363	7,350.3363	0.3611	0.0747	7,381.6273
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000	7,350.3363	7,350.3363	0.3611	0.0747	7,381.6273
NaturalGas Mitigated	0.3732	3.2067	1.4854	0.0204			0.2579	0.2579		0.2579	0.0000	3,693.4169	3,693.4169	0.0708	0.0677	3,715.3650
NaturalGas Unmitigated	0.3732	3.2067	1.4854	0.0204			0.2579	0.2579		0.2579	0.0000	3,693.4169	3,693.4169	0.0708	0.0677	3,715.3650

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	610723	3.2900e-003	0.0299	0.0252	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.5905	32.5905	6.2000e-004	6.0000e-004	32.7842
Junior High School	4.80921e+006	0.0259	0.2358	0.1980	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	256.6379	256.6379	4.9200e-003	4.7100e-003	258.1630
Regional Shopping Center	527653	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1576	28.1576	5.4000e-004	5.2000e-004	28.3249
Single Family Housing	6.32644e+007	0.3411	2.9151	1.2405	0.0186		0.2357	0.2357		0.2357	0.2357	0.0000	3,376.0309	3,376.0309	0.0647	0.0619	3,396.0929
Total		0.3732	3.2067	1.4854	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	3,693.4169	3,693.4169	0.0708	0.0677	3,715.3650

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	610723	3.2900e-003	0.0299	0.0252	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.5905	32.5905	6.2000e-004	6.0000e-004	32.7842
Junior High School	4.80921e+006	0.0259	0.2358	0.1980	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	256.6379	256.6379	4.9200e-003	4.7100e-003	258.1630
Regional Shopping Center	527653	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1576	28.1576	5.4000e-004	5.2000e-004	28.3249
Single Family Housing	6.32644e+007	0.3411	2.9151	1.2405	0.0186		0.2357	0.2357		0.2357	0.2357	0.0000	3,376.0309	3,376.0309	0.0647	0.0619	3,396.0929
Total		0.3732	3.2067	1.4854	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	3,693.4169	3,693.4169	0.0708	0.0677	3,715.3650

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	309333	82.8269	4.0700e-003	8.4000e-004	83.1795
Junior High School	2.43588e+006	652.2310	0.0320	6.6300e-003	655.0076
Regional Shopping Center	1.18393e+006	317.0087	0.0156	3.2200e-003	318.3583
Single Family Housing	2.35221e+007	6,298.2696	0.3094	0.0640	6,325.0819
Total		7,350.3363	0.3611	0.0747	7,381.6273

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	309333	82.8269	4.0700e-003	8.4000e-004	83.1795
Junior High School	2.43588e+006	652.2310	0.0320	6.6300e-003	655.0076
Regional Shopping Center	1.18393e+006	317.0087	0.0156	3.2200e-003	318.3583
Single Family Housing	2.35221e+007	6,298.2696	0.3094	0.0640	6,325.0819
Total		7,350.3363	0.3611	0.0747	7,381.6273

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Unmitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	509.2259	0.2517	0.1498	560.1486
Unmitigated	509.2259	0.2517	0.1498	560.1486

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	64.5400	3.1700e-003	6.6000e-004	64.8148
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Junior High School	6.78787 / 17.4545	27.8152	9.5100e-003	5.4800e-003	29.6864
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	173.31 / 109.26	394.9315	0.2274	0.1367	441.3647
Total		509.2259	0.2517	0.1498	560.1486

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	64.5400	3.1700e-003	6.6000e-004	64.8148
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Junior High School	6.78787 / 17.4545	27.8152	9.5100e-003	5.4800e-003	29.6864
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	173.31 / 109.26	394.9315	0.2274	0.1367	441.3647
Total		509.2259	0.2517	0.1498	560.1486

8.0 Waste Detail**8.1 Mitigation Measures Waste**

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Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	663.8373	39.2317	0.0000	1,644.6288
Unmitigated	663.8373	39.2317	0.0000	1,644.6288

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

ComplaintNo	DateRecd	AssignedTo	SourceName	Street	City	TypeComplaint	Description
4026	11/11/1999	TR	JOHN TAYLOR FERTIZERS	841 W ELKHORN BL	RIO LINDA	EXHAUST	(LIQUID ANHYDROUS AMMONIA) THE LIQUID LINE IN DOME AREA HAD CRACK AT BASED OF VALVE ON A RAILROAD TANK CAR. VAPOR ESCAPED TO ATMOSPHERE (7500 CU.FT.). GOVERNOR'S OFFICE OF EMERGENCY SERVICES, CONTROL #99-4814.
4034	11/23/1999	BT	JOHN TAYLOR FERTILIZER PLANT	841 W ELKHORN BL	RIO LINDA	ODOR SOLVENT	FUMES FROM PLANT ARE VERY STRONG IN THE AIR, IT IS MAKING PEOPLE COMPLAINT (COMPLAIN): FUMES FROM PLANT ARE VERY STRONG IN THE AIR, IT MAKING PEOPLE SICK. CUBS COMPLAINT #99024005.
5428	8/26/2003	RVS	TAYLOR'S FERTILIZING	841 ELKHORN BL	RIO LINDA	ODOR SOLVENT	WHEN THE DELTA WINDS BLOW COMPLAINANT NOTICES A PUTRID, ROTTEN EGG TYPE SMELL THAT (THEY) BELIEVE IS GIVING PEOPLE IN HOUSEHOLD HEADACHES. COMPLAINANT THINKS IT'S SULFER DIOXIDE THAT (THEY) ARE SMELLING.
11935	9/29/2015	HJR	WILBUR ELLIS	841 W. ELKHORN BLVD	RIO LINDA	SMOKE	COMPANY RELEASES A WHITE THICK CLOUD OF SMOKE AND HAS A BURNING SMELL

SMAQMD - ASBESTOS PROJECT UPDATES

Project No: 7179 Enter by: MN
 Postmark: 7/27/2010 Date Entered: 7/30/2010
 Zone Number: 1 Ref Project No: Box #: 0

Plan Type DEMO

1. Contractor: 1051

3. Structure: HOT RODS

Address: 2007 K STREET

City / Zip: SACRAMENTO 95811-

Phone: (916) 880-0823

Site Sup: MIB ENTERPRISES

Contact: MIB ENTERPRISES INC

Email Address: DSVENTURES@MSN.COM

2. Owner: 2514

MARJORIE IRENE BRUCE

3. Structure: RESTAURANT

Address: 2007 K STREET

City / Zip: SACRAMENTO CA 95811-

Phone: (916) 752-8354

4. Structure: RESTAURANT

Use: RESTAURANT

Work Loc: RESTAURANT

X-Coord: 0 Y-Coord: 0

5. RACM Removal

Start: 8/12/2010 Finish: 9/9/2010

Weekday Hrs: Weekend Hrs:

Lineal Ft: 0 Sq Ft: 0 Cubic Ft: 0

Amounts: Cat I: 0 Cat II: 0

Materials:

Check if Canceled:

Cancellation Descriptor: older projects

Plan Type RENO

1. Contractor: 740

3. Structure: SOUTHGATE APARTMENTS

Address: 7002 EAST PARKWAY # 5 & 7

City / Zip: SACRAMENTO 95823-

Phone: (916) 212-2962

Site Sup: LOOMIS CA 95650

Contact: (530) 893-8228

Survey: 0 Zone Number: 6 Ref Project No: 40126700

NOTICENO	NAME	STREET	DESCRIPTION	ISSUEDDT	RESOLVEDDT	AUTH
C003621	JOHN TAYLOR FERTILIZER	841 ELKHORN BLVD	FT PERFORM STATIC LEAK AND DYNAMIC BCAF PRESSURE TESTS	10/5/2000	10/25/2000	TR
N000047	JOHN TAYLOR FERTILIZERS	841 ELKHORN BLVD	FAILURE TO M/T, NOTIFY OF BREAKDOWN	2/6/1991	2/6/1991	

SACRAMENTO METROPOLITAN



AIR QUALITY
MANAGEMENT DISTRICT

PERMIT TO OPERATE


ISSUED TO: **SYAR CONCRETE, LLC**

EQUIPMENT LOCATION: 830 W. ELKHORN BLVD., RIO LINDA, CA 95673

PERMIT NO.	EQUIPMENT DESCRIPTION
22235	CONCRETE BATCH PLANT CONSISTING OF: A. AGGREGATE BIN STORAGE: 5 COMPARTMENTS HOLDING 410 TONS B. AGGREGATE HOPPER STORAGE: 14 TONS C. AGGREGATE WEIGH HOPPER: 6 CUBIC YARDS D. AGGREGATE CONVEYOR BELT: 25 HP E. SILO-CEMENT, 90 TON CAPACITY WITH A BAGHOUSE (REESE BLOW PIPE CO), 24 BAGS, 125 SQ. FT. OF FILTER CLOTH AREA F. SILO-FLY ASH, 90 TON CAPACITY WITH A BAGHOUSE, 220 SQ. FT. OF FILTER CLOTH AREA G. CEMENT WEIGH HOPPER: 6 CUBIC YARDS H. BLOWER PNEUMATIC CONVEYANCE SYSTEM: 15 HP I. 2 SCREW CONVEYORS: 15 HP EACH J. 3 STORAGE TANKS: 500 GALLONS & 0.5 HP EACH K. SLAG SILO - 125 TON CAPACITY - 40' HIGH X 12' DIAMETER L. SILO DUST COLLECTOR - MAKE/MODEL: C&W ROUND SILO DUST COLLECTOR MODEL LPR-8-S M. BAGHOUSE - MAKE/MODEL: SAUNCO BAG HOUSE MODEL 30BV250 - CLOTH AREA: 250 SQUARE FEET - NUMBER OF BAGS: 30

DATE ISSUED: 11-05-2009
DATE EXPIRES: 09-11-2010 (UNLESS RENEWED)

LARRY GREENE
AIR POLLUTION CONTROL OFFICER

BY: 

**SACRAMENTO METROPOLITAN
AIR QUALITY MANAGEMENT DISTRICT**

SUBJECT TO THE FOLLOWING CONDITIONS:

GENERAL

1. THE EQUIPMENT SHALL BE PROPERLY MAINTAINED.
2. THE AIR POLLUTION CONTROL OFFICER AND/OR AUTHORIZED REPRESENTATIVES, UPON THE PRESENTATION OF CREDENTIALS, SHALL BE PERMITTED:
 - A. TO ENTER UPON THE PREMISES WHERE THE SOURCE IS LOCATED OR IN WHICH ANY RECORDS ARE REQUIRED TO BE KEPT UNDER THE TERMS AND CONDITIONS OF THIS PERMIT TO OPERATE, AND
 - B. AT REASONABLE TIMES TO HAVE ACCESS TO AND COPY ANY RECORDS REQUIRED TO BE KEPT UNDER THE TERMS AND CONDITIONS OF THIS PERMIT TO OPERATE, AND
 - C. TO INSPECT ANY EQUIPMENT, OPERATION, OR METHOD REQUIRED IN THIS PERMIT TO OPERATE, AND
 - D. TO SAMPLE EMISSIONS FROM THE SOURCE OR REQUIRE SAMPLES TO BE TAKEN.
3. THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26, PART 4, CHAPTER 3, OF THE CALIFORNIA HEALTH AND SAFETY CODE OR THE RULES AND REGULATIONS OF THE AIR QUALITY MANAGEMENT DISTRICT.
4. A LEGIBLE COPY OF THIS PERMIT SHALL BE MAINTAINED ON THE PREMISES WITH THE EQUIPMENT.

EMISSIONS LIMITATIONS

5. THE EQUIPMENT SHALL NOT DISCHARGE INTO THE ATMOSPHERE ANY VISIBLE AIR CONTAMINANT OTHER THAN UNCOMBINED WATER VAPOR, FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR, WHICH IS AS DARK OR DARKER THAN RINGELMANN NO. 1 OR 20% OPACITY OR GREATER.
6. THE EMISSIONS FROM THE CONCRETE BATCH PLANT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	MAXIMUM ALLOWABLE EMISSIONS (A) (B) LBS/QUARTER
PM10	2,439

(A) EMISSIONS ARE BASED ON AP-42-11.12-2 (10/01)

(B) EMISSIONS ARE BASED ON 276,000 CY/QTR OF PRODUCTION

PROCESS OPERATION

7. THE FILTER BAGS IN THE CEMENT SILO BAGHOUSES SHALL BE THOROUGHLY CLEANED AFTER CEMENT IS BLOWN INTO THE SILOS TO ENSURE ADEQUATE DUST COLLECTION FOR THE SUBSEQUENT LOADS OR THE BAGHOUSES SHALL BE EQUIPPED WITH AN AUTOMATIC FILTER BAG CLEANING SYSTEM.
8. THE AIR POLLUTION CONTROL EQUIPMENT (SILO BAGHOUSE) SHALL OPERATE WHENEVER THE PLANT IS IN OPERATION.
9. SAND AND AGGREGATE MUST BE KEPT SUFFICIENTLY MOISTENED TO PREVENT THE DISCHARGE OF ANY VISIBLE AIR CONTAMINANTS EXCEEDING THE VISIBLE EMISSION LIMITS OF CONDITION 5.
10. ACCESS ROADS, YARDS AND STOCKPILES IN THE GENERAL AREA OF THIS EQUIPMENT SHALL BE WATERED OR OTHERWISE TREATED TO PREVENT FUGITIVE DUST GENERATED BY PLANT ACTIVITIES FROM BEING AIRBORNE BEYOND THE PROPERTY LINE FROM WHICH THE EMISSION ORIGINATES.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

11. CONCRETE PRODUCTION SHALL NOT EXCEED THE FOLLOWING LIMITS:

EQUIPMENT	MAXIMUM ALLOWABLE CEMENT PRODUCTION CUBIC YARDS/QUARTER
CONCRETE PLANT (P/O 22235)	276,000

RECORDKEEPING

12. THE FOLLOWING RECORD SHALL BE CONTINUOUSLY MAINTAINED ONSITE FOR THE MOST RECENT THREE YEAR PERIOD AND SHALL BE MADE AVAILABLE TO THE AIR POLLUTION CONTROL OFFICER UPON REQUEST. QUARTERLY RECORDS SHALL BE MADE AVAILABLE WITHIN 30 DAYS FOLLOWING THE END OF THE QUARTER.

FREQUENCY	INFORMATION TO BE RECORDED
QUARTERLY	A. TOTAL NUMBER OF CUBIC YARDS OF CONCRETE PRODUCED FROM P/O 22235 (CUBIC YARDS/QUARTER).

YOUR APPLICATION FOR THIS AIR QUALITY PERMIT TO OPERATE WAS EVALUATED FOR COMPLIANCE WITH SACRAMENTO AIR QUALITY MANAGEMENT DISTRICT (AQMD), STATE AND FEDERAL AIR QUALITY RULES. THE FOLLOWING LISTED RULES ARE THOSE THAT ARE MOST APPLICABLE TO THE OPERATION OF YOUR EQUIPMENT. OTHER RULES MAY ALSO BE APPLICABLE.

<u>AQMD RULE NO.</u>	<u>RULE TITLE</u>
201	GENERAL PERMIT REQUIREMENTS
202	NEW SOURCE REVIEW
301	PERMIT FEES-STATIONARY SOURCE
401	RINGELMANN CHART
402	NUISANCE
403	FUGITIVE DUST
404	PARTICULATE MATTER

IN ADDITION, THE CONDITIONS ON THIS PERMIT TO OPERATE MAY REFLECT SOME, BUT NOT ALL, REQUIREMENTS OF THESE RULES. THERE MAY BE OTHER CONDITIONS THAT ARE APPLICABLE TO THE OPERATION OF YOUR EQUIPMENT. FUTURE CHANGES IN PROHIBITORY RULES MAY ESTABLISH MORE STRINGENT REQUIREMENTS WHICH MAY SUPERSEDE THE CONDITIONS LISTED HERE.

FOR FURTHER INFORMATION PLEASE CONSULT YOUR AQMD RULEBOOK OR CONTACT THE AQMD FOR ASSISTANCE.



AIR QUALITY
MANAGEMENT DISTRICT

PERMIT TO OPERATE

ISSUED TO: **SYAR CONCRETE, LLC**

EQUIPMENT LOCATION: **830 WEST ELKHORN BLVD., RIO LINDA, CA 95673**

PERMIT NO.	EQUIPMENT DESCRIPTION
24561	PORTABLE CRUSHING RIG, POWERED BY A DIESEL FIRED DIRECT DRIVE ENGINE HP RANGE: 300 - 599, TIER 3 OR HIGHER PERMITTED AS PART OF A ROCK CRUSHING OPERATION.

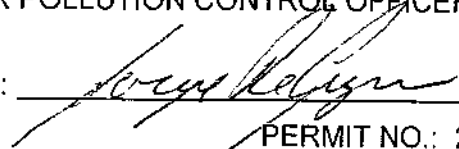
SUBJECT TO THE FOLLOWING CONDITIONS:

GENERAL

1. The permit holder agrees to indemnify and defend SMAQMD, its officers, agents, and employees if this permit or CEQA or NEPA is challenged in state or federal court. This indemnification includes attorney fees awarded against SMAQMD, as well as attorney fees, court costs, legal fees, and other expenses incurred in defending the challenge. The District will provide written notice to the permit holder within 5 days if it receives a petition, complaint or other legal notice by a third party challenging this Permit to Operate or CEQA or NEPA. The permit holder may, within 10 days of notification, request cancellation of the Permit to Operate. If the permit holder requests cancellation, SMAQMD will cancel the permit within 5 days, and will notify the plaintiffs of the cancellation and request dismissal of the litigation.
[Basis: SMAQMD Rule 201, Section 405]
2. The equipment must be properly maintained and operated in accordance with the information submitted with the application and the manufacturer's recommendations at all times.
[Basis: SMAQMD Rule 201, Section 405 and Rule 202, Section 408.1]
3. The Air Pollution Control Officer and/or authorized representatives must be permitted to do all of the following:
 - A. Enter the source premises or any location which any records required by this Permit to Operate are kept.
 - B. Access and copy any records required by this Permit to Operate.
 - C. Inspect or review any equipment, operation, or method required under this Permit to Operate.
 - D. Sample emissions from the source or require samples to be taken.

DATE ISSUED: 01-24-2017
DATE EXPIRES: 09-11-2017 (UNLESS RENEWED)

LARRY GREENE
AIR POLLUTION CONTROL OFFICER

BY: 
PERMIT NO.: 24561

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

[Basis: SMAQMD Rule 201, Section 405]

4. This Permit to Operate does not authorize the emission of air contaminants in excess of those allowed by Division 26, Part 4, Chapter 3, of the California Health and Safety Code or the SMAQMD Rules and Regulations.

[Basis: SMAQMD Rule 201, Sections 303.1, 405]

5. The facility may not discharge air contaminants or other materials that cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

[Basis: SMAQMD Rule 402, Section 301]

6. A legible copy of this Permit to Operate must be maintained on the premises with the equipment.

[Basis: SMAQMD Rule 201, Section 401]

EMISSIONS LIMITATIONS

7. The IC engine, equipment and associated process must not discharge into the atmosphere any visible air contaminant other than uncombined water vapor for a period or periods aggregating more than three minutes in any one hour if the discharge is as dark or darker than Ringelmann No. 1 or is equal to or greater than 20% opacity where not specified.

A. 10% opacity for fugitive emissions from grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility.

B. 15% opacity for fugitive emissions from crushers.

[Basis: SMAQMD Rule 401, Section 301 and 40 CFR 60 Subpart 000 Table 3]

8. The engine, equipment and associated process must meet the following BACT standards:

[Basis: SMAQMD Rule 202, Section 408.2.a]:

A. EPA-certified Tier 3 engine, and

B. An engine that meets the following ATCM standards:

NO_x + VOC: 3.0 g/hp-hr

PM: 0.15 g/hp-hr (based on filterable portion only)

C. Water spray to control PM emissions.

9. The emissions from the IC engine may not exceed the following:

[Basis: SMAQMD Rule 201, Section 405 and Rule 202, Section 408.2]

Pollutant	Emission Factors (A) (g/hp-hr)	Emission Limits (B)		
		lb/day	lb/quarter	lb/year
VOC (C)	1.14	36.1	259	259
NO _x (C)	3.0	95.1	681	681
SO _x	0.005	0.2	1	1

**SACRAMENTO METROPOLITAN
AIR QUALITY MANAGEMENT DISTRICT**

Pollutant	Emission Factors (A) (g/hp-hr)	Emission Limits (B)		
		lb/day	lb/quarter	lb/year
PM10	0.17	5.4	39	39
PM2.5	0.17	5.4	39	39
CO	2.6	82.4	591	591

- (A) Emission factors for VOC and NOx are based on the District's BACT standards (Tier 3 standard). CO emission factor is based on the certified level for a Tier 3 engine. PM10 and PM2.5 emission factors include both the condensable portion and the filterable portion of the particulates. The filterable portion is based on the ATCM standard and the condensable portion is derived using the condensable to filterable fraction, taken from AP-42, Table 3.4-2 (10/96), multiplied by the certification standard $((0.15 \text{ g/hp-hr} + 0.15 \text{ g/hp-hr} \times 0.0077/0.0496)=0.17 \text{ g/hp-hr})$. SOx emission factor is based on AP-42, Table 3.3-1 (10/96) using a fuel sulfur content of 15 ppm.
- (B) Emissions are based on 599 bhp, 24 hours/day, 172 hours/quarter and 172 hours/year of operation and the emission factors in this table.
- (C) The engine is required to comply with the combined NOx + VOC emission standard. For the purpose of calculating NOx and VOC individually, VOC emissions are assessed at the worst case scenario of the uncontrolled AP-42 emission factor of 1.14 g/bhp-hr and NOx emissions are assessed at the worst case limit of 3.0 g/bhp-hr.

Rock Crushing Operation Emissions – Crusher only

The emission factors for the rock crushing operation are based on AP-42 Section 11.19.2 and proposed emission rate which varies by facility location. Emission Factors used are taken as controlled, since water spray will be required.

Category	Quantity	Emission Factor Controlled Lb/ton	Emission Limits (A)		
			Lbs/day	Lbs/qtr	Lbs/year
Truck Transfer/Feeder point	1	4.60E-05	0.6	4.0	4.0
Conveyor Transfer Points	6	4.60E-05	3.3	23.7	23.7
Screening	3	7.40E-04	26.6	190.9	190.9
Crushing	2	5.40E-04	13.0	92.9	92.9
Total			43.5	311.5	311.5

- (A) Emissions are based on 500 tons/hr, 24 hours per day, 172 hours per quarter, and 172 hours per year. Emission are based on Granite Construction Concrete crushing emission assessment for the Bradshaw Facility.

10. The aggregate processing may not be permitted at 830 West Elkhorn Blvd, Rio Linda if the property to the west of the address (Assessor Parcel # 214-0290-039-0000) is occupied.
[SMAQMD Rule 402, Section 301]

EQUIPMENT OPERATION

11. The engine associated and its associated aggregate processing equipment must operate only at the following locations and must not operate for more than the following hours:
[SMAQMD Rule 402, Section 301]

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Location	Maximum Allowable Combined Operation		
	(hours/day)	(hours/quarter)	(hours/year)
830 West Elkhorn Blvd., Rio Linda	24	172	172

12. The IC engine must be equipped with a non-resetting hour meter, with a minimum display capability of 9,999 hours.
[Basis: SMAQMD Rule 201, Section 405]
13. To determine whether the engine complies with opacity requirements, the Air Pollution Control Officer or designee may require the permit holder to operate the IC engine during a SMAQMD inspection. The inspection will be conducted during daylight hours, and the IC engine must be operated at maximum anticipated load and from a cold start condition.
[Basis: SMAQMD Rule 201, Section 405]
14. The IC engine may only be fueled with a CARB-approved diesel fuel or a fuel that meets the CARB requirements in 17 CCR Section 93115.5.
[Basis: SMAQMD Rule 201, Section 405]
15. The exhaust stack of the IC engine must exit vertically and must not be obstructed during engine operation. A flapper-type rain cap is permitted provided it does not impede the vertical exhaust flow. Stack height and diameter must be consistent with any health risk assessment performed.
[Basis: SMAQMD Rule 201, Section 405 and Rule 402, Section 301]
16. The aggregate/concrete processing must use water spray. The water spray must be employed at all transfer points, screening, stock piles and crushing operations when there are visible emissions.
[Basis: SMAQMD Rules 202, Section 408.2.a]

EMISSIONS TESTING

17. An initial 30 minutes (five - 6 minute averages) opacity observation must be performed by EPA Method 9 within 60 days of initial startup for each new piece of equipment operated under this Permit to Operate.
- A. Submit a source test plan to the Air Pollution Control Officer for approval at least 30 days before the test is to be performed.
 - B. Notify the Air Pollution Control Officer at least 7 days prior to the source test date of the exact date and time of test if the date has changed from that approved in the source test plan.
 - C. During source testing, the rock crushing operation must be operated at an operating rate that is as close as physically possible to the rated capacity.
 - D. Submit the source test report to the Air Pollution Control Officer within 60 days from the completion of the test(s).
- [Basis: 40 CFR 60 Subpart OOO, Table 2]**

RECORD KEEPING & REPORTING

SACRAMENTO METROPOLITAN
AIR QUALITY MANAGEMENT DISTRICT

18. The following records must be continuously maintained onsite for the most recent five year period and must be made available to the Air Pollution Control Officer upon request. Daily, quarterly, and annual records must be made available within 30 days of the end of the reporting period.
[Basis: SMAQMD Rule 201, Section 303.1]

Frequency	Information to be Recorded
When Operated	A. Date. B. The type of engines operated (HP and Tier Standard)
Daily	C. Total number of hours of operation for each engine type.
Quarterly	D. Total number of hours of operation for each engine type.
Annually	E. Total number of hours of operation for each engine type.
All Fuel Deliveries	F. Retain fuel purchase records that account for all fuel purchased for use in the engines. Fuel purchase records must include: i. Identification of type of fuel (CARB diesel, alternate diesel, etc.).

19. The permit holder must, upon determination of applicability and written notification by the District, comply with all applicable requirements of the Air Toxics "Hot Spots" Information and Assessment Act (California Health and Safety Code Section 44300 et seq.).
[Basis: SMAQMD Rule 201, Section 303.1]

CALIFORNIA CODE OF REGULATIONS, TITLE 13 SECTION 2449 – Regulation for In-Use Off-Road Diesel Fueled Fleets

20. The owner of the fleet must comply with the requirements for In-Use Off-Road Diesel-Fueled Fleet Regulation.
[Basis: Regulation for In-Use Off-Road Diesel-Fueled Fleet Regulation, California Code of Regulations, Title 13, Section 2449]

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Your application for this air quality Permit to Operate was evaluated for compliance with Sacramento Metropolitan Air Quality Management District (SMAQMD), state and federal air quality rules. The following list identifies the rules that most commonly apply to the operation of your equipment. Other rules may also be applicable.

<u>SMAQMD RULE NO.</u>	<u>RULE TITLE</u>
201	GENERAL PERMIT REQUIREMENTS (8-24-06)
202	NEW SOURCE REVIEW (8-23-12)
401	RINGELMANN CHART (4-19-83)
402	NUISANCE (8-3-77)
406	SPECIFIC CONTAMINANTS (12-6-78)
420	SULFUR CONTENT OF FUELS (8-13-81)

<u>STATE</u>	<u>REGULATION TITLE</u>
CALIFORNIA CODE OF REGULATIONS, TITLE 13 SECTION 2449	GENERAL REQUIREMENTS FOR IN-USE OFF-ROAD DIESEL-FUELED FLEETS

<u>FEDERAL</u>	<u>REGULATION TITLE</u>
40 CFR 60 SUBPART OOO	NEW SOURCE PERFORMANCE STANDARDS - STANDARDS OF PERFORMANCE FOR NONMETALLIC MINERAL PROCESSING PLANTS

The conditions on this Permit to Operate reflect some, but not all, of the requirements of these rules. Because other rule requirements may apply to the operation, the permit holder should be familiar with all of the rules and related requirements. In addition, because future changes in prohibitory rules may establish more stringent requirements that may supersede the conditions listed here, the permit holder should monitor proposed rules and rule adoption actions at SMAQMD.

For further information please consult your SMAQMD rulebook or contact the SMAQMD for assistance.



AIR QUALITY
MANAGEMENT DISTRICT

PERMIT TO OPERATE

ISSUED TO: **SYAR CONCRETE, LLC**

EQUIPMENT LOCATION: **830 WEST ELKHORN BLVD., RIO LINDA, CA 95673**

PERMIT NO.	EQUIPMENT DESCRIPTION
24566	PORTABLE RADIAL STACKER: POWERED BY A DIESEL FIRED DIRECT DRIVE ENGINE, HP RANGE: 50 – 99, TIER 2 OR HIGHER. PERMITTED AS PART OF A ROCK CRUSHING OPERATION.


SUBJECT TO THE FOLLOWING CONDITIONS:

GENERAL

1. The permit holder agrees to indemnify and defend SMAQMD, its officers, agents, and employees if this permit or CEQA or NEPA is challenged in state or federal court. This indemnification includes attorney fees awarded against SMAQMD, as well as attorney fees, court costs, legal fees, and other expenses incurred in defending the challenge. The District will provide written notice to the permit holder within 5 days if it receives a petition, complaint or other legal notice by a third party challenging this Permit to Operate or CEQA or NEPA. The permit holder may, within 10 days of notification, request cancellation of the Permit to Operate. If the permit holder requests cancellation, SMAQMD will cancel the permit within 5 days, and will notify the plaintiffs of the cancellation and request dismissal of the litigation.
[Basis: SMAQMD Rule 201, Section 405]
2. The equipment must be properly maintained and operated in accordance with the information submitted with the application and the manufacturer's recommendations at all times.
[Basis: SMAQMD Rule 201, Section 405 and Rule 202, Section 408.1]
3. The Air Pollution Control Officer and/or authorized representatives must be permitted to do all of the following:
 - A. Enter the source premises or any location which any records required by this Permit to Operate are kept.
 - B. Access and copy any records required by this Permit to Operate.
 - C. Inspect or review any equipment, operation, or method required under this Permit to Operate.
 - D. Sample emissions from the source or require samples to be taken.

DATE ISSUED: 01-24-2017
DATE EXPIRES: 09-11-2017 (UNLESS RENEWED)

LARRY GREENE
AIR POLLUTION CONTROL OFFICER

BY: 
PERMIT NO.: 24566

PAGE 1 OF 6 PAGES

REVOCABLE AND NON-TRANSFERABLE

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

[Basis: SMAQMD Rule 201, Section 405]

4. This Permit to Operate does not authorize the emission of air contaminants in excess of those allowed by Division 26, Part 4, Chapter 3, of the California Health and Safety Code or the SMAQMD Rules and Regulations.

[Basis: SMAQMD Rule 201, Sections 303.1, 405]

5. The facility may not discharge air contaminants or other materials that cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

[Basis: SMAQMD Rule 402, Section 301]

6. A legible copy of this Permit to Operate must be maintained on the premises with the equipment.

[Basis: SMAQMD Rule 201, Section 401]

EMISSIONS LIMITATIONS

7. The IC engine, equipment and associated process must not discharge into the atmosphere any visible air contaminant other than uncombined water vapor for a period or periods aggregating more than three minutes in any one hour if the discharge is as dark or darker than Ringelmann No. 1 or is equal to or greater than 20% opacity where not specified.

A. 10% opacity for fugitive emissions from grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility.

B. 15% opacity for fugitive emissions from crushers.

[Basis: SMAQMD Rule 401, Section 301 and 40 CFR 60 Subpart 000 Table 3]

8. The engine, equipment and associated process must meet the following BACT standards:

[Basis: SMAQMD Rule 202, Section 408.2.a]:

A. EPA-certified Tier 2 engine, and

B. An engine that meets the following ATCM standards:

NOx + VOC: 5.6 g/hp-hr

PM: 0.3 g/hp-hr (based on filterable portion only)

C. Water spray to control PM emissions.

9. The emissions from the IC engine may not exceed the following:

[Basis: SMAQMD Rule 201, Section 405 and Rule 202, Section 408.2]

Pollutant	Emission Factors (A) (g/hp-hr)	Emission Limits (B)		
		lb/day	lb/quarter	lb/year
VOC (C)	1.14	6.0	43	43
NOx (C)	5.6	29.3	210	210
SOx	0.005	0.0	0	0

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Pollutant	Emission Factors (A) (g/hp-hr)	Emission Limits (B)		
		lb/day	lb/quarter	lb/year
PM10	0.35	1.8	13	13
PM2.5	0.35	1.8	13	13
CO	3.7	19.4	139	139

- (A) Emission factors for VOC and NOx are based on the District's BACT standards (Tier 2 standard). CO emission factor is based on the certified level for a Tier 2 engine. PM10 and PM2.5 emission factors include both the condensable portion and the filterable portion of the particulates. The filterable portion is based on the ATCM standard and the condensable portion is derived using the condensable to filterable fraction, taken from AP-42, Table 3.4-2 (10/96), multiplied by the certification standard $((0.3 \text{ g/hp-hr} + 0.3 \text{ g/hp-hr} \times 0.0077/0.0496)=0.35 \text{ g/hp-hr})$. SOx emission factor is based on AP-42, Table 3.3-1 (10/96) using a fuel sulfur content of 15 ppm.
- (B) Emissions are based on 99 bhp, 24 hours/day, 172 hours/quarter and 172 hours/year of operation and the emission factors in this table.
- (C) The engine is required to comply with the combined NOx + VOC emission standard. For the purpose of calculating NOx and VOC individually, VOC emissions are assessed at the worst case scenario of the uncontrolled AP-42 emission factor of 1.14 g/bhp-hr and NOx emissions are assessed at the worst case limit of 5.6 g/bhp-hr.

Rock Crushing Operation Emissions – Stacker only

The emission factors for the rock crushing operation are based on AP-42 Section 11.19.2 and proposed emission rate which varies by facility location. Emission Factors used are taken as controlled, since water spray will be required.

Category	Quantity	Emission Factor Controlled Lb/ton	Emission Limits (A)		
			Lbs/day	Lbs/qtr	Lbs/year
Conveyor Transfer Points	2	4.60E-05	1.1	7.9	7.9
Stockpiles (B)	2 acres	1.3 lb/acre/day	2.6	239.0	239.0
Total			3.7	246.9	246.9

- (A) Emissions are based on 500 tons/hr, 24 hours per day, 172 hours per quarter, and 172 hours per year. Emission are based on Granite Construction Concrete crushing emission assessment for the Bradshaw Facility.
- (B) Uncontrolled emission factor is based on AP-42 Table 8.19.1-1 for an active storage pile. The applicant states the storage piles will be sprayed down with water. AP-42 11.19.1 page 5 (11/95) states that water spray systems can reduce loading and wind erosion emissions from storage piles 80 to 90%. Therefore, an 80% control efficiency will be applied to the uncontrolled emission factor. Based on a maximum area of 2 acres for the storage piles in any one day and 92 days of operation per quarter.

10. The aggregate processing may not be permitted at 830 West Elkhorn Blvd, Rio Linda if the property to the west of the address (Assessor Parcel # 214-0290-039-0000) is occupied.
[SMAQMD Rule 402, Section 301]

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

EQUIPMENT OPERATION

11. The engine associated and its associated aggregate processing equipment must operate only at the following locations and must not operate for more than the following hours:
[SMAQMD Rule 402, Section 301]

Location	Maximum Allowable Combined Operation		
	(hours/day)	(hours/quarter)	(hours/year)
830 West Elkhorn Blvd., Rio Linda	24	172	172

12. The IC engine must be equipped with a non-resetting hour meter, with a minimum display capability of 9,999 hours.
[Basis: SMAQMD Rule 201, Section 405]
13. To determine whether the engine complies with opacity requirements, the Air Pollution Control Officer or designee may require the permit holder to operate the IC engine during a SMAQMD inspection. The inspection will be conducted during daylight hours, and the IC engine must be operated at maximum anticipated load and from a cold start condition.
[Basis: SMAQMD Rule 201, Section 405]
14. The IC engine may only be fueled with a CARB-approved diesel fuel or a fuel that meets the CARB requirements in 17 CCR Section 93115.5.
[Basis: SMAQMD Rule 201, Section 405]
15. The exhaust stack of the IC engine must exit vertically and must not be obstructed during engine operation. A flapper-type rain cap is permitted provided it does not impede the vertical exhaust flow. Stack height and diameter must be consistent with any health risk assessment performed.
[Basis: SMAQMD Rule 201, Section 405 and Rule 402, Section 301]
16. The aggregate/concrete processing must use water spray. The water spray must be employed at all transfer points, screening, stock piles and crushing operations when there are visible emissions.
[Basis: SMAQMD Rules 202, Section 301 - BACT Standard]

EMISSIONS TESTING

17. An initial 30 minutes (five - 6 minute averages) opacity observation must be performed by EPA Method 9 within 60 days of initial startup for each new piece of equipment operated under this Permit to Operate.
- Submit a source test plan to the Air Pollution Control Officer for approval at least 30 days before the test is to be performed.
 - Notify the Air Pollution Control Officer at least 7 days prior to the source test date of the exact date and time of test if the date has changed from that approved in the source test plan.
 - During source testing, the rock crushing operation must be operated at an operating rate that is as close as physically possible to the rated capacity.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

D. Submit the source test report to the Air Pollution Control Officer within 60 days from the completion of the test(s).

[Basis: 40 CFR 60 Subpart OOO, Table 2]

RECORD KEEPING & REPORTING

18. The following records must be continuously maintained onsite for the most recent five year period and must be made available to the Air Pollution Control Officer upon request. Daily, quarterly, and annual records must be made available within 30 days of the end of the reporting period.

[Basis: SMAQMD Rule 201, Section 303.1]

Frequency	Information to be Recorded
When Operated	A. Date. B. The type of engines operated (HP and Tier Standard)
Daily	C. Total number of hours of operation for each engine type.
Quarterly	D. Total number of hours of operation for each engine type.
Annually	E. Total number of hours of operation for each engine type.
All Fuel Deliveries	F. Retain fuel purchase records that account for all fuel purchased for use in the engines. Fuel purchase records must include: i. Identification of type of fuel (CARB diesel, alternate diesel, etc.).

18. The permit holder must, upon determination of applicability and written notification by the District, comply with all applicable requirements of the Air Toxics "Hot Spots" Information and Assessment Act (California Health and Safety Code Section 44300 et seq.).

[Basis: SMAQMD Rule 201, Section 303.1]

CALIFORNIA CODE OF REGULATIONS, TITLE 13 SECTION 2449 – Regulation for In-Use Off-Road Diesel Fueled Fleets

20. The owner of the fleet must comply with the requirements for In-Use Off-Road Diesel-Fueled Fleet Regulation.

[Basis: Regulation for In-Use Off-Road Diesel-Fueled Fleet Regulation, California Code of Regulations, Title 13, Section 2449]

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Your application for this air quality Permit to Operate was evaluated for compliance with Sacramento Metropolitan Air Quality Management District (SMAQMD), state and federal air quality rules. The following list identifies the rules that most commonly apply to the operation of your equipment. Other rules may also be applicable.

<u>SMAQMD RULE NO.</u>	<u>RULE TITLE</u>
201	GENERAL PERMIT REQUIREMENTS (8-24-06)
202	NEW SOURCE REVIEW (8-23-12)
401	RINGELMANN CHART (4-19-83)
402	NUISANCE (8-3-77)
406	SPECIFIC CONTAMINANTS (12-6-78)
420	SULFUR CONTENT OF FUELS (8-13-81)
<u>STATE</u>	<u>REGULATION TITLE</u>
CALIFORNIA CODE OF REGULATIONS, TITLE 13 SECTION 2449	GENERAL REQUIREMENTS FOR IN-USE OFF-ROAD DIESEL-FUELED FLEETS
<u>FEDERAL</u>	<u>REGULATION TITLE</u>
40 CFR 60 SUBPART OOO	NEW SOURCE PERFORMANCE STANDARDS - STANDARDS OF PERFORMANCE FOR NONMETALLIC MINERAL PROCESSING PLANTS

The conditions on this Permit to Operate reflect some, but not all, of the requirements of these rules. Because other rule requirements may apply to the operation, the permit holder should be familiar with all of the rules and related requirements. In addition, because future changes in prohibitory rules may establish more stringent requirements that may supersede the conditions listed here, the permit holder should monitor proposed rules and rule adoption actions at SMAQMD.

For further information please consult your SMAQMD rulebook or contact the SMAQMD for assistance.



AIR QUALITY
MANAGEMENT DISTRICT

PERMIT TO OPERATE

ISSUED TO: **SYAR CONCRETE, LLC**

EQUIPMENT LOCATION: **830 W. ELKHORN BLVD., RIO LINDA, CA 95673**

PERMIT NO.	EQUIPMENT DESCRIPTION
24730	CONCRETE BATCH PLANT CONSISTING OF: A. AGGREGATE BIN STORAGE: 215 CUBIC YARDS B. AGGREGATE WEIGH HOPPER: 12 CUBIC YARDS C. AGGREGATE CONVEYOR BELT (30" X 35'): 20 HP D. SILO-CEMENT, (2 COMPARTMENTS), 138 TOTAL TONS CAPACITY WITH A BAGHOUSE i. MAKE: C&W, MODEL: (2) CP-305, AIR TO CLOTH RATIO: 5.43, FILTRATION AREA: 368 FT ² , HP: 15 HP, DESIGN EFFICIENCY: 99.99% E. CEMENT/FLY ASH WEIGH HOPPER (VENTED TO A SURGE BAGHOUSE CP-70): 12 CUBIC YARDS i. MAKE: C&W, MODEL: (1) CP-70, AIR TO CLOTH RATIO: 4.9, FILTRATION AREA: 88 FT ² , HP: 15 HP, DESIGN EFFICIENCY: 99.99% F. BLOWER PNEUMATIC CONVEYANCE SYSTEM: 10 HP BOOT LOADING (AGGREGATE & CEMENT) VENTED TO A BAGHOUSE i. MAKE: SAUNCO, MODEL: RF-1500, HP: 15

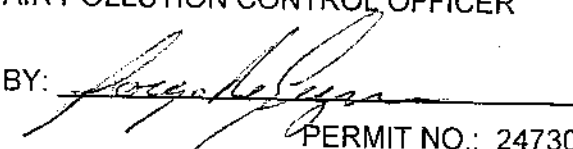
SUBJECT TO THE FOLLOWING CONDITIONS:

GENERAL

1. The permit holder agrees to indemnify and defend SMAQMD, its officers, agents, and employees if this permit or CEQA or NEPA is challenged in state or federal court. This indemnification includes attorney fees awarded against SMAQMD, as well as attorney fees, court costs, legal fees, and other expenses incurred in defending the challenge. The District will provide written notice to the permit holder within 5 days if it receives a petition,

DATE ISSUED: 08-22-2016
DATE EXPIRES: 09-11-2017 (UNLESS RENEWED)

LARRY GREENE
AIR POLLUTION CONTROL OFFICER

BY: 
PERMIT NO.: 24730

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REVOCABLE AND NON-TRANSFERABLE

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

complaint or other legal notice by a third party challenging this Permit to Operate or CEQA or NEPA. The permit holder may, within 10 days of notification, request cancellation of the Permit to Operate. If the permit holder requests cancellation, SMAQMD will cancel the permit within 5 days, and will notify the plaintiffs of the cancellation and request dismissal of the litigation.

[Basis: SMAQMD Rule 201, Section 405]

2. The equipment must be properly maintained and operated in accordance with the information submitted with the application and the manufacturer's recommendations at all times.

[Basis: SMAQMD Rule 201, Section 405 and Rule 202, Section 408.1]

3. The Air Pollution Control Officer and/or authorized representatives must be permitted to do all of the following:
 - A. Enter the source premises or any location which any records required by this Permit to Operate are kept.
 - B. Access and copy any records required by this Permit to Operate.
 - C. Inspect or review any equipment, operation, or method required under this Permit to Operate.
 - D. Sample emissions from the source or require samples to be taken.

[Basis: SMAQMD Rule 201, Section 405]

4. This Permit to Operate does not authorize the emission of air contaminants in excess of those allowed by Division 26, Part 4, Chapter 3, of the California Health and Safety Code or the SMAQMD Rules and Regulations.

[Basis: SMAQMD Rule 201, Sections 303.1, 405]

5. The facility may not discharge air contaminants or other materials that cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

[Basis: SMAQMD Rule 402, Section 301]

6. A legible copy of this Permit to Operate must be maintained on the premises with the equipment.

[Basis: SMAQMD Rule 201, Section 401]

EMISSIONS LIMITATIONS

7. The equipment must not discharge into the atmosphere any visible air contaminant other than uncombined water vapor for a period or periods aggregating more than three minutes in any one hour if the discharge is as dark or darker than Ringelmann No. 1 or is equal to or greater than 20% opacity.

[Basis: SMAQMD Rule 401, Section 301]

8. The concrete batch plant must meet the following BACT standards

[Basis: SMAQMD Rule 202, Section 408.2.a]:

- A. Enclosed aggregate and cement weigh hoppers, screw conveyors and concrete batcher vented to a 99% efficient fabric filter baghouse, and
- B. Flexible shroud which seals to the truck. Shroud vented to 99% efficient fabric baghouse, and
- C. Water spray system for sand and aggregate transfer points. Sand and aggregate storage piles adequately wet to maintain a minimum moisture content of 4% by weight, and
- D. Open areas maintained adequately wet to meet visible emission standard of less than 5 percent opacity.

**SACRAMENTO METROPOLITAN
 AIR QUALITY MANAGEMENT DISTRICT**

9. The emissions from the concrete batch plant may not exceed the following:
[Basis: SMAQMD Rules 201, Section 405 and 202, Section 408.2b-c]

Pollutant	Emission Limits (A)		
	Lbs/day	Lbs/quarter	Lbs/year
PM10	43.1	3,967	15,868
PM2.5 (B)	43.1	3,967	15,868

- (A) Emissions are based on 2,736 cy/day & 251,712 cy/qtr, 1,006,848 cy/year of production and 1 acre of stockpile area controlled by 80%
 (B) PM2.5 is assumed equal to PM10

	PM10 Emission Factor (A)		
	lb/cy	lbs/day (C)	lbs/qtr (C)
Aggregate Transfer & Handling	0.0031	8.5	780
Sand Transfer & Handling	0.0007	1.9	176
Cement Delivery to Silo	0.0001	0.3	25
Cement Supplement delivery to Silo	0.0002	0.5	50
Weigh Hopper Loading	0.0038	10.4	957
Truck Loading (truck mix), Controlled	0.0074	20.2	1,863
Stockpile Erosion (B)	1.26 lb/acre/day	1.3	116
Total		43.1	3,967

- (A) Based on emission factors from AP-42 Table 11.12-5(6/06).
 (B) Emission factor units are in lbs/acre/day and assuming 1 acre of stockpile area controlled by 80% (based on AP-42 Table 8.19-1-1, 9/85).
 (C) Emission calculations are based on 2,736 cubic yards/day & 251,712 cubic yards/quarter and 1 acre of stockpile area. Composition of concrete is based on AP-42 Table 11.12-2 (6/06) footnote a: 1865 lbs course aggregate, 1428 lbs of sand, 491 lbs cement, 73 lbs of cement supplement and 167 lbs water

EQUIPMENT OPERATION

10. The filter bags in the cement silo dust collection systems must be thoroughly cleaned after cement is blown into the silos to ensure adequate dust collection for the subsequent loads or the dust collection systems must be equipped with an automatic filter bag cleaning system.
[Basis: SMAQMD Rules 201, Section 405 and 202, Section 408.2b-c]
11. The air pollution control equipment (dust collectors venting the silos, weigh hopper and boot loading process) must operate whenever their respective areas are in operation.
[Basis: SMAQMD Rules 201, Section 405 and 202, Section 408.2b-c]

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

12. Sand and aggregate must be kept sufficiently moistened to prevent the discharge of any visible air contaminants exceeding the visible emission limits of **Condition Nos. 6 and 7D**.

[Basis: SMAQMD Rules 201, Section 405 and 202, Section 408.2b-c]

13. Access roads, yards and stockpiles in the general area of this equipment must be watered or otherwise treated to prevent fugitive dust generated by plant activities from being airborne beyond the property line from which the emission originates.

[Basis: SMAQMD Rules 201, Section 405 and 202, Section 408.2b-c]

14. Concrete production must not exceed the following limits:

[Basis: SMAQMD Rules 201, Section 405 and 202, Section 408.2b-c]

Equipment	Maximum Allowable Cement Production	
	Cubic Yards/Day	Cubic Yards/Quarter
Concrete Plant	2,736	251,712

RECORD KEEPING & REPORTING

15. The following records must be continuously maintained onsite for the most recent five year period and must be made available to the Air Pollution Control Officer upon request. Daily, and quarterly records must be made available within 30 days of the end of the reporting period.

[Basis: SMAQMD Rule 201, Section 405]

Frequency	Information to be Recorded
Daily	A. Total number of cubic yards of concrete produced (cubic yards/day).
Quarterly	B. Total number of cubic yards of concrete produced (cubic yards/quarter).

16. The permit holder must, upon determination of applicability and written notification by the District, comply with all applicable requirements of the Air Toxics "Hot Spots" Information and Assessment Act (California Health and Safety Code Section 44300 et seq.).

[Basis: SMAQMD Rule 201, Section 303.1]

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

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The conditions on this Permit to Operate reflect some, but not all, of the requirements of these rules. Because other rule requirements may apply to the operation, the permit holder should be familiar with all of the rules and related requirements. In addition, because future changes in prohibitory rules may establish more stringent requirements that may supersede the conditions listed here, the permit holder should monitor proposed rules and rule adoption actions at SMAQMD.

For further information please consult your SMAQMD rulebook or contact the SMAQMD for assistance.

Appendix D

Air Quality Mitigation Plan

Panhandle Annexation and PUD Air Quality Mitigation Plan



City of
SACRAMENTO



PREPARED FOR:
City of Sacramento and
the Sacramento Local Agency
Formation Commission

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ACRONYMS AND ABBREVIATIONS

AQMP	air quality mitigation plan
AQMP Guidance	SMAQMD Recommended Guidance for Land Use Emission Reductions Version 3.3 for Operational Emissions
BE	building energy
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CEQA	California Environmental Quality Act
DEIR	draft environmental impact report
du/na	dwelling units per net acre
EIR	environmental impact report
lb/day	pounds per day
LUT	land use/location
NEV	neighborhood electric vehicle
NNCP	North Natomas Community Plan
NO _x	oxides of nitrogen
OS	open space
PD	planned development
PDT	parking policy/pricing
PM ₁₀	respirable particulate matter
PR	parks and recreation
PUD	Planned Unit Development
ROG	reactive organic gases
SACOG	Sacramento Area Council of Governments
SACSIM	travel forecasting model system used by SACOG
SC	suburban center
SDT	neighborhood/site enhancements
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SNLD	suburban neighborhood low density
TMA	transportation management association
TRT	commute trip reduction programs
TST	transit system improvements
VMT	vehicle miles traveled

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1 INTRODUCTION

The Panhandle Annexation and Planned Unit Development (Panhandle PUD) project is a proposed development area (referred to as “project area”) located in the North Natomas Community Plan (NNCP) planning area, which encompasses approximately 7,438 acres in the City of Sacramento and 1,600 acres in unincorporated Sacramento County. The project is subject to the California Environmental Quality Act (CEQA), which requires the preparation of an environmental impact report (EIR). Development of the project would result in emissions of criteria air pollutants and ozone precursors during both the construction and operational phases. Construction-related impacts would be short-term and associated with the use of heavy-duty equipment. Construction-related emissions are evaluated in the Air Quality Section of the Draft Environmental Impact Report (DEIR). Operational emissions would be associated with vehicle trip generation, area sources (e.g., landscaping equipment, natural gas hearths, consumer products, architectural coatings), and energy use (e.g., natural gas for area heating/cooling and appliances). This Air Quality Mitigation Plan (AQMP) addresses the operational impacts by proposing mitigation measures to be applied to the project. These measures are necessary for the project to meet the requirements of CEQA and to meet regional air quality goals.

The Panhandle PUD project is subject to CEQA review and, as a commenting agency, the Sacramento Metropolitan Air Quality Management District (SMAQMD) shall assess whether this project has significant air pollutant impacts. If impacts are significant, then in accordance with SMAQMD guidance, an AQMP shall be prepared to address these significant impacts. This AQMP has been prepared to supplement the CEQA analysis and serves as mitigation, as referenced in the DEIR, for emissions of long-term criteria air pollutants and ozone precursors. The AQMP specifies the measures that will be applied to address the potentially significant impact of regional ozone precursor emissions of oxides of nitrogen (i.e., NO_x) and reactive organic gases (i.e., ROG).

2 PURPOSE OF THE AIR QUALITY MITIGATION PLAN

CEQA requires that EIRs identify and evaluate any significant environmental impacts of a proposed project. A project is determined to require an AQMP by Sacramento County and SMAQMD if construction and/or operational emissions would exceed SMAQMD’s established mass emission thresholds for ROG and NO_x. Construction emissions shall not surpass SMAQMD’s ozone precursor thresholds of 85 pounds per day (lb/day). For operational emissions, total daily emissions for summer NO_x, summer ROG, winter NO_x, and winter ROG shall be assessed for the full build-out year. If any of these values would exceed SMAQMD’s 65 lb/day threshold, the project is considered operationally significant and shall prepare an AQMP (SMAQMD 2016).

The analysis of significant effects shall quantify project-generated emissions of ozone precursors and shall then describe feasible measures that could minimize any significant adverse impacts. To assist in the evaluation of air quality impacts, SMAQMD developed its *Recommended Guidance for Land Use Emission Reductions Version 3.3* (AQMP Guidance) dated September 26, 2016 (SMAQMD 2016). The AQMP Guidance outlines methods for calculating project-related operational emissions, establishing an emissions reduction target for the project, and quantifying emission reductions associated with SMAQMD-approved reduction measures.

An emissions reduction target of 15 percent is required of projects that have been included in the most current State Implementation Plan (SIP) and a reduction target of 35 percent is required of projects that have not been included in the current SIP. The project area is within the 2035 General Plan Update Policy Area, but was not included in the current SIP. For these reasons, and based on SMAQMD guidance, the project would be required to achieve (at a minimum) a 35 percent reduction in operational ozone precursor emissions. Measures included in this AQMP are incorporated by reference into the DEIR prepared for the project.

This AQMP includes a description of the Panhandle PUD project and the methodology used to establish both an unmitigated and a mitigated emissions scenario. These scenarios are based on project-specific data, traffic study, and available mitigation measures. The emissions scenarios are then compared to emission reduction targets and include an explanation of how the 35 percent reduction target for ROG and NO_x is achieved.

3 PROJECT DESCRIPTION

3.1 PROJECT LOCATION

The Panhandle PUD project is a proposed development located in the NNCP planning area, which encompasses approximately 7,438 acres in the City of Sacramento and 1,600 acres in unincorporated Sacramento County. The applicant proposes an annexation of 589.4 acres into the City, amendment of the 2035 General Plan and NNCP, pre-zoning/rezoning of the project area, establishment of the Panhandle PUD project area, and approval of a tentative master parcel map. While the Panhandle PUD project includes 1,623 dwelling units, the DEIR and AQMP conservatively evaluates the development of up to 2,660 dwelling units to factor the eventual development of the Krumenacher lands, which would be designated “Planned Development” (PD) in the annexation. The EIR also assumes that 101,277 square feet (sf) of commercial uses could be developed. This AQMP uses the same conservative estimates to determine construction and operational emissions from the implementation of the project.

The project area, within the NNCP, is bounded by the Natomas East Main Drainage Canal to the east, Interstate 80 (I-80) to the south, the West Drainage Canal, Fisherman’s Lake and State Route 99/State Route 70 (SR 99/70) to the west, and Elkhorn Boulevard to the north (see Exhibit 2). Regional access to and from the area is provided by Interstate 5 (I-5), I-80 and SR 99/70, along with numerous existing local roads. Refer to Exhibits 1 and 2 for project location and vicinity.

3.2 PROJECT SUMMARY

The approval of the project would result in the development of the private, mixed-use development consisting of residential, commercial, elementary school, roadways, and park uses north of Del Paso Road. Table 1 provides a summary of the proposed land uses and Exhibit 3 shows the schematic plan of the project.

Table 1 Proposed Land Uses

Proposed Land Use	Net Acreage	Size	Proposed General Plan Designation
Estate (Single-Family Residential)	100.7	452 Units	Suburban Neighborhood Low Density (SNLD)
Traditional (Single-Family Residential)	121.8	728 Units	Suburban Neighborhood Low Density (SNLD)
Compact (Multi-Family Residential)	59.3	443 Units	Suburban Neighborhood Low Density (SNLD)
Krumenacher Planned Development	119.0	1,037 Units	Planned Development (PD)
Suburban Center	9.7	101,277 SF	Suburban Center (SC)
Elementary School	10.0	NA	Suburban Neighborhood Low Density (SNLD)
Park	22.1	NA	Parks and Recreation (PR)
Ninos Parkway	21.0	NA	Parks and Recreation (PR)
Detention Basin	13.4	NA	Open Space (OS)
High School/Middle School	60.4	NA	Suburban Neighborhood Low Density (SNLD)
Major, Collector, and Residential Streets	52.0	NA	

Table 1 Proposed Land Uses

Proposed Land Use	Net Acreage	Size	Proposed General Plan Designation
Total Residential Units	400.8	2,660 Units	Suburban Neighborhood Low Density (SNLD)
Total Commercial Development	9.7	101,277 SF	Suburban Center (SC)
Total Project Acreage	589.4		

Notes: SF = square feet; NA = not applicable.

3.2.1 Proposed Land Uses

Residential

The Panhandle PUD project includes the development of single-family residential units with allowable densities ranging from three to eight dwelling units per net acre (du/na). The mix of lot size and densities would provide a variety of housing types:

- ▲ “Estate” with an average density of 4.5 du/na;
- ▲ “Traditional” lots with an average density of 6 du/na; and
- ▲ “Compact” lots with an average density of 7.5 du/na.

Commercial

The Panhandle PUD project would include one commercial site (Suburban Center) consisting of 9.7 net acres, as shown in Exhibit 3. The allowable floor area ratio would be 0.15 to 2.0. Possible uses could include coffee shop/deli, restaurants, grocery store, drug store, convenience commercial uses (dry cleaners, salon, etc.), and financial services. While not currently proposed for residential development, the Suburban Center could provide for multi-family residential development ranging from 15 to 36 du/na.

Schools

The Panhandle PUD project includes a 10-net acre elementary school site west of National Drive (in the southern part of the PUD) within the Robla School District (see Exhibit 3). The existing East Natomas Education Complex (junior and senior high schools in the Twin Rivers Unified School District) would be retained on-site. The completion and operation of the East Natomas Education Complex would not be a component of the Panhandle PUD project.

Parks and Open Space

The Panhandle PUD project would include 56.5 net acres of parks and open space uses consisting of park facilities (15.6 net acres), open space parkway (27.5 net acres) and detention areas (13.4 net acres). The Ninos Parkway would be situated in the eastern part of the PUD and would provide active and passive recreation opportunities and a trail system. No specific park uses have been identified as part of the PUD.

Project Access/Circulation

As shown in Exhibit 3, roadway access to the PUD project area is available from Del Paso Road, Sorrento Road, Mayfield Street, Aimwell Avenue, Club Center Drive, and Faletto Avenue.

4 METHODS

All emissions estimates and analysis presented in this AQMP were conducted based on SMAQMD Recommended Guidance for Land Use Emission Reductions Version 3.3 for Operational Emissions [(AQMP Guidance) September 26, 2016] and discussions with SMAQMD staff. Emissions modeling was conducted using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1, in accordance with the City of Sacramento and SMAQMD guidance. Emissions estimates included in this AQMP include long-term operational emissions of criteria air pollutants and ozone precursors (i.e., ROG, NO_x, respirable particulate matter [PM₁₀]) associated with mobile sources (i.e., trip generation) and stationary sources (e.g., area wide and energy consumption).

Project details such as proposed land uses and densities, build-out phasing, project-generated trips, and project components are based on information included in the traffic study conducted for the project, Transportation Analysis Section 4.10 Panhandle Annexation (DKS Associates 2017), and data provided by the applicant and by the City of Sacramento. Data used in this analysis are included in Appendix C of the Draft EIR.

To estimate mobile source emissions, CalEEMod was used in combination with project-specific traffic data included in the traffic study conducted for the project (DKS 2017). The traffic study includes a description of existing conditions and traffic-related impacts associated with the proposed project. The project-specific traffic study was used to obtain trip data associated with the project. Specifically, the traffic study included estimates of daily vehicle miles traveled (VMT) associated with the existing conditions, existing plus project conditions, and the cumulative plus project conditions in 2036.

In accordance with SMAQMD guidance for the evaluation of projects where a traffic study has been prepared, CalEEMod is used to estimate the project's emissions with and without the incorporation of emission reduction measures. The estimation of emissions that does not account for emission reduction measures is referred to as the unmitigated emissions scenario. The estimate that does account for incorporation of emission reduction measures is referred to as the mitigated emissions scenario. The total daily mass emissions that the project shall reduce to meet the 35 percent reduction target for the AQMP is then calculated based on the maximum mobile sector emissions of ROG and NO_x separately as established by the unmitigated emission scenario. The two scenarios are described in further detail below.

4.1 UNMITIGATED EMISSIONS SCENARIO

To establish the unmitigated emissions scenario, the proposed land uses and their size were entered into CalEEMod for the buildout year 2036. Proposed land use and unit numbers were based on the project description and an estimation of the Krumenacher area that may be subject to future residential development. The residential units for this area were estimated using the same ratio as the proposed residential unit types. For a complete description of all land uses input into the CalEEMod runs, refer to Table 1 above.

Once representative land uses were chosen, CalEEMod was run for both the winter and summer seasons using default values and trips rates for Sacramento County to determine if emissions exceed SMAQMD-adopted operational thresholds. CalEEMod does not account for regional reductions in VMT due to other surrounding development or changes in the roadway network and therefore, default trip rates assigned by CalEEMod to the proposed land uses would represent the maximum trip generation, and associated emissions. The unmitigated emissions scenario was then run for annual emissions to establish the AQMP reduction target for the project. In accordance with SMAQMD recommendations, the emission reduction targets were based on the mobile sector only, not total combined project emissions. Although SMAQMD-adopted operational thresholds are based on maximum daily emissions, guidance from SMAQMD suggest the use of annual emissions of ROG and NO_x for determining the AQMP reduction target.

4.2 MITIGATED EMISSIONS SCENARIO

To establish the mitigated emissions scenario, the unmitigated emissions scenario (as described above) was adjusted to more accurately reflect project-specific data. Project-specific VMT data were based on the traffic study conducted for the project. The unmitigated emissions scenario was altered to reflect actual project annual VMT for the year 2036. The unmitigated emissions scenario was also altered to reflect the project's level of electricity and natural gas consumption based on 2016 Title 24-adjusted consumption rates provided by CalEEMod for each land use type. Adjustments were based on the California Energy Commission's estimate that single-family houses are 28 percent more energy efficient than 2013 Title 24 standards and non-residential buildings are 5 percent more energy efficient than 2013 Title 24 standards (California Energy Commission 2015). Using the information provided in the traffic study and SMAQMD-approved reduction measures, all measures that were accounted for in the traffic study were then described for the project. additional on and off-site mitigation measures were recommended and included as necessary to meet the 35 percent reduction target.

5 EMISSION REDUCTION TARGET

This section shows the calculations conducted to establish the project's emission target of 35 percent. Calculation method were based on discussions with SMAQMD staff and the AQMP Guidance. Reduction targets were based on the unmitigated emission scenario as described above in Section 4. Detailed calculations are provided below.

5.1 UNMITIGATED EMISSIONS SCENARIO AND REDUCTION TARGET

The project would develop approximately 590 acres of various land use types, as summarized in Table 1 and shown in Exhibit 3. Based on the proposed land use types and sizes (Table 1), emissions of criteria air pollutants and ozone precursors were quantified using defaults in CalEEMod. Based on the proposed land uses and CalEEMod defaults for trip generation rates and average trip distance, the annual VMT was 79,167,751 and the daily VMT was 216,898. Daily VMT was calculated by dividing the annual VMT by 365 days per year. Table 2 summarizes these results for both winter and summer.

Table 2 Summary of Annual Operational Emissions of Ozone Precursors at Full Buildout for the Unmitigated Scenario (2036)

Source-Type	tons/year		
	ROG	NO _x	PM ₁₀
Area Source ¹	24.6	0.3	0.2
Energy ²	0.5	4.2	0.3
Mobile Source	4.8	24.8	29.6
Total Annual Emissions	29.9	29.4	30.1

Notes: NO_x = oxides of nitrogen, ROG = reactive organic gases; PM₁₀ = respirable particulate matter; tons/year = tons per year.

Totals may not sum exactly because of rounding.

¹ Area-source emissions include natural gas consumption in fireplaces, emissions from landscaping, application of architectural coatings, and consumer products, and are estimated based on default model settings.

² Energy emissions include emissions associated with natural gas consumption for indoor heating/cooling and appliance use.

See Appendix C of the Draft EIR for detailed input parameters and modeling results.

Source: Modeling conducted by Ascent Environmental in 2017.

To determine the mass reduction in emissions a project needs to achieve to meet the 35 percent reduction target, the first step is to determine the total mass emissions of ozone precursors emitted by the project's mobile sector per year. As shown in Table 3 below, the unmitigated scenario would result in total ROG of 4.8 tons per year (tons/year) and total NO_x of 24.8 tons/year from the mobile sector. To achieve the 35 percent reduction target, ROG would need to be reduced by a minimum of 1.7 tons/year and NO_x by a minimum of 8.7 tons/year. Table 3 below displays the reduction target in tons per year for each ozone precursor.

Table 3 Criteria Air Pollutant Reduction Targets

	ROG tons/year ¹	NO _x tons/year ¹
Mobile Source Emissions	4.8	24.8
35 Percent Reduction Target ²	1.7	8.7

Notes: NO_x = oxides of nitrogen; ROG = reactive organic gases; tons/year = tons per year.

¹ Emissions taken from the unmitigated CalEEMod run using CalEEMod default trip rates.

² A 35 percent mitigation target is required by this project per SMAQMD guidance as it has not been included in the current adopted SIP. The reduction target of 35 percent is calculated based on the total ROG and NO_x emissions from the mobile sector.

6 TRAFFIC STUDY AND PROJECT DESIGN FEATURES

The following section discusses the specific project components used to conduct the mitigated emissions scenario using CalEEMod, project specific traffic information, and project design features included within the PUD Guidelines. A description of the project design feature is provided, how the project would incorporate the specific design feature, and how the emissions modeling was adjusted to reflect each design component. Each design feature is described separately below.

6.1 TRAFFIC STUDY

A traffic study was completed for the Panhandle PUD project. The traffic study considered several design features incorporated into the project that would result in daily VMT that is lower than the estimate provided by CalEEMod. The project trip generation and VMT was estimated using the Sacramento Area Council of Governments' (SACOG) SACSIM travel model, a region-specific transportation model. SACSIM is a complete travel demand model that SACOG uses for planning in the Sacramento region. The demand for personal travel within the region was modeled by DaySim, an activity-based demand model. DaySim incorporates a variety of model features, including:

- ▲ The ability to model each person in the Sacramento region separately through the use of a population synthesizer that creates a synthetic population representing each person and household in the region;
- ▲ The ability to model the complete daily activity pattern for each individual, including the number and sequencing of activities defined by seven purposes;
- ▲ A series of logit destination, mode, and time-of-day choice models at the tour and trip levels to simulate the choices for each individual;
- ▲ Estimation of the start and end times of all activities and trips to the half-hour level of resolution; and
- ▲ Parcel-level spatial resolution for home and activity locations.

Other components of SACSIM are used to model, at an aggregate level, the remaining components of regional travel - including travel into, out of, and through the region (external travel); truck travel; and travel to and from Sacramento International Airport. All travel into, out of, and within the project area is estimated by the model. The model predicts the number of trips, trip purposes, origins and destinations of trips, time of day of the trips, travel mode (walk, bike, transit, automobile), and travel path. Project-specific factors that were considered in the regional model include:

- ▲ Demographics of the households (e.g., income levels, household size, number of workers, auto ownership) – assumed to be like adjacent North Natomas neighborhoods, as obtained from the American Community Survey.
- ▲ Characteristics of the schools (number of students, typical number of employees).
- ▲ Characteristics of the commercial center (number of employees by type) – assumed to be retail oriented.
- ▲ Roadway network – connections to existing roadway system, number of lanes, free-flow travel speeds.
- ▲ Pedestrian network.
- ▲ Bicycle network, on-street and off-street.
- ▲ Development patterns (grid connectivity).

The SACSIM regional travel model was used to estimate project-specific VMT. The SACSIM model also accounts for the bus and light rail transit system, all existing and proposed bicycle facilities, and sidewalks on streets both in and around the project area. The trip generation for the project is based directly on household travel information collected in the Sacramento region and reflects the location, mode choice, and demographics associated with the area. The VMT estimate also considers the redistribution of regional trips associated with new land uses included in the project, such as residences, schools, and commercial development. The estimated change in daily VMT over the unmitigated scenario (i.e., without traffic study) is the result of many factors, including:

- ▲ Travel characteristics associated with the project land use:
 - Personal trip generation;
 - Mode choice (motor vehicle, transit, walk, bike); and
 - Trip origins and destinations (trip length).
- ▲ Redistribution of regional trips associated with new land use (residences, schools, commercial development)
- ▲ Network effects:
 - Availability of new roadways associated with the project; and
 - Change in roadway travel speeds associated with changes in traffic volumes.

Based on the above traffic modeling inputs, Table 4 below summarizes project-specific VMT in comparison to CalEEMod default project-VMT.

Traffic Scenario	Daily VMT	Annual VMT
CalEEMod-Generated Project VMT	216,898	79,167,751
SACSIM-Generated Project VMT	142,246	51,919,790
Percent reduction	34.4	

Notes: SACSIM= travel forecasting model system used by the Sacramento Area Council of Governments; CalEEMod= California Emissions Estimator Model; VMT= vehicle miles traveled.

6.2 PROJECT DESIGN FEATURES INCLUDED IN TRAFFIC STUDY

6.2.1 LUT-4 Improve Destination Accessibility

Design Feature Description: The project would be in an area with high accessibility to destinations, such as employment centers, shopping, and entertainment. Destination accessibility is measured in terms of the number of jobs or other attractions reachable within a given travel time, which tends to be highest at regional centers and lowest at peripheral locations. The location of the project also increases the potential for pedestrians to walk and bike to these destinations and; therefore, reduces VMT.

Project Applicability: The project would be located approximately 7.8 miles from what SMAQMD considers the regional center (the intersection of 10th and K Streets in Sacramento). Exhibit 4 shows the project's location in comparison to the regional center. The traffic study accounts for the proximity to the regional center and the resultant effect on both trip generation rates and average trip lengths. As described above, the traffic study uses the SACSIM model which considers region-specific travel patterns. Further, the SACSIM model is based on similar development in the North Natomas area and uses travel behavior to inform trip generation rates and lengths. As such, the total VMT associated with operation of the Panhandle PUD at full buildout accounts for the fact that residents, employees, and students would not need to travel long distances to access various services.

6.2.2 LUT-5 Increase Transit Accessibility

Design Feature Description: Locating a project with high density near transit will facilitate the use of transit by people traveling to or from the project site. The use of transit results in a mode shift and; therefore, reduced VMT.

Project Applicability: The project would be in proximity to existing transit facilities such as bus stops and light rail stops, as shown in Exhibit 4. Sacramento Regional Transit District operates a bus line in each direction along North Market Boulevard at National Drive, about 0.65 miles south of the project area. This bus route loops through North Natomas to the west of the project area, and to the east of the project area to the Arden/Del Paso Light Rail Station, which is the closest light rail station to the project. The North Natomas Transportation Management Associate operates the Flyer Shuttle, a peak-period scheduled route transit service between North Natomas and downtown Sacramento. As described in Mitigation Measure 5.11-7 of the DEIR, the project developer shall join the North Natomas Transportation Management Association and coordinate on transit demand measures. The *Sacramento Regional Transit Short Range Transit Plan* identifies the future potential for "Hi Bus Service" (enhanced bus service) along Elkhorn Boulevard as part of its Transit Action Plan (Sacramento Regional Transit District 2014). The traffic study accounts for proximity to existing facilities and the resultant effect on both trip generation rates and average trip lengths. As such, the total VMT associated with operation of the Panhandle PUD project at full buildout accounts for an assumed mode shift by those served by the project.

6.2.3 LUT-9 Improve Walkability Design, SDT-5 Incorporate Bike Lane Street Design, SDT-6 Provide Bike Parking in Non-Residential Projects, SDT-7 Provide Bike Parking in Multi-Unit Residential Projects, and SDT-9 Dedicate Land for Bike Trails (on-site)

These measures are discussed together because improving walkability design involves improving multiple street components such as the construction of sidewalks, traffic calming measures to slow vehicular traffic, and the implementation of crosswalks. As the project would not incorporate multi-unit residential development, SDT-7 is not considered as part of the group measure. All other components were accounted for together in the traffic analysis prepared for the Panhandle PUD project.

Design Feature Description: The project will include improved design elements to enhance walkability and connectivity. Improved street network characteristics within a neighborhood include street accessibility, measured in terms of number of intersections per square mile. Projects must have a minimum of 36 intersections per square mile to qualify for this measure.

Project Applicability: The project would include the following features for each of the measures:

- ▲ **SDT-5:** The project would incorporate bike lanes of various ratings on all streets internal to the project and connect with on-street bicycle facilities on Del Paso Road, Mayfield Street, Aimwell Avenue, Club Center Drive, and Faletto Avenue. The project would improve bicycle facilities in the North Natomas Community Planning Area through the implementation of these facility improvements. This is shown in Exhibit.
- ▲ **SDT-7:** The City of Sacramento's Zoning Code requires off-street bicycle parking to be provided in all existing and new development, including in commercial uses and schools (City of Sacramento 1999). The implementation of the project would necessitate this code requirement to be met.
- ▲ **SDT-9:** The project would establish a new off-street bike/pedestrian facility associated with the Ninos Parkway. The proposed bike facilities are consistent with the alignments set forth in the City of Sacramento's Bicycle Master Plan. Exhibit 6 shows the proposed bicycle facilities on the project site.
- ▲ **LUT-9:** The project would include sidewalks on all internal streets. Sidewalks and off-street paths (via the Ninos Parkway) would provide pedestrian access throughout the project, and the proposed pedestrian facilities would connect to the existing pedestrian facilities abutting the site.

External connections of the project occur approximately every quarter-mile along the project's perimeter, as shown in Exhibit 5. The traffic study included the intersections identified in Exhibit 8, which were used to calculate the number of intersections per square mile in the project area. The project acreage that was used to calculate this number excluded the middle/high school, as it is not considered part of this project, and the detention basin, as it is not a publicly-used land use. This resulted in 30 intersections in approximately 516 acres, or 37 intersections per square mile. As the minimum number of intersections per square mile required to gain credit for this measure is 36, the project is considered to meet this minimum but not exceed it. Hence, no additional reduction in VMT can be accounted for based on the number of intersections per square mile.

The total VMT associated with operation of the Panhandle PUD project at full buildout accounts for an assumed mode shift by those served by the project, as well as reduced trip lengths due to increased connections to the external network.

6.3 REDUCTIONS ACHIEVED BY TRAFFIC STUDY

Based on the measures included in the traffic study and the adjusted VMT estimate for the project, the ROG and NO_x emission reductions are shown below in Table 5.

Table 5 Emission Reduction Achieved by Traffic Study

	ROG tons/year	NO _x tons/year
Reductions from Traffic Study	0.6	3.1
Reductions Still Needed	1.0	5.6
35 Percent Reduction Target ¹	1.7	8.7

Notes: Totals may not sum exactly due to rounding. NO_x = oxides of nitrogen; ROG = reactive organic gases; tons/year = tons per year.

¹ A 35 percent mitigation target is required by this project per SMAQMD guidance as it has not been included in the current adopted SIP. The reduction target of 35 percent is calculated based on the total ROG and NO_x emissions from the mobile sector.

6.4 ADDITIONAL MEASURES NOT INCLUDED IN TRAFFIC STUDY

Based on the emission reduction associated with the traffic study alone, the project would not meet the reduction target of 35 percent for either ROG or NO_x emissions. As such, additional reduction measures were identified and their effectiveness quantified with additional model runs in CalEEMod. This section provides detailed calculations of all additional reduction measures, on- and off-site, to reach the reduction target of 35 percent.

6.4.1 Project Setting for Applying Air Quality Emissions Reductions

The Project Setting feature in CalEEMod was used for this AQMP and set to “Low Density Suburban.” The Project Setting feature is required to be used to help predict the efficacy of the traffic-related mitigation measures. The AQMP Guidance states that “Low Density Suburban” matches the California Air Pollution Control Officers Association (CAPCOA) land use setting “Suburban” (CAPCOA 2010). This setting was chosen based on the definition in CAPCOA’s *Quantification of Greenhouse Gas Mitigation Measures* for “Suburban,” which is characterized by “dispersed, low-density, single-use, automobile dependent land use patterns, usually outside of the central city.” This matches the characteristics of the development proposed in the Panhandle PUD project.

6.4.2 Measure Feasibility

The AQMP Guidance includes mitigation measures that are available to reduce ozone precursors, particulate matter, and greenhouse gas emissions from a project that are considered feasible by SMAQMD. Measures that are considered infeasible include the following:

- ▲ **LUT-1 (Increase Density):** The project proposes residential densities between 4.5 and 7.5 du/na, while the measure requires a density of at least 8 du/na. For this reason, LUT-1 is considered infeasible.
- ▲ **LUT-3 (Increase Diversity):** The project does not include mixed use development, although there are multiple land use types on the project site. The project does not include combined uses on a single site or in a single building. For this reason, LUT-3 is considered infeasible.
- ▲ **LUT-6 (Integrate Below Market Rate Housing):** The project proposes to incorporate single-family houses of various sizes and for various income levels but does not have a deed-restricted low-income housing component on-site. For this reason, LUT-6 is considered infeasible.
- ▲ **SDT-3 (Implement NEV Network):** The project proposes to include a mode share that includes pedestrians, bicyclist, and transit users, but does not propose including neighborhood electric vehicles (NEV) infrastructure. For this reason, SDT-3 is not included as a feasible mitigation measure.
- ▲ **PDT-1 (Limit Parking Supply) and PDT-2 (Unbundle Parking Costs):** The project consists primarily of residential development, with public parking at parks, schools, and commercial development only. Driveways and garages would provide the majority of residential parking and would not be separated from the price of the houses. For these reasons, PDT-1 and PDT-2 are not included as feasible mitigation measures.
- ▲ **TST-1 (Provide BRT System), TST-3 (Expand Transit Network), and TST-4 (Increase Transit Frequency):** The project would join the North Natomas TMA but would not provide additional bus or transit routes as part of the project. Through the participation in the North Natomas TMA, transit frequency may increase, but this is not a project component. For these reasons, TST-1, TST-3, and TST-4 are not included as feasible mitigation measures.

- ▲ **BE-1 (Exceed Title 24):** The project would comply with the 2016 Title 24 standards, which are 28 percent and 5 percent more energy efficient than 2013 Title 24 standards for residential and nonresidential buildings, respectively. There is insufficient information available through the California Energy Commission to exceed the current standards. The anticipated operational year of 2036 for the project suggests that newer building energy efficiency requirements will be in place, which the project would comply with. For this reason, BE-1 is not included as a feasible mitigation measure.

6.4.3 SDT-1 Improve Pedestrian Network

Measure Description: The project will provide a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the project site. Emission reductions are awarded based on the project location, “Low Density Suburban” for this project, which is selected from the drop-down menu in CalEEMod.

- ▲ To qualify for the “project” setting the project must minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, landscaping, and slopes that impede pedestrian circulation are eliminated. Project design includes a designed pedestrian route interconnecting all site entrances, primary building entrances, public facilities, and adjacent uses to existing external pedestrian facilities and streets. Route has minimal conflict with parking and automobile circulation facilities. Streets (with the exception of alleys) within the project have sidewalks. All sidewalks feature vertical curbs or planting strip separating the sidewalk from the parking or travel lane. Pedestrian facilities and improvements such as grade separation, wider sidewalks, and traffic calming are implemented wherever feasible to minimize pedestrian barriers.
- ▲ To qualify for the “project and off site” setting the project must qualify for all the requirements of the “project” setting and implement improvements to off-site pedestrian network, or connect with existing off-site pedestrian connections similar to those described as the “project” setting.

Project Applicability: The project would include sidewalks on all internal streets and provide pedestrian connections to existing trails in the NNCP. All sidewalks on the project site would be at least 5 feet in width and have vertical curbs to separate pedestrians from the travel lane. The area surrounding the project site features existing pedestrian infrastructure with which the project would connect. As detailed in Mitigation Measure 5.11-3b of the DEIR, a neighborhood traffic management plan would be developed that would address travel speed and safe pedestrian crossings. Further, the pedestrian facilities proposed on the project site would be consistent with the City of Sacramento’s Pedestrian Master Plan. As stated in the Panhandle PUD Guidelines, one of the PUD design objectives is to promote pedestrian circulation.

ROG and NO_x Reduction: Implementation of this measure would reduce ROG by 0.02 tons/year and NO_x by 0.12 tons/year.

Enforcement: Incorporation into the project design and required as a provision of this AQMP by Mitigation Measure 5.2-2 in the Draft EIR.

6.4.4 SDT-2 Provide Traffic Calming Measures

Measure Description: The project provides traffic calming measures to encourage people to walk or bike instead of using a vehicle. Project design includes pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways are designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic calming features.

Project Applicability: The project would have at least three traffic circles to reduce motor vehicle speeds. All roads in the project would have either a Class 2 or 3 bike route to ensure pedestrian safety, as well as a separate Class 1 bikeway. All streets would feature sidewalks with vertical curbs to protect pedestrians from travel lanes. Exhibit 6 shows bicycle routes and traffic circles within project site.

ROG and NO_x Reduction: Implementation of this measure would reduce ROG by 0.06 tons/year and NO_x by 0.3 tons/year.

Enforcement: Incorporation into the project design and required as a provision of this AQMP by Mitigation Measure 5.2-2 in the Draft EIR.

6.4.5 TRT-1&2 Implement Trip Reduction Program

Measure Description: Research and SMAQMD experience suggest that providing commute trip reduction programs increases sustainable mode share for the commute and results in about a five percent decrease in vehicle miles traveled. SMAQMD determines compliance if a project permanently joins a Transportation Management Association (TMA) to be funded through a Community Facilities District, County Service Area, or other non-revocable funding mechanism.

Project Applicability: The project applicant would join the North Natomas TMA to increase sustainable mode share and decrease vehicle miles traveled. The project would also incorporate Mitigation Measure 5.11-7 in the Draft EIR, which requires the applicant to coordinate with Regional Transit (or other transit operators such as North Natomas TMA) to plan, fund, and implement transit facilities and services to meet transit demand of the project. The implementation of this mitigation measure would further reduce trips generated by the project.

ROG and NO_x Reduction: Implementation of this measure would reduce ROG by 0.04 tons/year and NO_x by 0.2 tons/year.

Enforcement: Incorporation into the project design and required as a provision of this AQMP by Mitigation Measure 5.2-2 in the Draft EIR.

6.4.6 ROG and NO_x Offsite Mitigation

Measure: The project would create an offsite mitigation program that achieves a reduction of 0.8 tons/year of ROG and 4 tons/year of NO_x. The program would be approved by the City of Sacramento in consultation with SMAQMD. One such program the project could use is SMAQMD's woodstove and fireplace replacement program that aims to reduce ROG, NO_x, and PM₁₀ emissions from residences in the Sacramento Valley Air Basin. Wood smoke created from the use of wood and pellets in woodstoves and fireplaces result in significant emissions of NO_x, ROG, and PM₁₀, especially during the winter. The wood-burning fireplaces would be replaced with cleaner natural gas or electric versions that are approved by the U.S. Environmental Protection Agency.

Project Applicability: The project, with the incorporation of all on-site mitigation measures of this AQMP would still not achieve the 35 percent reduction target for either ROG or NO_x. Thus, an additional 0.8 tons/year of ROG and 4.1 tons/year of NO_x would need to be offset. The project anticipates using the SMAQMD woodstove and fireplace replacement program. A one-time fee would be paid to SMAQMD that is equivalent to the amount of ozone precursors (ROG and NO_x) that exceed the 35 percent reduction target for the project. The fee would be established at the time of payment by SMAQMD and based on the current price per pound to offset emissions plus any administration fees.

ROG and NO_x Reduction: Implementation of this measure would reduce ROG by 0.82 tons/year and NO_x by 4.07 tons/year. Any excess ROG reduced may be considered NO_x reductions at the rate determined by the photochemical modeling for the 2008 State Implementation Plan (at a rate of 7 ROG to 1 NO_x).

Enforcement: Incorporation into the project design and required as a provision of this AQMP by Mitigation Measure 5.2-2 in the Draft EIR.

7 MITIGATED EMISSIONS SCENARIO AND REDUCTION TARGET ACHIEVEMENT

To generate the mitigated emissions scenario for the project, the unmitigated emissions scenario was altered to reflect project-specific traffic parameters described in the traffic study, adjustments for 2016 Title 24 standards, and all on-site feasible mitigation measures identified in section 6 above (DKS 2017).

Based on the traffic study, the project's daily VMT in comparison to the existing conditions would be 142,246 and the annual VMT would be 51,919,813. Annual VMT was calculated by multiplying the daily VMT by 365 days per year. Accounting for all the future development and the components of the proposed project, the future (i.e., 2036) daily VMT associated with the project alone would be 142,246 and the annual VMT would be 51,919,790. This represents a 34 percent reduction over the annual VMT calculated by CalEEMod for the unmitigated emissions scenario. Emissions estimated based on the project-specific VMT data are summarized below in Table 6.

Table 6 Summary of Mitigated Annual Operational Emissions Ozone Precursors at Full Buildout (2036)

Source-Type	tons/year		
	ROG	NO _x	PM ₁₀
Area Source ¹	24.6	0.3	0.2
Energy ²	0.4	3.3	0.3
Mobile Source ²	4.0	21.2	17.8
Total Annual Emissions	29.0	24.8	18.2

Notes: NO_x = oxides of nitrogen, ROG = reactive organic gases; PM₁₀ = respirable particulate matter; tons/year = tons per year.

Totals may not sum exactly because of rounding.

¹ Area-source emissions include natural gas consumption in fireplaces, emissions from landscaping, application of architectural coatings, and consumer products, and are estimated based on default model settings.

² Energy emissions include emissions associated with natural gas consumption for indoor heating/cooling and appliance use.

See Appendix C of the Draft EIR for detailed input parameters and modeling results.

Source: Modeling conducted by Ascent Environmental, Inc. in 2017.

In addition to reductions achieved by the project-specific traffic study and all on-site measures, additional off-site mitigation was incorporated to achieve the 35 percent reduction target. Table 7 below summarizes all mitigation measures included in this AQMP that are required to meet the project's reduction target. The percent reductions for both ROG and NO_x are shown below based on implementation of the measures.

Table 7 Mitigation Measure Reduction Summary

Measure Number	Measure Title	ROG Reduction (tons/year)	NO _x Reduction (tons/year)
SDT-1	Improve Pedestrian Network	0.02	0.12
SDT-2	Provide Traffic Calming Measures	0.06	0.3
TRT-1&2	Implement Trip Reduction Program	0.04	0.2
Traffic Study Design Features	Traffic Study VMT Adjustment	0.64	3.12
Title 24	2016 Title 24 Adjustment	0.12	0.97
	ROG and NO _x Offsite Mitigation	0.82	4.07
Total		1.7	8.7
Target		1.7	8.7

Notes: NO_x = oxides of nitrogen, ROG = reactive organic gases; tons/year = tons per year; VMT= vehicle miles traveled.

Totals may not sum exactly because of rounding.

Source: Compiled by Ascent Environmental in 2017.

8 CONCLUSION

The application of the above mitigation measures to the proposed project will meet the 35 percent emissions reduction target established by SMAQMD. Considering the mix of proposed land uses, incorporated bicycle and pedestrian facilities, and new roadways, and participation in SMAQMD's offsite ROG and NO_x reduction program, the Panhandle PUD project would result in a 35 percent reduction in long-term operational emissions of ozone precursors over unmitigated emissions.

None of the measures included in the project design would need ongoing monitoring beyond the completion date of the project. By meeting the 35 percent reduction target, as documented in this AQMP, the requirements of this AQMP have been met. A breakdown of on-site and off-site mitigation measured compared to the reduction target is shown below in Table 8.

Table 8 Reduction Target Summary

	ROG tons/year	NO _x tons/year	PM ₁₀ tons/year
35% Reduction Target ²	1.7	8.7	NA
On-site Mitigation Achieved	0.9	4.6	11.9
Offsite Mitigation Achieved	0.8	4.1	22
Total Mitigation Achieved	1.7	8.7	33.9

Notes: NA = not applicable; NO_x = oxides of nitrogen; ROG = reactive organic gases; PM₁₀ = respirable particulate matter; tons/year = tons per year.

¹ Emissions reported from the mitigated CalEEMod run using project-specific trip rates.

² A 35 percent mitigation target is required by this project per SMAQMD guidance as it has not been included in the current adopted SIP.

Totals may not sum exactly because of rounding.

Source: Compiled by Ascent Environmental in 2017.

9 REFERENCES

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Sacramento Regional Transit District. 2014. *Short Range Transit Plan*. Sacramento, CA.

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Exhibits to Support AQMP

Exhibit 1.....	Regional Map
Exhibit 2.....	Vicinity Map
Exhibit 3.....	Panhandle PUD Schematic Plan
Exhibit 4.....	Regional Transit Services
Exhibit 5.....	Project Circulation Plan
Exhibit 6.....	Project Bikeway Plan
Exhibit 7.....	Regional Bikeway Connections
Exhibit 8.....	Intersection Study Area

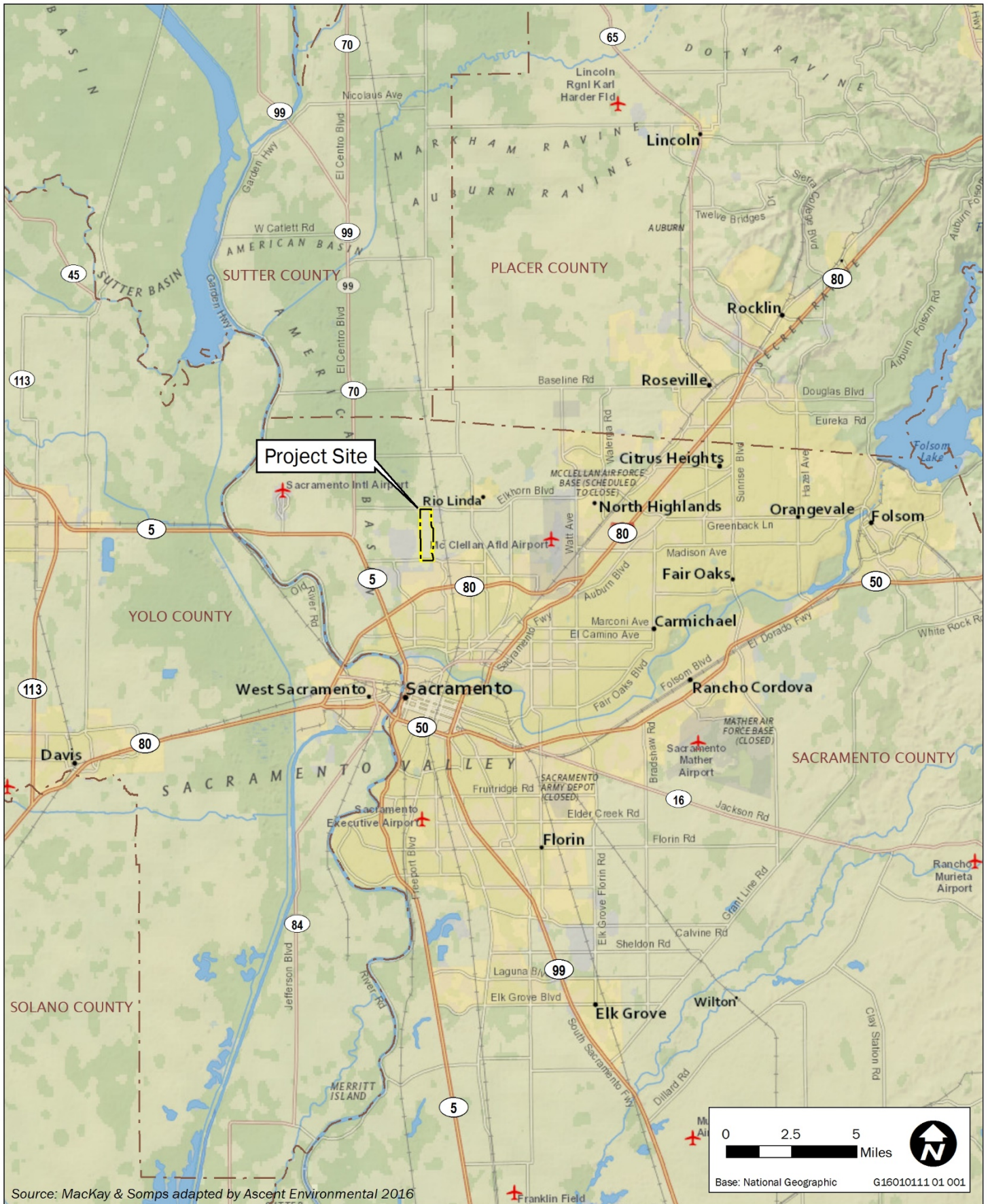


Exhibit 1

Regional Map



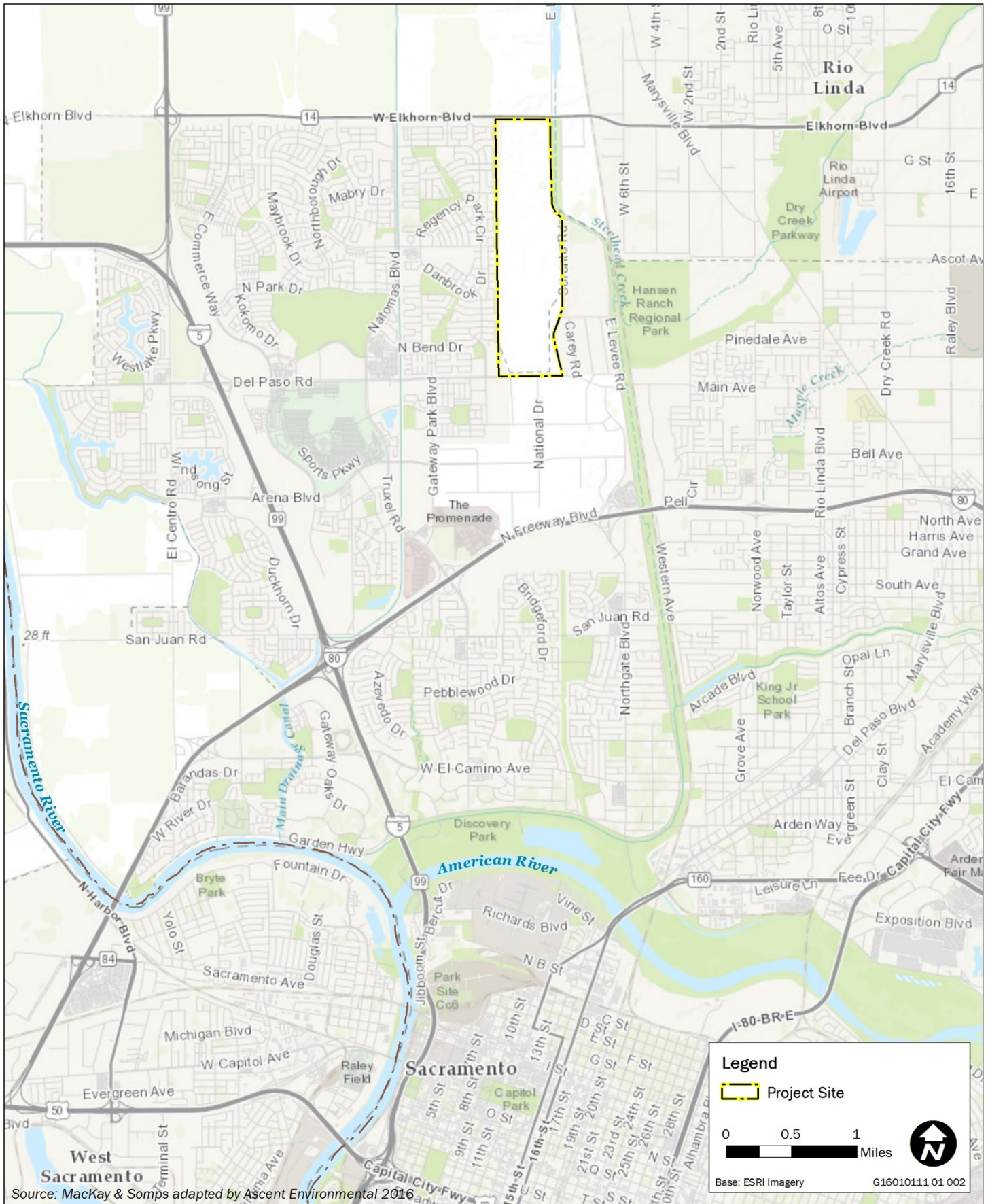
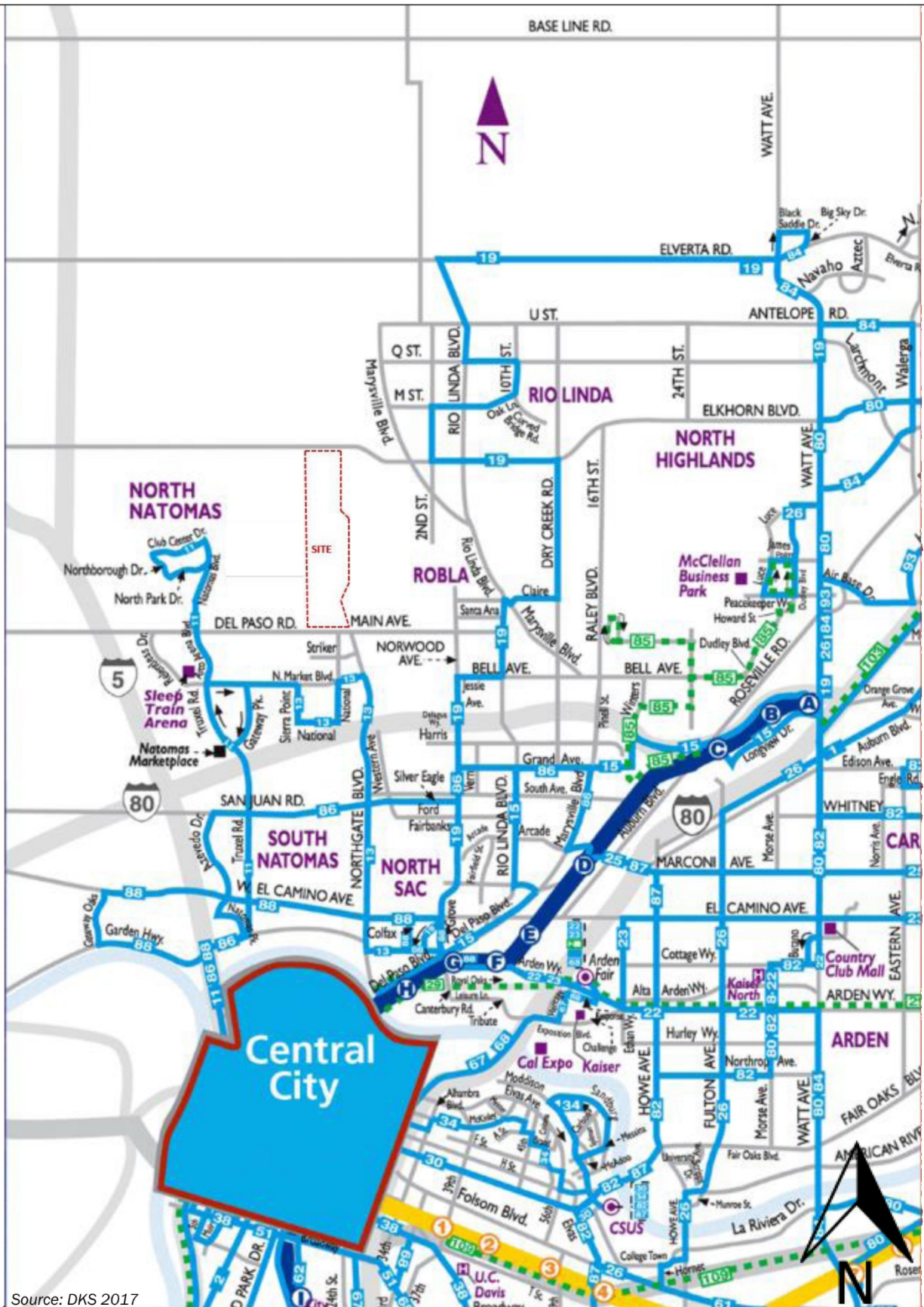


Exhibit 2

Vicinity Map





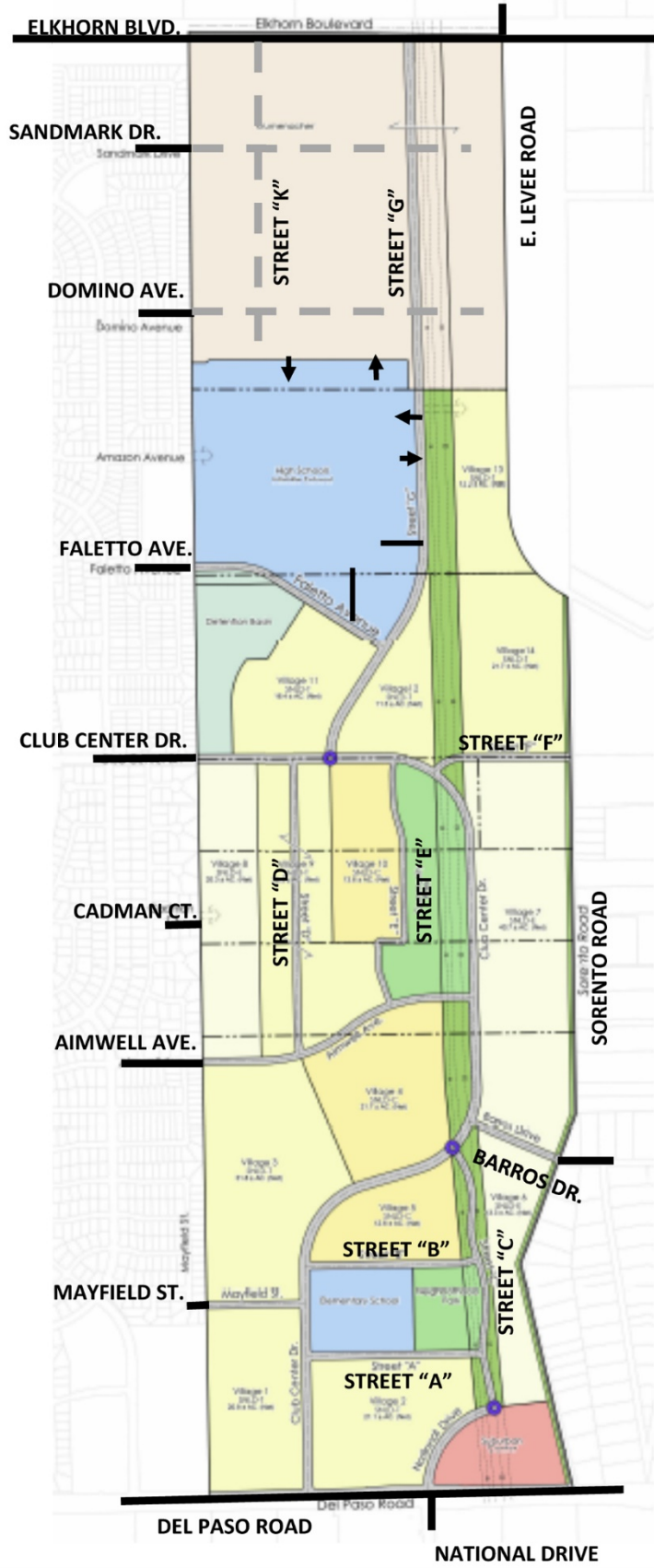
Source: DKS 2017

X16010111.01 01.1

Exhibit 4

Regional Transit Services





Source: DKS 2017

X16010111 01 014



Exhibit 5

Project Circulation Plan





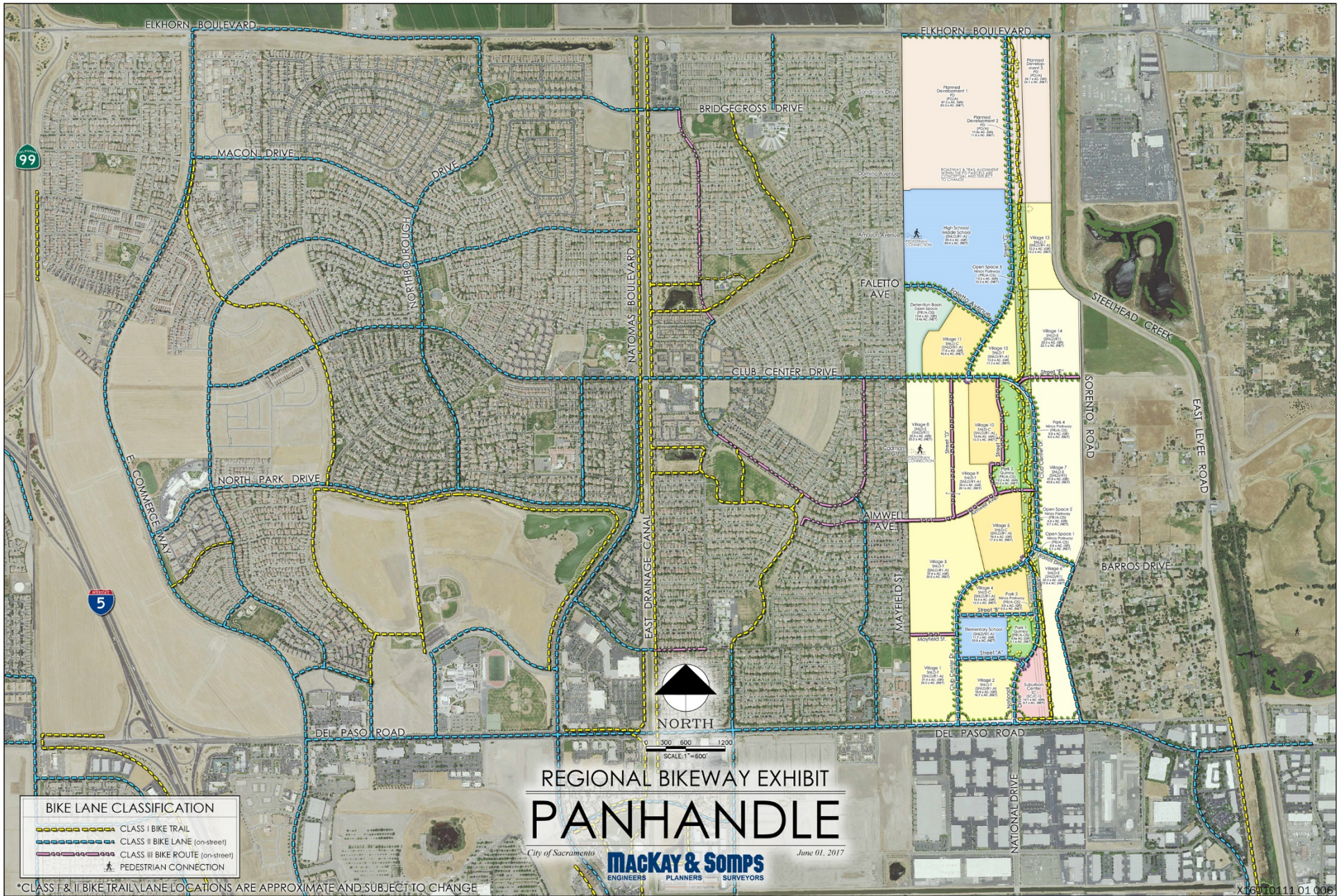
LEGEND

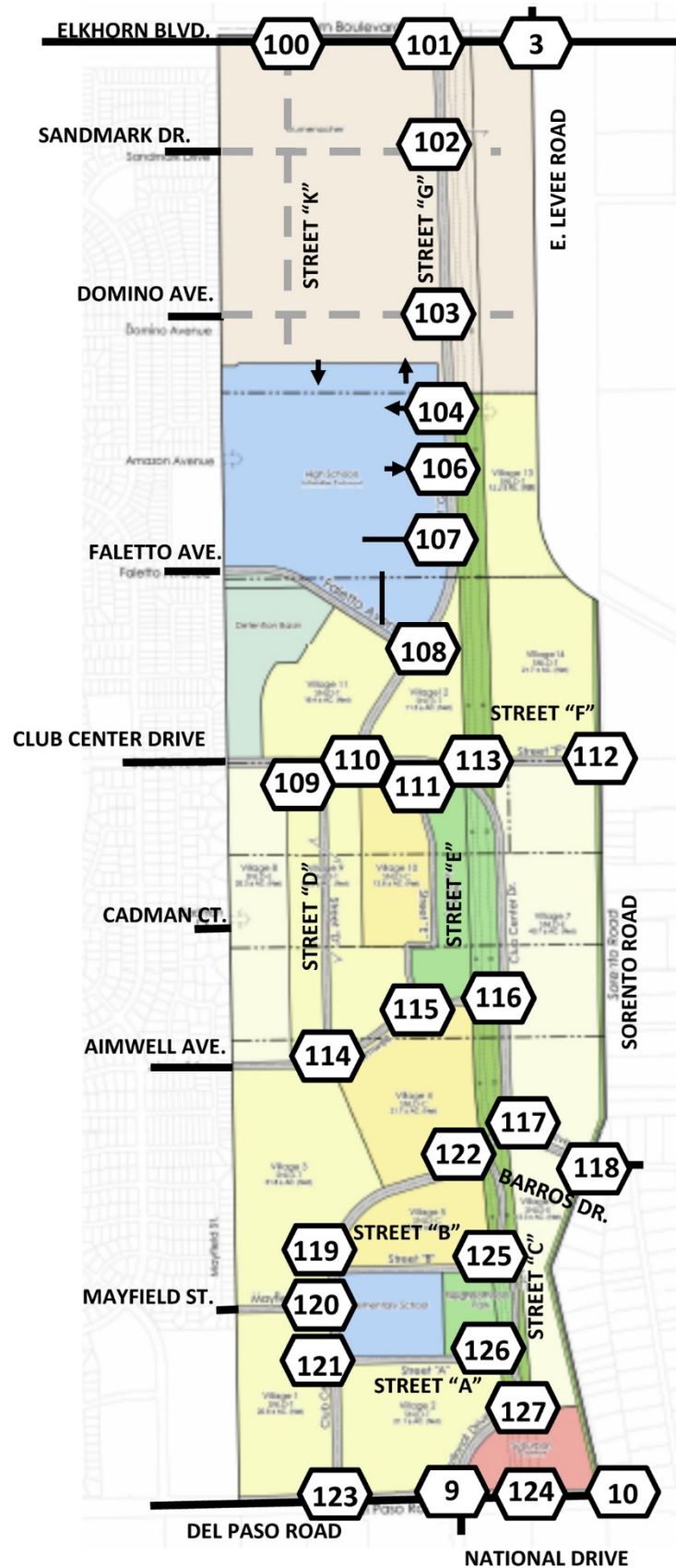
-  Class 1 Bike Trail (off-street)
-  Class 2 Bike Route (on-street)
- Class 3 Bike Route - (all other streets)



Source: DKS 2017

X16010111 01 015





Source: DKS 2017

X16010111 01 019

Exhibit 8

Intersection Study Area



Appendix E

Greenhouse Gases Modeling Data

Panhandle Baseline Operational - Sacramento County, Annual

**Panhandle Baseline Operational
Sacramento County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
Junior High School	2,800.00	Student	7.56	329,172.71	0
City Park	57.80	Acre	57.80	2,517,768.00	0
Single Family Housing	2,660.00	Dwelling Unit	397.70	4,788,000.00	7102
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses match project description and traffic study

Off-road Equipment -

Panhandle Baseline Operational - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	863.64	397.70
tblLandUse	LotAcreage	2.33	9.70
tblProjectCharacteristics	OperationalYear	2018	2035

2.0 Emissions Summary

Panhandle Baseline Operational - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	12,392.9046	12,392.9046	0.4628	0.1658	12,453.8765
Mobile	4.7765	24.8364	54.0591	0.2523	29.4631	0.1297	29.5928	7.8886	0.1205	8.0091	0.0000	23,357.3248	23,357.3248	0.8633	0.0000	23,378.9083
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	442.4240	509.2259	0.2517	0.1498	560.1486
Total	29.8727	29.3788	83.3637	0.2806	29.4631	0.6222	30.0853	7.8886	0.6131	8.5016	730.6392	36,237.5485	36,968.1877	40.8524	0.3156	38,083.5290

Panhandle Baseline Operational - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	12,392.9046	12,392.9046	0.4628	0.1658	12,453.8765
Mobile	4.7765	24.8364	54.0591	0.2523	29.4631	0.1297	29.5928	7.8886	0.1205	8.0091	0.0000	23,357.3248	23,357.3248	0.8633	0.0000	23,378.9083
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	442.4240	509.2259	0.2517	0.1498	560.1486
Total	29.8727	29.3788	83.3637	0.2806	29.4631	0.6222	30.0853	7.8886	0.6131	8.5016	730.6392	36,237.5485	36,968.1877	40.8524	0.3156	38,083.5290

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Panhandle Baseline Operational - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	3/20/2017	3/19/2017	5	550	
2	Building Construction	Building Construction	3/20/2017	3/19/2017	5	7750	
3	Demolition	Demolition	3/20/2017	3/19/2017	5	500	
4	Grading	Grading	3/20/2017	3/19/2017	5	775	
5	Paving	Paving	3/20/2017	3/19/2017	5	550	
6	Site Preparation	Site Preparation	3/20/2017	3/19/2017	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1937.5

Acres of Paving: 0

Residential Indoor: 9,695,700; Residential Outdoor: 3,231,900; Non-Residential Indoor: 708,377; Non-Residential Outdoor: 236,126; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Panhandle Baseline Operational - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Panhandle Baseline Operational - Sacramento County, Annual

3.7 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Panhandle Baseline Operational - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.7765	24.8364	54.0591	0.2523	29.4631	0.1297	29.5928	7.8886	0.1205	8.0091	0.0000	23,357.32 48	23,357.32 48	0.8633	0.0000	23,378.90 83
Unmitigated	4.7765	24.8364	54.0591	0.2523	29.4631	0.1297	29.5928	7.8886	0.1205	8.0091	0.0000	23,357.32 48	23,357.32 48	0.8633	0.0000	23,378.90 83

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	109.24	1,314.95	967.57	745,554	745,554
Elementary School	645.00	0.00	0.00	968,813	968,813
Junior High School	4,536.00	0.00	0.00	7,131,752	7,131,752
Regional Shopping Center	4,324.66	5,060.96	2556.31	5,836,852	5,836,852
Single Family Housing	25,323.20	26,360.60	22929.20	64,484,780	64,484,780
Total	34,938.10	32,736.51	26,453.08	79,167,751	79,167,751

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Elementary School	10.00	5.00	6.50	65.00	30.00	5.00	63	25	12
Junior High School	10.00	5.00	6.50	72.80	22.20	5.00	63	25	12
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

Panhandle Baseline Operational - Sacramento County, Annual

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Junior High School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,519.2185	7,519.2185	0.3694	0.0764	7,551.2285
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,519.2185	7,519.2185	0.3694	0.0764	7,551.2285
NaturalGas Mitigated	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480
NaturalGas Unmitigated	0.4925	4.2267	1.9254	0.0269		0.3403	0.3403		0.3403	0.3403	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

Panhandle Baseline Operational - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Junior High School	5.04951e+006	0.0272	0.2475	0.2079	1.4900e-003		0.0188	0.0188		0.0188	0.0188	0.0000	269.4611	269.4611	5.1600e-003	4.9400e-003	271.0623
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	8.50877e+007	0.4588	3.9207	1.6684	0.0250		0.3170	0.3170		0.3170	0.3170	0.0000	4,540.6055	4,540.6055	0.0870	0.0832	4,567.5881
Total		0.4925	4.2267	1.9254	0.0269		0.3402	0.3402		0.3402	0.3402	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

Panhandle Baseline Operational - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Junior High School	5.04951e+006	0.0272	0.2475	0.2079	1.4900e-003		0.0188	0.0188		0.0188	0.0188	0.0000	269.4611	269.4611	5.1600e-003	4.9400e-003	271.0623
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	8.50877e+007	0.4588	3.9207	1.6684	0.0250		0.3170	0.3170		0.3170	0.3170	0.0000	4,540.6055	4,540.6055	0.0870	0.0832	4,567.5881
Total		0.4925	4.2267	1.9254	0.0269		0.3402	0.3402		0.3402	0.3402	0.0000	4,873.6861	4,873.6861	0.0934	0.0894	4,902.6480

Panhandle Baseline Operational - Sacramento County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Junior High School	2.47209e+006	661.9263	0.0325	6.7300e-003	664.7442
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	2.40948e+007	6,451.6153	0.3170	0.0656	6,479.0804
Total		7,519.2185	0.3694	0.0764	7,551.2285

Panhandle Baseline Operational - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Junior High School	2.47209e+006	661.9263	0.0325	6.7300e-003	664.7442
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	2.40948e+007	6,451.6153	0.3170	0.0656	6,479.0804
Total		7,519.2185	0.3694	0.0764	7,551.2285

6.0 Area Detail

6.1 Mitigation Measures Area

Panhandle Baseline Operational - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Unmitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

Panhandle Baseline Operational - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

7.0 Water Detail

7.1 Mitigation Measures Water

Panhandle Baseline Operational - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	509.2259	0.2517	0.1498	560.1486
Unmitigated	509.2259	0.2517	0.1498	560.1486

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	64.5400	3.1700e-003	6.6000e-004	64.8148
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Junior High School	6.78787 / 17.4545	27.8152	9.5100e-003	5.4800e-003	29.6864
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	173.31 / 109.26	394.9315	0.2274	0.1367	441.3647
Total		509.2259	0.2517	0.1498	560.1486

Panhandle Baseline Operational - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	64.5400	3.1700e-003	6.6000e-004	64.8148
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Junior High School	6.78787 / 17.4545	27.8152	9.5100e-003	5.4800e-003	29.6864
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	173.31 / 109.26	394.9315	0.2274	0.1367	441.3647
Total		509.2259	0.2517	0.1498	560.1486

8.0 Waste Detail

8.1 Mitigation Measures Waste

Panhandle Baseline Operational - Sacramento County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	663.8373	39.2317	0.0000	1,644.6288
Unmitigated	663.8373	39.2317	0.0000	1,644.6288

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

Panhandle Baseline Operational - Sacramento County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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Panhandle Baseline Operational - Sacramento County, Annual

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

**Panhandle TS Title 24 Adjusted Operational
Sacramento County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
Junior High School	2,800.00	Student	7.56	329,172.71	0
City Park	57.80	Acre	57.80	2,517,768.00	0
Single Family Housing	2,660.00	Dwelling Unit	397.70	4,788,000.00	7102
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	533.87	CH4 Intensity (lb/MWhr)	0.027	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

Project Characteristics - Utility intensity factor adjusted for 2020 RPS

Land Use - Land uses match project description and traffic study.

Construction Phase - Operational only

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Trip lengths match VMT calculated in traffic study.

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use - Adjustments made for 2016 Title 24 standards. 28% reduction for residential, 5% reduction for non-residential.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	T24E	2.15	2.04
tblEnergyUse	T24E	2.15	2.04
tblEnergyUse	T24E	3.41	3.24
tblEnergyUse	T24E	768.93	553.63
tblEnergyUse	T24NG	14.68	13.95
tblEnergyUse	T24NG	14.68	13.95
tblEnergyUse	T24NG	4.51	4.28
tblEnergyUse	T24NG	29,300.87	21,096.63
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	863.64	397.70
tblLandUse	LotAcreage	2.33	9.70
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.027
tblProjectCharacteristics	CO2IntensityFactor	590.31	533.87
tblProjectCharacteristics	OperationalYear	2018	2035
tblVehicleTrips	CC_TL	5.00	3.03
tblVehicleTrips	CC_TL	5.00	4.00
tblVehicleTrips	CNW_TL	6.50	4.01
tblVehicleTrips	CNW_TL	6.50	4.02
tblVehicleTrips	CNW_TL	6.50	4.00
tblVehicleTrips	CW_TL	10.00	4.00
tblVehicleTrips	CW_TL	10.00	4.00
tblVehicleTrips	CW_TL	10.00	5.26
tblVehicleTrips	HO_TL	6.50	4.00
tblVehicleTrips	HS_TL	5.00	4.00
tblVehicleTrips	HW_TL	10.00	5.80

2.0 Emissions Summary

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-16-2020	6-15-2020	1.6016	1.6016
2	6-16-2020	9-15-2020	2.9330	2.9330
3	9-16-2020	12-15-2020	1.4397	1.4397
4	12-16-2020	3-15-2021	3.0535	3.0535
		Highest	3.0535	3.0535

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.3732	3.2067	1.4854	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	10,340.9832	10,340.9832	0.4070	0.1424	10,393.5997
Mobile	4.1395	21.7217	39.3213	0.1720	19.3225	0.0922	19.4147	5.1735	0.0856	5.2591	0.0000	15,935.1982	15,935.1982	0.6437	0.0000	15,951.2904
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	400.1235	466.9254	0.2502	0.1498	517.8107
Total	29.1165	25.2441	68.1858	0.1938	19.3225	0.5023	19.8248	5.1735	0.4957	5.6692	730.6392	26,721.1999	27,451.8391	40.5754	0.2922	28,553.2964

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Energy	0.3732	3.2067	1.4854	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	10,340.9832	10,340.9832	0.4070	0.1424	10,393.5997
Mobile	4.0388	21.2288	36.9895	0.1593	17.7181	0.0862	17.8043	4.7439	0.0801	4.8240	0.0000	14,760.8825	14,760.8825	0.6089	0.0000	14,776.1058
Waste						0.0000	0.0000		0.0000	0.0000	663.8373	0.0000	663.8373	39.2317	0.0000	1,644.6288
Water						0.0000	0.0000		0.0000	0.0000	66.8019	400.1235	466.9254	0.2502	0.1498	517.8107
Total	29.0157	24.7513	65.8541	0.1811	17.7181	0.4963	18.2145	4.7439	0.4902	5.2341	730.6392	25,546.8841	26,277.5233	40.5406	0.2922	27,378.1119

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.35	1.95	3.42	6.55	8.30	1.18	8.12	8.30	1.12	7.67	0.00	4.39	4.28	0.09	0.00	4.12

3.0 Construction Detail

Construction Phase

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/16/2020	5/22/2020	5	300	
2	Grading	Grading	5/23/2020	7/31/2020	5	775	
3	Building Construction	Building Construction	8/1/2020	10/9/2020	5	7750	
4	Paving	Paving	10/10/2020	12/18/2020	5	550	
5	Architectural Coating	Architectural Coating	12/19/2020	2/26/2021	5	550	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1937.5

Acres of Paving: 0

Residential Indoor: 9,695,700; Residential Outdoor: 3,231,900; Non-Residential Indoor: 708,377; Non-Residential Outdoor: 236,126; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	2,203.00	774.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	441.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4517	0.0000	0.4517	0.2483	0.0000	0.2483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1019	1.0604	0.5378	9.5000e-004		0.0549	0.0549		0.0505	0.0505	0.0000	83.5767	83.5767	0.0270	0.0000	84.2525
Total	0.1019	1.0604	0.5378	9.5000e-004	0.4517	0.0549	0.5066	0.2483	0.0505	0.2988	0.0000	83.5767	83.5767	0.0270	0.0000	84.2525

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304
Total	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304

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3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4517	0.0000	0.4517	0.2483	0.0000	0.2483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1019	1.0604	0.5378	9.5000e-004		0.0549	0.0549		0.0505	0.0505	0.0000	83.5766	83.5766	0.0270	0.0000	84.2524
Total	0.1019	1.0604	0.5378	9.5000e-004	0.4517	0.0549	0.5066	0.2483	0.0505	0.2988	0.0000	83.5766	83.5766	0.0270	0.0000	84.2524

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304
Total	1.6800e-003	1.1400e-003	0.0125	3.0000e-005	3.3000e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9283	2.9283	8.0000e-005	0.0000	2.9304

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3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2168	0.0000	0.2168	0.0899	0.0000	0.0899	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1113	1.2549	0.7990	1.5500e-003		0.0544	0.0544		0.0500	0.0500	0.0000	136.2107	136.2107	0.0441	0.0000	137.3121
Total	0.1113	1.2549	0.7990	1.5500e-003	0.2168	0.0544	0.2712	0.0899	0.0500	0.1399	0.0000	136.2107	136.2107	0.0441	0.0000	137.3121

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560
Total	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560

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3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2168	0.0000	0.2168	0.0899	0.0000	0.0899	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1113	1.2549	0.7990	1.5500e-003		0.0544	0.0544		0.0500	0.0500	0.0000	136.2106	136.2106	0.0441	0.0000	137.3119
Total	0.1113	1.2549	0.7990	1.5500e-003	0.2168	0.0544	0.2712	0.0899	0.0500	0.1399	0.0000	136.2106	136.2106	0.0441	0.0000	137.3119

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560
Total	1.8600e-003	1.2600e-003	0.0138	4.0000e-005	3.6700e-003	3.0000e-005	3.7000e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2537	3.2537	9.0000e-005	0.0000	3.2560

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3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9025	57.9025	0.0141	0.0000	58.2557
Total	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9025	57.9025	0.0141	0.0000	58.2557

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0741	2.1700	0.6052	4.7700e-003	0.1132	0.0112	0.1244	0.0327	0.0107	0.0434	0.0000	457.8469	457.8469	0.0271	0.0000	458.5246
Worker	0.2050	0.1390	1.5245	3.9700e-003	0.4045	2.9100e-003	0.4074	0.1076	2.6800e-003	0.1103	0.0000	358.3928	358.3928	0.0101	0.0000	358.6462
Total	0.2791	2.3090	2.1297	8.7400e-003	0.5176	0.0141	0.5318	0.1403	0.0134	0.1537	0.0000	816.2397	816.2397	0.0372	0.0000	817.1708

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3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9024	57.9024	0.0141	0.0000	58.2556
Total	0.0530	0.4797	0.4212	6.7000e-004		0.0279	0.0279		0.0263	0.0263	0.0000	57.9024	57.9024	0.0141	0.0000	58.2556

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0741	2.1700	0.6052	4.7700e-003	0.1132	0.0112	0.1244	0.0327	0.0107	0.0434	0.0000	457.8469	457.8469	0.0271	0.0000	458.5246
Worker	0.2050	0.1390	1.5245	3.9700e-003	0.4045	2.9100e-003	0.4074	0.1076	2.6800e-003	0.1103	0.0000	358.3928	358.3928	0.0101	0.0000	358.6462
Total	0.2791	2.3090	2.1297	8.7400e-003	0.5176	0.0141	0.5318	0.1403	0.0134	0.1537	0.0000	816.2397	816.2397	0.0372	0.0000	817.1708

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3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0706	50.0706	0.0162	0.0000	50.4754
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0706	50.0706	0.0162	0.0000	50.4754

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420
Total	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420

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3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0705	50.0705	0.0162	0.0000	50.4753
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0339	0.3516	0.3663	5.7000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	50.0705	50.0705	0.0162	0.0000	50.4753

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420
Total	1.4000e-003	9.5000e-004	0.0104	3.0000e-005	2.7500e-003	2.0000e-005	2.7700e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4403	2.4403	7.0000e-005	0.0000	2.4420

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3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5261					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512
Total	0.5272	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230
Total	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230

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3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5261					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512
Total	0.5272	7.5800e-003	8.2400e-003	1.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.1490	1.1490	9.0000e-005	0.0000	1.1512

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230
Total	7.3900e-003	5.0100e-003	0.0549	1.4000e-004	0.0146	1.0000e-004	0.0147	3.8800e-003	1.0000e-004	3.9700e-003	0.0000	12.9139	12.9139	3.7000e-004	0.0000	12.9230

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3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3965					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4900e-003	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2432
Total	2.4010	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2432

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640
Total	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640

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3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3965					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4900e-003	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2431
Total	2.4010	0.0313	0.0373	6.0000e-005		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	5.2342	5.2342	3.6000e-004	0.0000	5.2431

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640
Total	0.0313	0.0205	0.2288	6.3000e-004	0.0664	4.6000e-004	0.0669	0.0177	4.3000e-004	0.0181	0.0000	56.8267	56.8267	1.4900e-003	0.0000	56.8640

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

Improve Walkability Design

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0388	21.2288	36.9895	0.1593	17.7181	0.0862	17.8043	4.7439	0.0801	4.8240	0.0000	14,760.8825	14,760.8825	0.6089	0.0000	14,776.1058
Unmitigated	4.1395	21.7217	39.3213	0.1720	19.3225	0.0922	19.4147	5.1735	0.0856	5.2591	0.0000	15,935.1982	15,935.1982	0.6437	0.0000	15,951.2904

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	109.24	1,314.95	967.57	380,606	346,256
Elementary School	645.00	0.00	0.00	466,658	420,588
Junior High School	4,536.00	0.00	0.00	7,131,752	6,422,958
Regional Shopping Center	4,324.66	5,060.96	2556.31	4,646,474	4,213,148
Single Family Housing	25,323.20	26,360.60	22929.20	39,294,462	36,205,902
Total	34,938.10	32,736.51	26,453.08	51,919,951	47,608,853

4.3 Trip Type Information

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	4.00	3.03	4.01	33.00	48.00	19.00	66	28	6
Elementary School	4.00	4.00	4.02	65.00	30.00	5.00	63	25	12
Junior High School	10.00	5.00	6.50	72.80	22.20	5.00	63	25	12
Regional Shopping Center	5.26	5.00	4.00	16.30	64.70	19.00	54	35	11
Single Family Housing	5.80	4.00	4.00	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Junior High School	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000	6,647.5649	6,647.5649	0.3362	0.0747	6,678.2333
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000	6,647.5649	6,647.5649	0.3362	0.0747	6,678.2333
NaturalGas Mitigated	0.3732	3.2067	1.4854	0.0204			0.2579	0.2579		0.2579	0.2579	3,693.4183	3,693.4183	0.0708	0.0677	3,715.3664
NaturalGas Unmitigated	0.3732	3.2067	1.4854	0.0204			0.2579	0.2579		0.2579	0.2579	3,693.4183	3,693.4183	0.0708	0.0677	3,715.3664

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	610723	3.2900e-003	0.0299	0.0252	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.5905	32.5905	6.2000e-004	6.0000e-004	32.7842
Junior High School	4.80921e+006	0.0259	0.2358	0.1980	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	256.6379	256.6379	4.9200e-003	4.7100e-003	258.1630
Regional Shopping Center	527653	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1576	28.1576	5.4000e-004	5.2000e-004	28.3249
Single Family Housing	6.32645e+007	0.3411	2.9151	1.2405	0.0186		0.2357	0.2357		0.2357	0.2357	0.0000	3,376.0323	3,376.0323	0.0647	0.0619	3,396.0944
Total		0.3732	3.2067	1.4854	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	3,693.4183	3,693.4183	0.0708	0.0677	3,715.3664

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	610723	3.2900e-003	0.0299	0.0252	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.5905	32.5905	6.2000e-004	6.0000e-004	32.7842
Junior High School	4.80921e+006	0.0259	0.2358	0.1980	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	256.6379	256.6379	4.9200e-003	4.7100e-003	258.1630
Regional Shopping Center	527653	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1576	28.1576	5.4000e-004	5.2000e-004	28.3249
Single Family Housing	6.32645e+007	0.3411	2.9151	1.2405	0.0186		0.2357	0.2357		0.2357	0.2357	0.0000	3,376.0323	3,376.0323	0.0647	0.0619	3,396.0944
Total		0.3732	3.2067	1.4854	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	3,693.4183	3,693.4183	0.0708	0.0677	3,715.3664

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	309333	74.9078	3.7900e-003	8.4000e-004	75.2534
Junior High School	2.43588e+006	589.8707	0.0298	6.6300e-003	592.5920
Regional Shopping Center	1.18393e+006	286.6993	0.0145	3.2200e-003	288.0220
Single Family Housing	2.35221e+007	5,696.0872	0.2881	0.0640	5,722.3660
Total		6,647.5649	0.3362	0.0747	6,678.2333

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	309333	74.9078	3.7900e-003	8.4000e-004	75.2534
Junior High School	2.43588e+006	589.8707	0.0298	6.6300e-003	592.5920
Regional Shopping Center	1.18393e+006	286.6993	0.0145	3.2200e-003	288.0220
Single Family Housing	2.35221e+007	5,696.0872	0.2881	0.0640	5,722.3660
Total		6,647.5649	0.3362	0.0747	6,678.2333

6.0 Area Detail

6.1 Mitigation Measures Area

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Unmitigated	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2149					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8213	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669
Total	24.6038	0.3158	27.3792	1.4500e-003		0.1523	0.1523		0.1523	0.1523	0.0000	44.8950	44.8950	0.0429	0.0000	45.9669

7.0 Water Detail

7.1 Mitigation Measures Water

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	466.9254	0.2502	0.1498	517.8107
Unmitigated	466.9254	0.2502	0.1498	517.8107

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	58.3693	2.9500e-003	6.6000e-004	58.6386
Elementary School	1.21212 / 3.11688	4.5331	1.6800e-003	9.8000e-004	4.8669
Junior High School	6.78787 / 17.4545	25.3854	9.4300e-003	5.4800e-003	27.2544
Regional Shopping Center	7.50206 / 4.59804	15.6032	9.7900e-003	5.9200e-003	17.6114
Single Family Housing	173.31 / 109.26	363.0344	0.2263	0.1367	409.4394
Total		466.9254	0.2502	0.1498	517.8106

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 68.8676	58.3693	2.9500e-003	6.6000e-004	58.6386
Elementary School	1.21212 / 3.11688	4.5331	1.6800e-003	9.8000e-004	4.8669
Junior High School	6.78787 / 17.4545	25.3854	9.4300e-003	5.4800e-003	27.2544
Regional Shopping Center	7.50206 / 4.59804	15.6032	9.7900e-003	5.9200e-003	17.6114
Single Family Housing	173.31 / 109.26	363.0344	0.2263	0.1367	409.4394
Total		466.9254	0.2502	0.1498	517.8106

8.0 Waste Detail

8.1 Mitigation Measures Waste

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	663.8373	39.2317	0.0000	1,644.6288
Unmitigated	663.8373	39.2317	0.0000	1,644.6288

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	4.97	1.0089	0.0596	0.0000	2.4994
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Junior High School	511	103.7284	6.1302	0.0000	256.9827
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	2556.72	518.9911	30.6715	0.0000	1,285.7784
Total		663.8373	39.2317	0.0000	1,644.6288

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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Panhandle TS Title 24 Adjusted Operational - Sacramento County, Annual

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Unmitigated Construction Emission - Sacramento County, Annual

**Unmitigated Construction Emission
Sacramento County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	500.00	Student	10.00	41,801.69	0
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015
Regional Shopping Center	101.28	1000sqft	9.70	101,277.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2019
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Unmitigated Construction Emission - Sacramento County, Annual

Project Characteristics -

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Unmitigated Construction Emission - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	110.00	14.00
tblConstructionPhase	NumDays	1,550.00	206.00
tblConstructionPhase	NumDays	155.00	21.00
tblConstructionPhase	NumDays	110.00	14.00
tblConstructionPhase	NumDays	60.00	7.00
tblConstructionPhase	PhaseEndDate	11/30/2018	12/31/2018
tblConstructionPhase	PhaseEndDate	9/28/2018	11/22/2018
tblConstructionPhase	PhaseEndDate	2/28/2018	2/7/2018
tblConstructionPhase	PhaseEndDate	10/31/2018	12/12/2018
tblConstructionPhase	PhaseEndDate	1/31/2018	1/9/2018
tblConstructionPhase	PhaseStartDate	11/1/2018	12/12/2018
tblConstructionPhase	PhaseStartDate	3/1/2018	2/8/2018
tblConstructionPhase	PhaseStartDate	2/1/2018	1/10/2018
tblConstructionPhase	PhaseStartDate	9/29/2018	11/23/2018
tblLandUse	BuildingSpaceSquareFeet	101,280.00	101,277.00
tblLandUse	LandUseSquareFeet	101,280.00	101,277.00
tblLandUse	LotAcreage	0.96	10.00
tblLandUse	LotAcreage	123.38	56.80
tblLandUse	LotAcreage	2.33	9.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblProjectCharacteristics	OperationalYear	2018	2019

2.0 Emissions Summary

Unmitigated Construction Emission - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	2.0683	2.0683
2	4-1-2018	6-30-2018	1.4634	1.4634
3	7-1-2018	9-30-2018	1.4794	1.4794
		Highest	2.0683	2.0683

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Energy	0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	2,039.6137	2,039.6137	0.0789	0.0266	2,049.4970
Mobile	2.8615	11.2988	30.5907	0.0767	6.0185	0.0974	6.1159	1.6146	0.0918	1.7064	0.0000	7,038.1845	7,038.1845	0.4008	0.0000	7,048.2052
Waste						0.0000	0.0000		0.0000	0.0000	114.4260	0.0000	114.4260	6.7624	0.0000	283.4856
Water						0.0000	0.0000		0.0000	0.0000	11.8427	75.7385	87.5811	0.0445	0.0265	96.5973
Total	6.7827	11.9630	34.8242	0.0809	6.0185	0.1688	6.1873	1.6146	0.1632	1.7777	126.2687	9,159.9531	9,286.2218	7.2929	0.0531	9,484.3596

Unmitigated Construction Emission - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Energy	0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	2,039.6137	2,039.6137	0.0789	0.0266	2,049.4970
Mobile	2.8615	11.2988	30.5907	0.0767	6.0185	0.0974	6.1159	1.6146	0.0918	1.7064	0.0000	7,038.1845	7,038.1845	0.4008	0.0000	7,048.2052
Waste						0.0000	0.0000		0.0000	0.0000	114.4260	0.0000	114.4260	6.7624	0.0000	283.4856
Water						0.0000	0.0000		0.0000	0.0000	11.8427	75.7385	87.5811	0.0445	0.0265	96.5973
Total	6.7827	11.9630	34.8242	0.0809	6.0185	0.1688	6.1873	1.6146	0.1632	1.7777	126.2687	9,159.9531	9,286.2218	7.2929	0.0531	9,484.3596

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Unmitigated Construction Emission - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/9/2018	5	7	
2	Grading	Grading	1/10/2018	2/7/2018	5	21	
3	Building Construction	Building Construction	2/8/2018	11/22/2018	5	206	
4	Paving	Paving	11/23/2018	12/12/2018	5	14	
5	Architectural Coating	Architectural Coating	12/12/2018	12/31/2018	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 84

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 214,618; Non-Residential Outdoor: 71,539; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Unmitigated Construction Emission - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	3	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	28.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	338.00	123.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	68.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Unmitigated Construction Emission - Sacramento County, Annual

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1687	0.0787	1.3000e-004		9.0200e-003	9.0200e-003		8.3000e-003	8.3000e-003	0.0000	12.1660	12.1660	3.7900e-003	0.0000	12.2607
Total	0.0160	0.1687	0.0787	1.3000e-004	0.0632	9.0200e-003	0.0723	0.0348	8.3000e-003	0.0431	0.0000	12.1660	12.1660	3.7900e-003	0.0000	12.2607

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.1600e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4378	0.4378	1.0000e-005	0.0000	0.4382
Total	2.8000e-004	2.0000e-004	2.1600e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4378	0.4378	1.0000e-005	0.0000	0.4382

Unmitigated Construction Emission - Sacramento County, Annual

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1687	0.0787	1.3000e-004		9.0200e-003	9.0200e-003		8.3000e-003	8.3000e-003	0.0000	12.1660	12.1660	3.7900e-003	0.0000	12.2606
Total	0.0160	0.1687	0.0787	1.3000e-004	0.0632	9.0200e-003	0.0723	0.0348	8.3000e-003	0.0431	0.0000	12.1660	12.1660	3.7900e-003	0.0000	12.2606

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.1600e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4378	0.4378	1.0000e-005	0.0000	0.4382
Total	2.8000e-004	2.0000e-004	2.1600e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4378	0.4378	1.0000e-005	0.0000	0.4382

Unmitigated Construction Emission - Sacramento County, Annual

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1710	0.0000	0.1710	0.0743	0.0000	0.0743	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0832	0.9807	0.5268	9.7000e-004		0.0424	0.0424		0.0390	0.0390	0.0000	88.5803	88.5803	0.0276	0.0000	89.2697
Total	0.0832	0.9807	0.5268	9.7000e-004	0.1710	0.0424	0.2134	0.0743	0.0390	0.1133	0.0000	88.5803	88.5803	0.0276	0.0000	89.2697

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.5000e-004	0.0101	2.0000e-005	2.1600e-003	2.0000e-005	2.1800e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0433	2.0433	7.0000e-005	0.0000	2.0450
Total	1.3100e-003	9.5000e-004	0.0101	2.0000e-005	2.1600e-003	2.0000e-005	2.1800e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0433	2.0433	7.0000e-005	0.0000	2.0450

Unmitigated Construction Emission - Sacramento County, Annual

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1710	0.0000	0.1710	0.0743	0.0000	0.0743	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0832	0.9807	0.5268	9.7000e-004		0.0424	0.0424		0.0390	0.0390	0.0000	88.5802	88.5802	0.0276	0.0000	89.2696
Total	0.0832	0.9807	0.5268	9.7000e-004	0.1710	0.0424	0.2134	0.0743	0.0390	0.1133	0.0000	88.5802	88.5802	0.0276	0.0000	89.2696

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.5000e-004	0.0101	2.0000e-005	2.1600e-003	2.0000e-005	2.1800e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0433	2.0433	7.0000e-005	0.0000	2.0450
Total	1.3100e-003	9.5000e-004	0.0101	2.0000e-005	2.1600e-003	2.0000e-005	2.1800e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0433	2.0433	7.0000e-005	0.0000	2.0450

Unmitigated Construction Emission - Sacramento County, Annual

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2760	2.4092	1.8108	2.7700e-003		0.1545	0.1545		0.1452	0.1452	0.0000	244.9003	244.9003	0.0600	0.0000	246.4003
Total	0.2760	2.4092	1.8108	2.7700e-003		0.1545	0.1545		0.1452	0.1452	0.0000	244.9003	244.9003	0.0600	0.0000	246.4003

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0689	1.6446	0.5446	3.1700e-003	0.0741	0.0130	0.0871	0.0214	0.0124	0.0338	0.0000	303.7595	303.7595	0.0196	0.0000	304.2501
Worker	0.1550	0.1124	1.1933	2.6800e-003	0.2557	1.9500e-003	0.2576	0.0680	1.8000e-003	0.0698	0.0000	241.9517	241.9517	8.2500e-003	0.0000	242.1579
Total	0.2239	1.7571	1.7379	5.8500e-003	0.3298	0.0149	0.3447	0.0894	0.0142	0.1036	0.0000	545.7112	545.7112	0.0279	0.0000	546.4080

Unmitigated Construction Emission - Sacramento County, Annual

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2760	2.4092	1.8108	2.7700e-003		0.1545	0.1545		0.1452	0.1452	0.0000	244.9000	244.9000	0.0600	0.0000	246.4000
Total	0.2760	2.4092	1.8108	2.7700e-003		0.1545	0.1545		0.1452	0.1452	0.0000	244.9000	244.9000	0.0600	0.0000	246.4000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0689	1.6446	0.5446	3.1700e-003	0.0741	0.0130	0.0871	0.0214	0.0124	0.0338	0.0000	303.7595	303.7595	0.0196	0.0000	304.2501
Worker	0.1550	0.1124	1.1933	2.6800e-003	0.2557	1.9500e-003	0.2576	0.0680	1.8000e-003	0.0698	0.0000	241.9517	241.9517	8.2500e-003	0.0000	242.1579
Total	0.2239	1.7571	1.7379	5.8500e-003	0.3298	0.0149	0.3447	0.0894	0.0142	0.1036	0.0000	545.7112	545.7112	0.0279	0.0000	546.4080

Unmitigated Construction Emission - Sacramento County, Annual

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0115	0.1227	0.1036	1.6000e-004		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	14.5681	14.5681	4.5400e-003	0.0000	14.6815
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0115	0.1227	0.1036	1.6000e-004		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	14.5681	14.5681	4.5400e-003	0.0000	14.6815

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.4000e-004	3.6000e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7297	0.7297	2.0000e-005	0.0000	0.7304
Total	4.7000e-004	3.4000e-004	3.6000e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7297	0.7297	2.0000e-005	0.0000	0.7304

Unmitigated Construction Emission - Sacramento County, Annual

3.5 Paving - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0115	0.1227	0.1036	1.6000e-004		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	14.5681	14.5681	4.5400e-003	0.0000	14.6815
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0115	0.1227	0.1036	1.6000e-004		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	14.5681	14.5681	4.5400e-003	0.0000	14.6815

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.4000e-004	3.6000e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7297	0.7297	2.0000e-005	0.0000	0.7304
Total	4.7000e-004	3.4000e-004	3.6000e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7297	0.7297	2.0000e-005	0.0000	0.7304

Unmitigated Construction Emission - Sacramento County, Annual

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.9431					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0900e-003	0.0140	0.0130	2.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	1.7873	1.7873	1.7000e-004	0.0000	1.7915
Total	4.9452	0.0140	0.0130	2.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	1.7873	1.7873	1.7000e-004	0.0000	1.7915

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1200e-003	1.5400e-003	0.0163	4.0000e-005	3.5000e-003	3.0000e-005	3.5200e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	3.3081	3.3081	1.1000e-004	0.0000	3.3109
Total	2.1200e-003	1.5400e-003	0.0163	4.0000e-005	3.5000e-003	3.0000e-005	3.5200e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	3.3081	3.3081	1.1000e-004	0.0000	3.3109

Unmitigated Construction Emission - Sacramento County, Annual

3.6 Architectural Coating - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.9431					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0900e-003	0.0140	0.0130	2.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	1.7873	1.7873	1.7000e-004	0.0000	1.7915
Total	4.9452	0.0140	0.0130	2.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	1.7873	1.7873	1.7000e-004	0.0000	1.7915

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1200e-003	1.5400e-003	0.0163	4.0000e-005	3.5000e-003	3.0000e-005	3.5200e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	3.3081	3.3081	1.1000e-004	0.0000	3.3109
Total	2.1200e-003	1.5400e-003	0.0163	4.0000e-005	3.5000e-003	3.0000e-005	3.5200e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	3.3081	3.3081	1.1000e-004	0.0000	3.3109

4.0 Operational Detail - Mobile

Unmitigated Construction Emission - Sacramento County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.8615	11.2988	30.5907	0.0767	6.0185	0.0974	6.1159	1.6146	0.0918	1.7064	0.0000	7,038.1845	7,038.1845	0.4008	0.0000	7,048.2052
Unmitigated	2.8615	11.2988	30.5907	0.0767	6.0185	0.0974	6.1159	1.6146	0.0918	1.7064	0.0000	7,038.1845	7,038.1845	0.4008	0.0000	7,048.2052

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Elementary School	645.00	0.00	0.00	968,813	968,813
Regional Shopping Center	4,324.66	5,060.96	2556.31	5,836,852	5,836,852
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	8,602.87	9,014.68	5,970.18	16,124,321	16,124,321

4.3 Trip Type Information

Unmitigated Construction Emission - Sacramento County, Annual

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Elementary School	10.00	5.00	6.50	65.00	30.00	5.00	63	25	12
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
City Park	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Single Family Housing	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Regional Shopping Center	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Unmitigated Construction Emission - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,327.3362	1,327.3362	0.0652	0.0135	1,332.9868
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,327.3362	1,327.3362	0.0652	0.0135	1,332.9868
NaturalGas Mitigated	0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	712.2775	712.2775	0.0137	0.0131	716.5102
NaturalGas Unmitigated	0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	712.2775	712.2775	0.0137	0.0131	716.5102

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	712.2775	712.2775	0.0137	0.0131	716.5102

Unmitigated Construction Emission - Sacramento County, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	641238	3.4600e-003	0.0314	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2189	34.2189	6.6000e-004	6.3000e-004	34.4222
Regional Shopping Center	550947	2.9700e-003	0.0270	0.0227	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4006	29.4006	5.6000e-004	5.4000e-004	29.5753
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0720	0.6185	0.2874	3.9300e-003		0.0497	0.0497		0.0497	0.0497	0.0000	712.2775	712.2775	0.0137	0.0131	716.5102

Unmitigated Construction Emission - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		1,327.3362	0.0652	0.0135	1,332.9868

Unmitigated Construction Emission - Sacramento County, Annual

5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	313931	84.0581	4.1300e-003	8.5000e-004	84.4160
Regional Shopping Center	1.20115e+006	321.6188	0.0158	3.2700e-003	322.9879
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		1,327.3362	0.0652	0.0135	1,332.9868

6.0 Area Detail**6.1 Mitigation Measures Area**

Unmitigated Construction Emission - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Unmitigated	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4943					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.2335					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1213	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Total	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745

Unmitigated Construction Emission - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4943					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.2335					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1213	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745
Total	3.8492	0.0457	3.9461	2.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	6.4164	6.4164	6.3200e-003	0.0000	6.5745

7.0 Water Detail

7.1 Mitigation Measures Water

Unmitigated Construction Emission - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	87.5811	0.0445	0.0265	96.5973
Unmitigated	87.5811	0.0445	0.0265	96.5973

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		87.5812	0.0445	0.0265	96.5973

Unmitigated Construction Emission - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Elementary School	1.21212 / 3.11688	4.9670	1.7000e-003	9.8000e-004	5.3011
Regional Shopping Center	7.50206 / 4.59804	16.9722	9.8400e-003	5.9200e-003	18.9816
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		87.5812	0.0445	0.0265	96.5973

8.0 Waste Detail

8.1 Mitigation Measures Waste

Unmitigated Construction Emission - Sacramento County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	114.4260	6.7624	0.0000	283.4856
Unmitigated	114.4260	6.7624	0.0000	283.4856

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		114.4260	6.7624	0.0000	283.4856

Unmitigated Construction Emission - Sacramento County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Elementary School	91.25	18.5229	1.0947	0.0000	45.8898
Regional Shopping Center	106.34	21.5861	1.2757	0.0000	53.4786
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		114.4260	6.7624	0.0000	283.4856

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Unmitigated Construction Emission - Sacramento County, Annual

Equipment Type	Number
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11.0 Vegetation

Year 2 Construction - Sacramento County, Annual

Year 2 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2021
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 2 Construction - Sacramento County, Annual

Project Characteristics - Year 2

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	206.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/1/2020	12/31/2019
tblConstructionPhase	PhaseStartDate	12/13/2019	12/12/2019
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2021

Year 2 Construction - Sacramento County, Annual

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	4.7899	4.5687	3.6974	8.7200e-003	0.5073	0.1920	0.6993	0.1849	0.1797	0.3646	0.0000	793.0455	793.0455	0.1122	0.0000	795.8515
Maximum	4.7899	4.5687	3.6974	8.7200e-003	0.5073	0.1920	0.6993	0.1849	0.1797	0.3646	0.0000	793.0455	793.0455	0.1122	0.0000	795.8515

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	4.7899	4.5687	3.6974	8.7200e-003	0.5073	0.1920	0.6993	0.1849	0.1797	0.3646	0.0000	793.0451	793.0451	0.1122	0.0000	795.8511
Maximum	4.7899	4.5687	3.6974	8.7200e-003	0.5073	0.1920	0.6993	0.1849	0.1797	0.3646	0.0000	793.0451	793.0451	0.1122	0.0000	795.8511

Year 2 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	1.6991	1.6991
2	4-1-2019	6-30-2019	1.2344	1.2344
3	7-1-2019	9-30-2019	1.2480	1.2480
		Highest	1.6991	1.6991

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2217	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	1.1485	4.9460	13.5850	0.0412	3.4759	0.0371	3.5130	0.9321	0.0347	0.9668	0.0000	3,784.3506	3,784.3506	0.1859	0.0000	3,788.9987
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.4357	5.5515	17.7508	0.0450	3.4759	0.1040	3.5799	0.9321	0.1016	1.0337	83.0766	5,417.9518	5,501.0284	4.6748	0.0409	5,630.0826

Year 2 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2217	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	1.1485	4.9460	13.5850	0.0412	3.4759	0.0371	3.5130	0.9321	0.0347	0.9668	0.0000	3,784.3506	3,784.3506	0.1859	0.0000	3,788.9987
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.4357	5.5515	17.7508	0.0450	3.4759	0.1040	3.5799	0.9321	0.1016	1.0337	83.0766	5,417.9518	5,501.0284	4.6748	0.0409	5,630.0826

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 2 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/9/2019	5	7	
2	Grading	Grading	1/10/2019	2/7/2019	5	21	
3	Building Construction	Building Construction	2/8/2019	11/22/2019	5	206	
4	Paving	Paving	11/23/2019	12/12/2019	5	14	
5	Architectural Coating	Architectural Coating	12/12/2019	12/31/2019	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 2 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 2 Construction - Sacramento County, Annual

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1595	0.0772	1.3000e-004		8.3700e-003	8.3700e-003		7.7000e-003	7.7000e-003	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536
Total	0.0152	0.1595	0.0772	1.3000e-004	0.0632	8.3700e-003	0.0716	0.0348	7.7000e-003	0.0425	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.8000e-004	1.9300e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4230	0.4230	1.0000e-005	0.0000	0.4233
Total	2.5000e-004	1.8000e-004	1.9300e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4230	0.4230	1.0000e-005	0.0000	0.4233

Year 2 Construction - Sacramento County, Annual

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1595	0.0772	1.3000e-004		8.3700e-003	8.3700e-003		7.7000e-003	7.7000e-003	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536
Total	0.0152	0.1595	0.0772	1.3000e-004	0.0632	8.3700e-003	0.0716	0.0348	7.7000e-003	0.0425	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.8000e-004	1.9300e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4230	0.4230	1.0000e-005	0.0000	0.4233
Total	2.5000e-004	1.8000e-004	1.9300e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4230	0.4230	1.0000e-005	0.0000	0.4233

Year 2 Construction - Sacramento County, Annual

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0668	0.7683	0.4147	8.1000e-004		0.0334	0.0334		0.0307	0.0307	0.0000	72.8037	72.8037	0.0230	0.0000	73.3795
Total	0.0668	0.7683	0.4147	8.1000e-004	0.1599	0.0334	0.1933	0.0731	0.0307	0.1039	0.0000	72.8037	72.8037	0.0230	0.0000	73.3795

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0600e-003	7.5000e-004	8.0500e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7624	1.7624	5.0000e-005	0.0000	1.7637
Total	1.0600e-003	7.5000e-004	8.0500e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7624	1.7624	5.0000e-005	0.0000	1.7637

Year 2 Construction - Sacramento County, Annual

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0668	0.7683	0.4147	8.1000e-004		0.0334	0.0334		0.0307	0.0307	0.0000	72.8036	72.8036	0.0230	0.0000	73.3794
Total	0.0668	0.7683	0.4147	8.1000e-004	0.1599	0.0334	0.1933	0.0731	0.0307	0.1039	0.0000	72.8036	72.8036	0.0230	0.0000	73.3794

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0600e-003	7.5000e-004	8.0500e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7624	1.7624	5.0000e-005	0.0000	1.7637
Total	1.0600e-003	7.5000e-004	8.0500e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7624	1.7624	5.0000e-005	0.0000	1.7637

Year 2 Construction - Sacramento County, Annual

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2432	2.1711	1.7679	2.7700e-003		0.1329	0.1329		0.1249	0.1249	0.0000	242.1573	242.1573	0.0590	0.0000	243.6321
Total	0.2432	2.1711	1.7679	2.7700e-003		0.1329	0.1329		0.1249	0.1249	0.0000	242.1573	242.1573	0.0590	0.0000	243.6321

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0494	1.2635	0.3862	2.5600e-003	0.0602	9.0000e-003	0.0692	0.0174	8.6100e-003	0.0260	0.0000	245.2332	245.2332	0.0154	0.0000	245.6176
Worker	0.1200	0.0843	0.9102	2.2100e-003	0.2179	1.6100e-003	0.2195	0.0579	1.4800e-003	0.0594	0.0000	199.1564	199.1564	6.1900e-003	0.0000	199.3112
Total	0.1693	1.3478	1.2964	4.7700e-003	0.2781	0.0106	0.2887	0.0754	0.0101	0.0855	0.0000	444.3896	444.3896	0.0216	0.0000	444.9288

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3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2432	2.1711	1.7679	2.7700e-003		0.1329	0.1329		0.1249	0.1249	0.0000	242.1570	242.1570	0.0590	0.0000	243.6318
Total	0.2432	2.1711	1.7679	2.7700e-003		0.1329	0.1329		0.1249	0.1249	0.0000	242.1570	242.1570	0.0590	0.0000	243.6318

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0494	1.2635	0.3862	2.5600e-003	0.0602	9.0000e-003	0.0692	0.0174	8.6100e-003	0.0260	0.0000	245.2332	245.2332	0.0154	0.0000	245.6176
Worker	0.1200	0.0843	0.9102	2.2100e-003	0.2179	1.6100e-003	0.2195	0.0579	1.4800e-003	0.0594	0.0000	199.1564	199.1564	6.1900e-003	0.0000	199.3112
Total	0.1693	1.3478	1.2964	4.7700e-003	0.2781	0.0106	0.2887	0.0754	0.0101	0.0855	0.0000	444.3896	444.3896	0.0216	0.0000	444.9288

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3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0102	0.1067	0.1027	1.6000e-004		5.7700e-003	5.7700e-003		5.3100e-003	5.3100e-003	0.0000	14.3326	14.3326	4.5300e-003	0.0000	14.4460
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0102	0.1067	0.1027	1.6000e-004		5.7700e-003	5.7700e-003		5.3100e-003	5.3100e-003	0.0000	14.3326	14.3326	4.5300e-003	0.0000	14.4460

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.2200e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7055
Total	4.2000e-004	3.0000e-004	3.2200e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7055

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3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0102	0.1067	0.1027	1.6000e-004		5.7700e-003	5.7700e-003		5.3100e-003	5.3100e-003	0.0000	14.3326	14.3326	4.5300e-003	0.0000	14.4460
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0102	0.1067	0.1027	1.6000e-004		5.7700e-003	5.7700e-003		5.3100e-003	5.3100e-003	0.0000	14.3326	14.3326	4.5300e-003	0.0000	14.4460

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.2200e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7055
Total	4.2000e-004	3.0000e-004	3.2200e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7055

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3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8700e-003	0.0129	0.0129	2.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	1.7873	1.7873	1.5000e-004	0.0000	1.7911
Total	4.2818	0.0129	0.0129	2.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	1.7873	1.7873	1.5000e-004	0.0000	1.7911

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.1500e-003	0.0125	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.7258	2.7258	8.0000e-005	0.0000	2.7279
Total	1.6400e-003	1.1500e-003	0.0125	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.7258	2.7258	8.0000e-005	0.0000	2.7279

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3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8700e-003	0.0129	0.0129	2.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	1.7873	1.7873	1.5000e-004	0.0000	1.7911
Total	4.2818	0.0129	0.0129	2.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	1.7873	1.7873	1.5000e-004	0.0000	1.7911

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.1500e-003	0.0125	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.7258	2.7258	8.0000e-005	0.0000	2.7279
Total	1.6400e-003	1.1500e-003	0.0125	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.7258	2.7258	8.0000e-005	0.0000	2.7279

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1485	4.9460	13.5850	0.0412	3.4759	0.0371	3.5130	0.9321	0.0347	0.9668	0.0000	3,784.3506	3,784.3506	0.1859	0.0000	3,788.9987
Unmitigated	1.1485	4.9460	13.5850	0.0412	3.4759	0.0371	3.5130	0.9321	0.0347	0.9668	0.0000	3,784.3506	3,784.3506	0.1859	0.0000	3,788.9987

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915
Single Family Housing	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2217	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Unmitigated	3.2217	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1190	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Total	3.2218	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1190	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566
Total	3.2218	0.0453	3.9274	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.2000e-003	0.0000	6.5566

7.0 Water Detail

7.1 Mitigation Measures Water

Year 2 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - Year 3

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	207.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	11/23/2020	11/24/2020
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2022

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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	4.7416	4.1950	3.5045	8.6700e-003	0.5087	0.1678	0.6764	0.1852	0.1570	0.3422	0.0000	782.7452	782.7452	0.1101	0.0000	785.4980
Maximum	4.7416	4.1950	3.5045	8.6700e-003	0.5087	0.1678	0.6764	0.1852	0.1570	0.3422	0.0000	782.7452	782.7452	0.1101	0.0000	785.4980

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	4.7416	4.1950	3.5045	8.6700e-003	0.5087	0.1678	0.6764	0.1852	0.1570	0.3422	0.0000	782.7448	782.7448	0.1101	0.0000	785.4976
Maximum	4.7416	4.1950	3.5045	8.6700e-003	0.5087	0.1678	0.6764	0.1852	0.1570	0.3422	0.0000	782.7448	782.7448	0.1101	0.0000	785.4976

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	1.5765	1.5765
2	4-1-2020	6-30-2020	1.1233	1.1233
3	7-1-2020	9-30-2020	1.1357	1.1357
		Highest	1.5765	1.5765

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2212	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	1.0643	4.6389	12.4954	0.0399	3.4749	0.0350	3.5100	0.9316	0.0328	0.9644	0.0000	3,672.1191	3,672.1191	0.1735	0.0000	3,676.4554
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.3511	5.2443	16.6569	0.0437	3.4749	0.1020	3.5769	0.9316	0.0997	1.0313	83.0766	5,305.7202	5,388.7969	4.6623	0.0409	5,517.5387

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2212	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	1.0643	4.6389	12.4954	0.0399	3.4749	0.0350	3.5100	0.9316	0.0328	0.9644	0.0000	3,672.1191	3,672.1191	0.1735	0.0000	3,676.4554
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.3511	5.2443	16.6569	0.0437	3.4749	0.1020	3.5769	0.9316	0.0997	1.0313	83.0766	5,305.7202	5,388.7969	4.6623	0.0409	5,517.5387

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 3 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	1/9/2020	5	7	
2	Grading	Grading	1/10/2020	2/7/2020	5	21	
3	Building Construction	Building Construction	2/8/2020	11/24/2020	5	207	
4	Paving	Paving	11/24/2020	12/11/2020	5	14	
5	Architectural Coating	Architectural Coating	12/12/2020	12/31/2020	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0143	0.1485	0.0753	1.3000e-004		7.6900e-003	7.6900e-003		7.0800e-003	7.0800e-003	0.0000	11.7007	11.7007	3.7800e-003	0.0000	11.7953
Total	0.0143	0.1485	0.0753	1.3000e-004	0.0632	7.6900e-003	0.0709	0.0348	7.0800e-003	0.0418	0.0000	11.7007	11.7007	3.7800e-003	0.0000	11.7953

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.7400e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4100	0.4100	1.0000e-005	0.0000	0.4103
Total	2.3000e-004	1.6000e-004	1.7400e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4100	0.4100	1.0000e-005	0.0000	0.4103

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3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0143	0.1485	0.0753	1.3000e-004		7.6900e-003	7.6900e-003		7.0800e-003	7.0800e-003	0.0000	11.7007	11.7007	3.7800e-003	0.0000	11.7953
Total	0.0143	0.1485	0.0753	1.3000e-004	0.0632	7.6900e-003	0.0709	0.0348	7.0800e-003	0.0418	0.0000	11.7007	11.7007	3.7800e-003	0.0000	11.7953

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.7400e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4100	0.4100	1.0000e-005	0.0000	0.4103
Total	2.3000e-004	1.6000e-004	1.7400e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.4100	0.4100	1.0000e-005	0.0000	0.4103

Year 3 Construction - Sacramento County, Annual

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0631	0.7125	0.3980	8.1000e-004		0.0308	0.0308		0.0283	0.0283	0.0000	71.2115	71.2115	0.0230	0.0000	71.7873
Total	0.0631	0.7125	0.3980	8.1000e-004	0.1599	0.0308	0.1907	0.0731	0.0283	0.1014	0.0000	71.2115	71.2115	0.0230	0.0000	71.7873

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.8000e-004	6.6000e-004	7.2700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7082	1.7082	5.0000e-005	0.0000	1.7094
Total	9.8000e-004	6.6000e-004	7.2700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7082	1.7082	5.0000e-005	0.0000	1.7094

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3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0631	0.7125	0.3980	8.1000e-004		0.0308	0.0308		0.0283	0.0283	0.0000	71.2114	71.2114	0.0230	0.0000	71.7872
Total	0.0631	0.7125	0.3980	8.1000e-004	0.1599	0.0308	0.1907	0.0731	0.0283	0.1014	0.0000	71.2114	71.2114	0.0230	0.0000	71.7872

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.8000e-004	6.6000e-004	7.2700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7082	1.7082	5.0000e-005	0.0000	1.7094
Total	9.8000e-004	6.6000e-004	7.2700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7082	1.7082	5.0000e-005	0.0000	1.7094

Year 3 Construction - Sacramento County, Annual

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2194	1.9858	1.7438	2.7900e-003		0.1156	0.1156		0.1087	0.1087	0.0000	239.7163	239.7163	0.0585	0.0000	241.1784
Total	0.2194	1.9858	1.7438	2.7900e-003		0.1156	0.1156		0.1087	0.1087	0.0000	239.7163	239.7163	0.0585	0.0000	241.1784

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0396	1.1607	0.3237	2.5500e-003	0.0605	6.0100e-003	0.0665	0.0175	5.7500e-003	0.0232	0.0000	244.8949	244.8949	0.0145	0.0000	245.2574
Worker	0.1110	0.0753	0.8251	2.1500e-003	0.2189	1.5800e-003	0.2205	0.0582	1.4500e-003	0.0597	0.0000	193.9714	193.9714	5.4800e-003	0.0000	194.1085
Total	0.1506	1.2360	1.1488	4.7000e-003	0.2794	7.5900e-003	0.2870	0.0757	7.2000e-003	0.0829	0.0000	438.8662	438.8662	0.0200	0.0000	439.3659

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3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2194	1.9858	1.7438	2.7900e-003		0.1156	0.1156		0.1087	0.1087	0.0000	239.7161	239.7161	0.0585	0.0000	241.1781
Total	0.2194	1.9858	1.7438	2.7900e-003		0.1156	0.1156		0.1087	0.1087	0.0000	239.7161	239.7161	0.0585	0.0000	241.1781

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0396	1.1607	0.3237	2.5500e-003	0.0605	6.0100e-003	0.0665	0.0175	5.7500e-003	0.0232	0.0000	244.8949	244.8949	0.0145	0.0000	245.2574
Worker	0.1110	0.0753	0.8251	2.1500e-003	0.2189	1.5800e-003	0.2205	0.0582	1.4500e-003	0.0597	0.0000	193.9714	193.9714	5.4800e-003	0.0000	194.1085
Total	0.1506	1.2360	1.1488	4.7000e-003	0.2794	7.5900e-003	0.2870	0.0757	7.2000e-003	0.0829	0.0000	438.8662	438.8662	0.0200	0.0000	439.3659

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3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.5000e-003	0.0985	0.1026	1.6000e-004		5.2700e-003	5.2700e-003		4.8500e-003	4.8500e-003	0.0000	14.0198	14.0198	4.5300e-003	0.0000	14.1331
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.5000e-003	0.0985	0.1026	1.6000e-004		5.2700e-003	5.2700e-003		4.8500e-003	4.8500e-003	0.0000	14.0198	14.0198	4.5300e-003	0.0000	14.1331

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	2.9100e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6833	0.6833	2.0000e-005	0.0000	0.6838
Total	3.9000e-004	2.7000e-004	2.9100e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6833	0.6833	2.0000e-005	0.0000	0.6838

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3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.5000e-003	0.0985	0.1026	1.6000e-004		5.2700e-003	5.2700e-003		4.8500e-003	4.8500e-003	0.0000	14.0197	14.0197	4.5300e-003	0.0000	14.1331
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.5000e-003	0.0985	0.1026	1.6000e-004		5.2700e-003	5.2700e-003		4.8500e-003	4.8500e-003	0.0000	14.0197	14.0197	4.5300e-003	0.0000	14.1331

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	2.9100e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6833	0.6833	2.0000e-005	0.0000	0.6838
Total	3.9000e-004	2.7000e-004	2.9100e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6833	0.6833	2.0000e-005	0.0000	0.6838

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3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	4.2817	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5100e-003	1.0200e-003	0.0112	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6420	2.6420	7.0000e-005	0.0000	2.6439
Total	1.5100e-003	1.0200e-003	0.0112	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6420	2.6420	7.0000e-005	0.0000	2.6439

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3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	4.2817	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5100e-003	1.0200e-003	0.0112	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6420	2.6420	7.0000e-005	0.0000	2.6439
Total	1.5100e-003	1.0200e-003	0.0112	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6420	2.6420	7.0000e-005	0.0000	2.6439

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0643	4.6389	12.4954	0.0399	3.4749	0.0350	3.5100	0.9316	0.0328	0.9644	0.0000	3,672.1191	3,672.1191	0.1735	0.0000	3,676.4554
Unmitigated	1.0643	4.6389	12.4954	0.0399	3.4749	0.0350	3.5100	0.9316	0.0328	0.9644	0.0000	3,672.1191	3,672.1191	0.1735	0.0000	3,676.4554

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Year 3 Construction - Sacramento County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Single Family Housing	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Year 3 Construction - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2212	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Unmitigated	3.2212	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1185	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Total	3.2213	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1185	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559
Total	3.2213	0.0452	3.9231	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1800e-003	0.0000	6.5559

7.0 Water Detail

7.1 Mitigation Measures Water

Year 3 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 3 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 3 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Year 3 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Year 4 Construction - Sacramento County, Annual

Year 4 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2023
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 4 Construction - Sacramento County, Annual

Project Characteristics - Year 4

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Year 4 Construction - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	206.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/4/2022	12/29/2021
tblConstructionPhase	PhaseEndDate	11/25/2021	11/24/2021
tblConstructionPhase	PhaseStartDate	12/16/2021	12/10/2021
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2023

2.0 Emissions Summary

Year 4 Construction - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	1.4563	1.4563
2	4-1-2021	6-30-2021	1.0215	1.0215
3	7-1-2021	9-30-2021	1.0327	1.0327
		Highest	1.4563	1.4563

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2208	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.9798	4.0229	11.5539	0.0386	3.4740	0.0302	3.5042	0.9312	0.0282	0.9594	0.0000	3,551.1051	3,551.1051	0.1597	0.0000	3,555.0978
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.2662	4.6282	15.7120	0.0424	3.4740	0.0972	3.5712	0.9312	0.0951	1.0263	83.0766	5,184.7062	5,267.7828	4.6485	0.0409	5,396.1805

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2208	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.9798	4.0229	11.5539	0.0386	3.4740	0.0302	3.5042	0.9312	0.0282	0.9594	0.0000	3,551.1051	3,551.1051	0.1597	0.0000	3,555.0978
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.2662	4.6282	15.7120	0.0424	3.4740	0.0972	3.5712	0.9312	0.0951	1.0263	83.0766	5,184.7062	5,267.7828	4.6485	0.0409	5,396.1805

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 4 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/11/2021	5	7	
2	Grading	Grading	1/12/2021	2/9/2021	5	21	
3	Building Construction	Building Construction	2/10/2021	11/24/2021	5	206	
4	Paving	Paving	11/26/2021	12/15/2021	5	14	
5	Architectural Coating	Architectural Coating	12/10/2021	12/29/2021	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 4 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 4 Construction - Sacramento County, Annual

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1417	0.0740	1.3000e-004		7.1600e-003	7.1600e-003		6.5800e-003	6.5800e-003	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971
Total	0.0136	0.1417	0.0740	1.3000e-004	0.0632	7.1600e-003	0.0704	0.0348	6.5800e-003	0.0413	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.4000e-004	1.5900e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3960	0.3960	1.0000e-005	0.0000	0.3963
Total	2.2000e-004	1.4000e-004	1.5900e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3960	0.3960	1.0000e-005	0.0000	0.3963

Year 4 Construction - Sacramento County, Annual

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1417	0.0740	1.3000e-004		7.1600e-003	7.1600e-003		6.5800e-003	6.5800e-003	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971
Total	0.0136	0.1417	0.0740	1.3000e-004	0.0632	7.1600e-003	0.0704	0.0348	6.5800e-003	0.0413	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.4000e-004	1.5900e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3960	0.3960	1.0000e-005	0.0000	0.3963
Total	2.2000e-004	1.4000e-004	1.5900e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3960	0.3960	1.0000e-005	0.0000	0.3963

Year 4 Construction - Sacramento County, Annual

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0598	0.6646	0.3852	8.1000e-004		0.0284	0.0284		0.0261	0.0261	0.0000	71.2130	71.2130	0.0230	0.0000	71.7887
Total	0.0598	0.6646	0.3852	8.1000e-004	0.1599	0.0284	0.1883	0.0731	0.0261	0.0993	0.0000	71.2130	71.2130	0.0230	0.0000	71.7887

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	5.9000e-004	6.6400e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.6500	1.6500	4.0000e-005	0.0000	1.6511
Total	9.1000e-004	5.9000e-004	6.6400e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.6500	1.6500	4.0000e-005	0.0000	1.6511

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3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0598	0.6646	0.3852	8.1000e-004		0.0284	0.0284		0.0261	0.0261	0.0000	71.2129	71.2129	0.0230	0.0000	71.7887
Total	0.0598	0.6646	0.3852	8.1000e-004	0.1599	0.0284	0.1883	0.0731	0.0261	0.0993	0.0000	71.2129	71.2129	0.0230	0.0000	71.7887

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	5.9000e-004	6.6400e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.6500	1.6500	4.0000e-005	0.0000	1.6511
Total	9.1000e-004	5.9000e-004	6.6400e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.6500	1.6500	4.0000e-005	0.0000	1.6511

Year 4 Construction - Sacramento County, Annual

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1958	1.7955	1.7073	2.7700e-003		0.0987	0.0987		0.0928	0.0928	0.0000	238.5864	238.5864	0.0576	0.0000	240.0254
Total	0.1958	1.7955	1.7073	2.7700e-003		0.0987	0.0987		0.0928	0.0928	0.0000	238.5864	238.5864	0.0576	0.0000	240.0254

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0324	1.0537	0.2816	2.5100e-003	0.0602	2.9100e-003	0.0631	0.0174	2.7800e-003	0.0202	0.0000	241.6839	241.6839	0.0138	0.0000	242.0294
Worker	0.1027	0.0671	0.7508	2.0600e-003	0.2179	1.5200e-003	0.2194	0.0579	1.4000e-003	0.0594	0.0000	186.4617	186.4617	4.8900e-003	0.0000	186.5840
Total	0.1351	1.1208	1.0324	4.5700e-003	0.2781	4.4300e-003	0.2825	0.0753	4.1800e-003	0.0795	0.0000	428.1456	428.1456	0.0187	0.0000	428.6134

Year 4 Construction - Sacramento County, Annual

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1958	1.7955	1.7072	2.7700e-003		0.0987	0.0987		0.0928	0.0928	0.0000	238.5861	238.5861	0.0576	0.0000	240.0251
Total	0.1958	1.7955	1.7072	2.7700e-003		0.0987	0.0987		0.0928	0.0928	0.0000	238.5861	238.5861	0.0576	0.0000	240.0251

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0324	1.0537	0.2816	2.5100e-003	0.0602	2.9100e-003	0.0631	0.0174	2.7800e-003	0.0202	0.0000	241.6839	241.6839	0.0138	0.0000	242.0294
Worker	0.1027	0.0671	0.7508	2.0600e-003	0.2179	1.5200e-003	0.2194	0.0579	1.4000e-003	0.0594	0.0000	186.4617	186.4617	4.8900e-003	0.0000	186.5840
Total	0.1351	1.1208	1.0324	4.5700e-003	0.2781	4.4300e-003	0.2825	0.0753	4.1800e-003	0.0795	0.0000	428.1456	428.1456	0.0187	0.0000	428.6134

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3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.7900e-003	0.0904	0.1026	1.6000e-004		4.7400e-003	4.7400e-003		4.3600e-003	4.3600e-003	0.0000	14.0164	14.0164	4.5300e-003	0.0000	14.1298
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	8.7900e-003	0.0904	0.1026	1.6000e-004		4.7400e-003	4.7400e-003		4.3600e-003	4.3600e-003	0.0000	14.0164	14.0164	4.5300e-003	0.0000	14.1298

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.4000e-004	2.6600e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6600	0.6600	2.0000e-005	0.0000	0.6604
Total	3.6000e-004	2.4000e-004	2.6600e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6600	0.6600	2.0000e-005	0.0000	0.6604

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3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.7900e-003	0.0904	0.1026	1.6000e-004		4.7400e-003	4.7400e-003		4.3600e-003	4.3600e-003	0.0000	14.0164	14.0164	4.5300e-003	0.0000	14.1298
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	8.7900e-003	0.0904	0.1026	1.6000e-004		4.7400e-003	4.7400e-003		4.3600e-003	4.3600e-003	0.0000	14.0164	14.0164	4.5300e-003	0.0000	14.1298

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.4000e-004	2.6600e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6600	0.6600	2.0000e-005	0.0000	0.6604
Total	3.6000e-004	2.4000e-004	2.6600e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6600	0.6600	2.0000e-005	0.0000	0.6604

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3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0107	0.0127	2.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7903
Total	4.2815	0.0107	0.0127	2.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7903

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4100e-003	9.2000e-004	0.0103	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.5520	2.5520	7.0000e-005	0.0000	2.5537
Total	1.4100e-003	9.2000e-004	0.0103	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.5520	2.5520	7.0000e-005	0.0000	2.5537

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3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0107	0.0127	2.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7903
Total	4.2815	0.0107	0.0127	2.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7903

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4100e-003	9.2000e-004	0.0103	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.5520	2.5520	7.0000e-005	0.0000	2.5537
Total	1.4100e-003	9.2000e-004	0.0103	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.5520	2.5520	7.0000e-005	0.0000	2.5537

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9798	4.0229	11.5539	0.0386	3.4740	0.0302	3.5042	0.9312	0.0282	0.9594	0.0000	3,551.1051	3,551.1051	0.1597	0.0000	3,555.0978
Unmitigated	0.9798	4.0229	11.5539	0.0386	3.4740	0.0302	3.5042	0.9312	0.0282	0.9594	0.0000	3,551.1051	3,551.1051	0.1597	0.0000	3,555.0978

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3,275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.562895	0.037862	0.207220	0.115570	0.017815	0.005092	0.018559	0.023754	0.002009	0.001969	0.005819	0.000618	0.000817
Single Family Housing	0.562895	0.037862	0.207220	0.115570	0.017815	0.005092	0.018559	0.023754	0.002009	0.001969	0.005819	0.000618	0.000817

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2208	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Unmitigated	3.2208	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1181	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Total	3.2209	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1181	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554
Total	3.2209	0.0452	3.9198	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1600e-003	0.0000	6.5554

7.0 Water Detail

7.1 Mitigation Measures Water

Year 4 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 4 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 4 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Year 4 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Year 5 Construction - Sacramento County, Annual

Year 5 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 5 Construction - Sacramento County, Annual

Project Characteristics - Year 5

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Year 5 Construction - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	205.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/3/2023	12/29/2022
tblConstructionPhase	PhaseEndDate	11/24/2022	11/23/2022
tblConstructionPhase	PhaseStartDate	12/15/2022	12/12/2022
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2024

2.0 Emissions Summary

Year 5 Construction - Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2022	3-31-2022	1.2599	1.2599
2	4-1-2022	6-30-2022	0.9349	0.9349
3	7-1-2022	9-30-2022	0.9452	0.9452
		Highest	1.2599	1.2599

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.9185	3.8371	10.7642	0.0373	3.4730	0.0292	3.5021	0.9308	0.0272	0.9579	0.0000	3,436.4741	3,436.4741	0.1503	0.0000	3,440.2319
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.2046	4.4423	14.9198	0.0411	3.4730	0.0961	3.5691	0.9308	0.0942	1.0249	83.0766	5,070.0752	5,153.1518	4.6391	0.0409	5,281.3143

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.9185	3.8371	10.7642	0.0373	3.4730	0.0292	3.5021	0.9308	0.0272	0.9579	0.0000	3,436.4741	3,436.4741	0.1503	0.0000	3,440.2319
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.2046	4.4423	14.9198	0.0411	3.4730	0.0961	3.5691	0.9308	0.0942	1.0249	83.0766	5,070.0752	5,153.1518	4.6391	0.0409	5,281.3143

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 5 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2022	1/11/2022	5	7	
2	Grading	Grading	1/12/2022	2/9/2022	5	21	
3	Building Construction	Building Construction	2/10/2022	11/23/2022	5	205	
4	Paving	Paving	11/25/2022	12/14/2022	5	14	
5	Architectural Coating	Architectural Coating	12/12/2022	12/29/2022	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 5 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 5 Construction - Sacramento County, Annual

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1158	0.0689	1.3000e-004		5.6400e-003	5.6400e-003		5.1900e-003	5.1900e-003	0.0000	11.7038	11.7038	3.7900e-003	0.0000	11.7984
Total	0.0111	0.1158	0.0689	1.3000e-004	0.0632	5.6400e-003	0.0689	0.0348	5.1900e-003	0.0400	0.0000	11.7038	11.7038	3.7900e-003	0.0000	11.7984

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.3000e-004	1.4700e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3818	0.3818	1.0000e-005	0.0000	0.3821
Total	2.0000e-004	1.3000e-004	1.4700e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3818	0.3818	1.0000e-005	0.0000	0.3821

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3.2 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1158	0.0689	1.3000e-004		5.6400e-003	5.6400e-003		5.1900e-003	5.1900e-003	0.0000	11.7038	11.7038	3.7900e-003	0.0000	11.7984
Total	0.0111	0.1158	0.0689	1.3000e-004	0.0632	5.6400e-003	0.0689	0.0348	5.1900e-003	0.0400	0.0000	11.7038	11.7038	3.7900e-003	0.0000	11.7984

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.3000e-004	1.4700e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3818	0.3818	1.0000e-005	0.0000	0.3821
Total	2.0000e-004	1.3000e-004	1.4700e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3818	0.3818	1.0000e-005	0.0000	0.3821

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3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0512	0.5554	0.3606	8.1000e-004		0.0233	0.0233		0.0214	0.0214	0.0000	71.2477	71.2477	0.0230	0.0000	71.8237
Total	0.0512	0.5554	0.3606	8.1000e-004	0.1599	0.0233	0.1832	0.0731	0.0214	0.0946	0.0000	71.2477	71.2477	0.0230	0.0000	71.8237

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.3000e-004	6.1100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5909	1.5909	4.0000e-005	0.0000	1.5919
Total	8.5000e-004	5.3000e-004	6.1100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5909	1.5909	4.0000e-005	0.0000	1.5919

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3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0512	0.5554	0.3606	8.1000e-004		0.0233	0.0233		0.0214	0.0214	0.0000	71.2476	71.2476	0.0230	0.0000	71.8237
Total	0.0512	0.5554	0.3606	8.1000e-004	0.1599	0.0233	0.1832	0.0731	0.0214	0.0946	0.0000	71.2476	71.2476	0.0230	0.0000	71.8237

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.3000e-004	6.1100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5909	1.5909	4.0000e-005	0.0000	1.5919
Total	8.5000e-004	5.3000e-004	6.1100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5909	1.5909	4.0000e-005	0.0000	1.5919

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3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1749	1.6006	1.6773	2.7600e-003		0.0829	0.0829		0.0780	0.0780	0.0000	237.5184	237.5184	0.0569	0.0000	238.9409
Total	0.1749	1.6006	1.6773	2.7600e-003		0.0829	0.0829		0.0780	0.0780	0.0000	237.5184	237.5184	0.0569	0.0000	238.9409

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0299	0.9956	0.2584	2.4800e-003	0.0599	2.5400e-003	0.0625	0.0173	2.4300e-003	0.0198	0.0000	238.3966	238.3966	0.0134	0.0000	238.7306
Worker	0.0955	0.0601	0.6866	1.9800e-003	0.2168	1.4800e-003	0.2183	0.0577	1.3600e-003	0.0590	0.0000	178.9102	178.9102	4.3800e-003	0.0000	179.0196
Total	0.1255	1.0556	0.9450	4.4600e-003	0.2767	4.0200e-003	0.2807	0.0750	3.7900e-003	0.0788	0.0000	417.3068	417.3068	0.0177	0.0000	417.7502

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3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1749	1.6006	1.6773	2.7600e-003		0.0829	0.0829		0.0780	0.0780	0.0000	237.5181	237.5181	0.0569	0.0000	238.9407
Total	0.1749	1.6006	1.6773	2.7600e-003		0.0829	0.0829		0.0780	0.0780	0.0000	237.5181	237.5181	0.0569	0.0000	238.9407

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0299	0.9956	0.2584	2.4800e-003	0.0599	2.5400e-003	0.0625	0.0173	2.4300e-003	0.0198	0.0000	238.3966	238.3966	0.0134	0.0000	238.7306
Worker	0.0955	0.0601	0.6866	1.9800e-003	0.2168	1.4800e-003	0.2183	0.0577	1.3600e-003	0.0590	0.0000	178.9102	178.9102	4.3800e-003	0.0000	179.0196
Total	0.1255	1.0556	0.9450	4.4600e-003	0.2767	4.0200e-003	0.2807	0.0750	3.7900e-003	0.0788	0.0000	417.3068	417.3068	0.0177	0.0000	417.7502

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3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7200e-003	0.0779	0.1021	1.6000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	14.0193	14.0193	4.5300e-003	0.0000	14.1326
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.7200e-003	0.0779	0.1021	1.6000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	14.0193	14.0193	4.5300e-003	0.0000	14.1326

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6364	0.6364	2.0000e-005	0.0000	0.6368
Total	3.4000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6364	0.6364	2.0000e-005	0.0000	0.6368

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3.5 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7200e-003	0.0779	0.1021	1.6000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	14.0193	14.0193	4.5300e-003	0.0000	14.1326
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.7200e-003	0.0779	0.1021	1.6000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	14.0193	14.0193	4.5300e-003	0.0000	14.1326

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6364	0.6364	2.0000e-005	0.0000	0.6368
Total	3.4000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6364	0.6364	2.0000e-005	0.0000	0.6368

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3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4300e-003	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902
Total	4.2814	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	8.3000e-004	9.4400e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4606	2.4606	6.0000e-005	0.0000	2.4621
Total	1.3100e-003	8.3000e-004	9.4400e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4606	2.4606	6.0000e-005	0.0000	2.4621

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3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4300e-003	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902
Total	4.2814	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	8.3000e-004	9.4400e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4606	2.4606	6.0000e-005	0.0000	2.4621
Total	1.3100e-003	8.3000e-004	9.4400e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4606	2.4606	6.0000e-005	0.0000	2.4621

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9185	3.8371	10.7642	0.0373	3.4730	0.0292	3.5021	0.9308	0.0272	0.9579	0.0000	3,436.474 1	3,436.474 1	0.1503	0.0000	3,440.231 9
Unmitigated	0.9185	3.8371	10.7642	0.0373	3.4730	0.0292	3.5021	0.9308	0.0272	0.9579	0.0000	3,436.474 1	3,436.474 1	0.1503	0.0000	3,440.231 9

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776
Single Family Housing	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

Year 5 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Unmitigated	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1178	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Total	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551

Year 5 Construction - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1178	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551
Total	3.2205	0.0451	3.9173	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1400e-003	0.0000	6.5551

7.0 Water Detail

7.1 Mitigation Measures Water

Year 5 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 5 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 5 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Year 5 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 6 Construction - Sacramento County, Annual

**Year 6 Construction
Sacramento County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 6 Construction - Sacramento County, Annual

Project Characteristics - Year 6

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	205.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	1/1/2024	12/29/2023
tblConstructionPhase	PhaseStartDate	12/13/2023	12/12/2023
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2025

Year 6 Construction - Sacramento County, Annual

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	4.6207	3.0344	3.0656	8.2800e-003	0.5060	0.1028	0.6088	0.1845	0.0962	0.2807	0.0000	747.4190	747.4190	0.1040	0.0000	750.0193
Maximum	4.6207	3.0344	3.0656	8.2800e-003	0.5060	0.1028	0.6088	0.1845	0.0962	0.2807	0.0000	747.4190	747.4190	0.1040	0.0000	750.0193

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	4.6207	3.0344	3.0656	8.2800e-003	0.5060	0.1028	0.6088	0.1845	0.0962	0.2807	0.0000	747.4186	747.4186	0.1040	0.0000	750.0189
Maximum	4.6207	3.0344	3.0656	8.2800e-003	0.5060	0.1028	0.6088	0.1845	0.0962	0.2807	0.0000	747.4186	747.4186	0.1040	0.0000	750.0189

Year 6 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	1.1062	1.1062
2	4-1-2023	6-30-2023	0.8375	0.8375
3	7-1-2023	9-30-2023	0.8467	0.8467
		Highest	1.1062	1.1062

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.8654	3.6682	10.0538	0.0361	3.4720	0.0283	3.5002	0.9303	0.0263	0.9566	0.0000	3,323.3017	3,323.3017	0.1419	0.0000	3,326.8502
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.1513	4.2734	14.2073	0.0399	3.4720	0.0953	3.5672	0.9303	0.0933	1.0236	83.0766	4,956.9029	5,039.9795	4.6307	0.0409	5,167.9323

Year 6 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.8654	3.6682	10.0538	0.0361	3.4720	0.0283	3.5002	0.9303	0.0263	0.9566	0.0000	3,323.3017	3,323.3017	0.1419	0.0000	3,326.8502
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.1513	4.2734	14.2073	0.0399	3.4720	0.0953	3.5672	0.9303	0.0933	1.0236	83.0766	4,956.9029	5,039.9795	4.6307	0.0409	5,167.9323

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 6 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/10/2023	5	7	
2	Grading	Grading	1/11/2023	2/8/2023	5	21	
3	Building Construction	Building Construction	2/9/2023	11/22/2023	5	205	
4	Paving	Paving	11/23/2023	12/12/2023	5	14	
5	Architectural Coating	Architectural Coating	12/12/2023	12/29/2023	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 6 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 6 Construction - Sacramento County, Annual

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0963	0.0639	1.3000e-004		4.4300e-003	4.4300e-003		4.0800e-003	4.0800e-003	0.0000	11.7077	11.7077	3.7900e-003	0.0000	11.8024
Total	9.3100e-003	0.0963	0.0639	1.3000e-004	0.0632	4.4300e-003	0.0677	0.0348	4.0800e-003	0.0388	0.0000	11.7077	11.7077	3.7900e-003	0.0000	11.8024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.2000e-004	1.3500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3675	0.3675	1.0000e-005	0.0000	0.3677
Total	1.9000e-004	1.2000e-004	1.3500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3675	0.3675	1.0000e-005	0.0000	0.3677

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3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0963	0.0639	1.3000e-004		4.4300e-003	4.4300e-003		4.0800e-003	4.0800e-003	0.0000	11.7077	11.7077	3.7900e-003	0.0000	11.8024
Total	9.3100e-003	0.0963	0.0639	1.3000e-004	0.0632	4.4300e-003	0.0677	0.0348	4.0800e-003	0.0388	0.0000	11.7077	11.7077	3.7900e-003	0.0000	11.8024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.2000e-004	1.3500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3675	0.3675	1.0000e-005	0.0000	0.3677
Total	1.9000e-004	1.2000e-004	1.3500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3675	0.3675	1.0000e-005	0.0000	0.3677

Year 6 Construction - Sacramento County, Annual

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0461	0.4861	0.3449	8.1000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	71.2439	71.2439	0.0230	0.0000	71.8200
Total	0.0461	0.4861	0.3449	8.1000e-004	0.1599	0.0199	0.1798	0.0731	0.0183	0.0914	0.0000	71.2439	71.2439	0.0230	0.0000	71.8200

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	4.8000e-004	5.6100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5312	1.5312	3.0000e-005	0.0000	1.5321
Total	8.0000e-004	4.8000e-004	5.6100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5312	1.5312	3.0000e-005	0.0000	1.5321

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3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0461	0.4861	0.3449	8.1000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	71.2439	71.2439	0.0230	0.0000	71.8199
Total	0.0461	0.4861	0.3449	8.1000e-004	0.1599	0.0199	0.1798	0.0731	0.0183	0.0914	0.0000	71.2439	71.2439	0.0230	0.0000	71.8199

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	4.8000e-004	5.6100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5312	1.5312	3.0000e-005	0.0000	1.5321
Total	8.0000e-004	4.8000e-004	5.6100e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5312	1.5312	3.0000e-005	0.0000	1.5321

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3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5999	237.5999	0.0565	0.0000	239.0129
Total	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5999	237.5999	0.0565	0.0000	239.0129

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0237	0.8414	0.2286	2.4300e-003	0.0599	1.2100e-003	0.0611	0.0173	1.1600e-003	0.0185	0.0000	233.9902	233.9902	0.0120	0.0000	234.2898
Worker	0.0894	0.0540	0.6305	1.9000e-003	0.2168	1.4400e-003	0.2183	0.0577	1.3300e-003	0.0590	0.0000	172.1918	172.1918	3.9200e-003	0.0000	172.2899
Total	0.1131	0.8955	0.8591	4.3300e-003	0.2767	2.6500e-003	0.2794	0.0750	2.4900e-003	0.0775	0.0000	406.1820	406.1820	0.0159	0.0000	406.5797

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3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5996	237.5996	0.0565	0.0000	239.0126
Total	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5996	237.5996	0.0565	0.0000	239.0126

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0237	0.8414	0.2286	2.4300e-003	0.0599	1.2100e-003	0.0611	0.0173	1.1600e-003	0.0185	0.0000	233.9902	233.9902	0.0120	0.0000	234.2898
Worker	0.0894	0.0540	0.6305	1.9000e-003	0.2168	1.4400e-003	0.2183	0.0577	1.3300e-003	0.0590	0.0000	172.1918	172.1918	3.9200e-003	0.0000	172.2899
Total	0.1131	0.8955	0.8591	4.3300e-003	0.2767	2.6500e-003	0.2794	0.0750	2.4900e-003	0.0775	0.0000	406.1820	406.1820	0.0159	0.0000	406.5797

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3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.2300e-003	0.0713	0.1021	1.6000e-004		3.5700e-003	3.5700e-003		3.2900e-003	3.2900e-003	0.0000	14.0188	14.0188	4.5300e-003	0.0000	14.1322
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.2300e-003	0.0713	0.1021	1.6000e-004		3.5700e-003	3.5700e-003		3.2900e-003	3.2900e-003	0.0000	14.0188	14.0188	4.5300e-003	0.0000	14.1322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6125	0.6125	1.0000e-005	0.0000	0.6128
Total	3.2000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6125	0.6125	1.0000e-005	0.0000	0.6128

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3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.2300e-003	0.0713	0.1021	1.6000e-004		3.5700e-003	3.5700e-003		3.2900e-003	3.2900e-003	0.0000	14.0188	14.0188	4.5300e-003	0.0000	14.1321
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.2300e-003	0.0713	0.1021	1.6000e-004		3.5700e-003	3.5700e-003		3.2900e-003	3.2900e-003	0.0000	14.0188	14.0188	4.5300e-003	0.0000	14.1321

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6125	0.6125	1.0000e-005	0.0000	0.6128
Total	3.2000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6125	0.6125	1.0000e-005	0.0000	0.6128

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3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	4.2813	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	7.4000e-004	8.6700e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.3682	2.3682	5.0000e-005	0.0000	2.3696
Total	1.2300e-003	7.4000e-004	8.6700e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.3682	2.3682	5.0000e-005	0.0000	2.3696

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3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	4.2813	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	7.4000e-004	8.6700e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.3682	2.3682	5.0000e-005	0.0000	2.3696
Total	1.2300e-003	7.4000e-004	8.6700e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.3682	2.3682	5.0000e-005	0.0000	2.3696

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8654	3.6682	10.0538	0.0361	3.4720	0.0283	3.5002	0.9303	0.0263	0.9566	0.0000	3,323.3017	3,323.3017	0.1419	0.0000	3,326.8502
Unmitigated	0.8654	3.6682	10.0538	0.0361	3.4720	0.0283	3.5002	0.9303	0.0263	0.9566	0.0000	3,323.3017	3,323.3017	0.1419	0.0000	3,326.8502

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Unmitigated	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1176	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Total	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

Year 6 Construction - Sacramento County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1176	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Total	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

7.0 Water Detail

7.1 Mitigation Measures Water

Year 6 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 6 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 6 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Year 6 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Year 7 Construction - Sacramento County, Annual

Year 7 Construction
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	8.26	Acre	8.26	359,805.60	0
Single Family Housing	380.00	Dwelling Unit	56.80	684,000.00	1015

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2026
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Year 7 Construction - Sacramento County, Annual

Project Characteristics - Year 7

Land Use - From PD

Construction Phase - Phasing adjustment from spreadsheet

Off-road Equipment -

Off-road Equipment - test

Off-road Equipment - Adjusted number of equipment to match acres graded. See spreadsheet for calculation.

Off-road Equipment -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Off-road Equipment -

Off-road Equipment -

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	1,110.00	207.00
tblConstructionPhase	NumDays	110.00	21.00
tblConstructionPhase	NumDays	75.00	14.00
tblConstructionPhase	NumDays	40.00	7.00
tblConstructionPhase	PhaseEndDate	11/20/2024	11/22/2024
tblLandUse	LotAcreage	123.38	56.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2026

Year 7 Construction - Sacramento County, Annual

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	4.6046	2.9043	3.0158	8.2500e-003	0.5087	0.0929	0.6016	0.1852	0.0869	0.2721	0.0000	745.4075	745.4075	0.1038	0.0000	748.0032
Maximum	4.6046	2.9043	3.0158	8.2500e-003	0.5087	0.0929	0.6016	0.1852	0.0869	0.2721	0.0000	745.4075	745.4075	0.1038	0.0000	748.0032

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	4.6046	2.9043	3.0158	8.2500e-003	0.5087	0.0929	0.6016	0.1852	0.0869	0.2721	0.0000	745.4071	745.4071	0.1038	0.0000	748.0028
Maximum	4.6046	2.9043	3.0158	8.2500e-003	0.5087	0.0929	0.6016	0.1852	0.0869	0.2721	0.0000	745.4071	745.4071	0.1038	0.0000	748.0028

Year 7 Construction - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2024	3-31-2024	1.0591	1.0591
2	4-1-2024	6-30-2024	0.7949	0.7949
3	7-1-2024	9-30-2024	0.8036	0.8036
		Highest	1.0591	1.0591

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.8200	3.5294	9.4626	0.0350	3.4713	0.0272	3.4985	0.9300	0.0253	0.9553	0.0000	3,225.2883	3,225.2883	0.1353	0.0000	3,228.6709
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.1059	4.1346	13.6161	0.0388	3.4713	0.0942	3.5655	0.9300	0.0923	1.0223	83.0766	4,858.8895	4,941.9661	4.6241	0.0409	5,069.7531

Year 7 Construction - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Energy	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	1,570.3173	1,570.3173	0.0577	0.0213	1,578.0955
Mobile	0.8200	3.5294	9.4626	0.0350	3.4713	0.0272	3.4985	0.9300	0.0253	0.9553	0.0000	3,225.2883	3,225.2883	0.1353	0.0000	3,228.6709
Waste						0.0000	0.0000		0.0000	0.0000	74.3170	0.0000	74.3170	4.3920	0.0000	184.1173
Water						0.0000	0.0000		0.0000	0.0000	8.7596	56.8824	65.6420	0.0329	0.0196	72.3146
Total	4.1059	4.1346	13.6161	0.0388	3.4713	0.0942	3.5655	0.9300	0.0923	1.0223	83.0766	4,858.8895	4,941.9661	4.6241	0.0409	5,069.7531

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Year 7 Construction - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	1/9/2024	5	7	
2	Grading	Grading	1/10/2024	2/7/2024	5	21	
3	Building Construction	Building Construction	2/8/2024	11/22/2024	5	207	
4	Paving	Paving	11/21/2024	12/10/2024	5	14	
5	Architectural Coating	Architectural Coating	12/11/2024	12/30/2024	5	14	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 63

Acres of Paving: 0

Residential Indoor: 1,385,100; Residential Outdoor: 461,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Year 7 Construction - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	288.00	100.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Year 7 Construction - Sacramento County, Annual

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0951	0.0642	1.3000e-004		4.3000e-003	4.3000e-003		3.9600e-003	3.9600e-003	0.0000	11.7100	11.7100	3.7900e-003	0.0000	11.8047
Total	9.3100e-003	0.0951	0.0642	1.3000e-004	0.0632	4.3000e-003	0.0675	0.0348	3.9600e-003	0.0387	0.0000	11.7100	11.7100	3.7900e-003	0.0000	11.8047

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.0000e-004	1.2500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3532	0.3532	1.0000e-005	0.0000	0.3534
Total	1.8000e-004	1.0000e-004	1.2500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3532	0.3532	1.0000e-005	0.0000	0.3534

Year 7 Construction - Sacramento County, Annual

3.2 Site Preparation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0951	0.0642	1.3000e-004		4.3000e-003	4.3000e-003		3.9600e-003	3.9600e-003	0.0000	11.7100	11.7100	3.7900e-003	0.0000	11.8046
Total	9.3100e-003	0.0951	0.0642	1.3000e-004	0.0632	4.3000e-003	0.0675	0.0348	3.9600e-003	0.0387	0.0000	11.7100	11.7100	3.7900e-003	0.0000	11.8046

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.0000e-004	1.2500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3532	0.3532	1.0000e-005	0.0000	0.3534
Total	1.8000e-004	1.0000e-004	1.2500e-003	0.0000	4.6000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3532	0.3532	1.0000e-005	0.0000	0.3534

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3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0448	0.4584	0.3414	8.1000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	71.2240	71.2240	0.0230	0.0000	71.7999
Total	0.0448	0.4584	0.3414	8.1000e-004	0.1599	0.0188	0.1787	0.0731	0.0173	0.0904	0.0000	71.2240	71.2240	0.0230	0.0000	71.7999

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	4.3000e-004	5.1900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.4717	1.4717	3.0000e-005	0.0000	1.4724
Total	7.5000e-004	4.3000e-004	5.1900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.4717	1.4717	3.0000e-005	0.0000	1.4724

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3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1599	0.0000	0.1599	0.0731	0.0000	0.0731	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0448	0.4584	0.3414	8.1000e-004		0.0188	0.0188		0.0173	0.0173	0.0000	71.2239	71.2239	0.0230	0.0000	71.7998
Total	0.0448	0.4584	0.3414	8.1000e-004	0.1599	0.0188	0.1787	0.0731	0.0173	0.0904	0.0000	71.2239	71.2239	0.0230	0.0000	71.7998

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	4.3000e-004	5.1900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.4717	1.4717	3.0000e-005	0.0000	1.4724
Total	7.5000e-004	4.3000e-004	5.1900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.4717	1.4717	3.0000e-005	0.0000	1.4724

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3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1523	1.3914	1.6733	2.7900e-003		0.0635	0.0635		0.0597	0.0597	0.0000	239.9638	239.9638	0.0567	0.0000	241.3824
Total	0.1523	1.3914	1.6733	2.7900e-003		0.0635	0.0635		0.0597	0.0597	0.0000	239.9638	239.9638	0.0567	0.0000	241.3824

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0228	0.8334	0.2158	2.4400e-003	0.0605	1.1600e-003	0.0617	0.0175	1.1100e-003	0.0186	0.0000	234.9014	234.9014	0.0120	0.0000	235.2002
Worker	0.0849	0.0493	0.5896	1.8500e-003	0.2189	1.4200e-003	0.2203	0.0582	1.3100e-003	0.0595	0.0000	167.1128	167.1128	3.5700e-003	0.0000	167.2022
Total	0.1077	0.8828	0.8054	4.2900e-003	0.2794	2.5800e-003	0.2820	0.0757	2.4200e-003	0.0781	0.0000	402.0142	402.0142	0.0155	0.0000	402.4024

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3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1523	1.3914	1.6733	2.7900e-003		0.0635	0.0635		0.0597	0.0597	0.0000	239.9635	239.9635	0.0567	0.0000	241.3822
Total	0.1523	1.3914	1.6733	2.7900e-003		0.0635	0.0635		0.0597	0.0597	0.0000	239.9635	239.9635	0.0567	0.0000	241.3822

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0228	0.8334	0.2158	2.4400e-003	0.0605	1.1600e-003	0.0617	0.0175	1.1100e-003	0.0186	0.0000	234.9014	234.9014	0.0120	0.0000	235.2002
Worker	0.0849	0.0493	0.5896	1.8500e-003	0.2189	1.4200e-003	0.2203	0.0582	1.3100e-003	0.0595	0.0000	167.1128	167.1128	3.5700e-003	0.0000	167.2022
Total	0.1077	0.8828	0.8054	4.2900e-003	0.2794	2.5800e-003	0.2820	0.0757	2.4200e-003	0.0781	0.0000	402.0142	402.0142	0.0155	0.0000	402.4024

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3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9200e-003	0.0667	0.1024	1.6000e-004		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	14.0186	14.0186	4.5300e-003	0.0000	14.1319
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.9200e-003	0.0667	0.1024	1.6000e-004		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	14.0186	14.0186	4.5300e-003	0.0000	14.1319

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.7000e-004	2.0800e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.5887	0.5887	1.0000e-005	0.0000	0.5890
Total	3.0000e-004	1.7000e-004	2.0800e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.5887	0.5887	1.0000e-005	0.0000	0.5890

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3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9200e-003	0.0667	0.1024	1.6000e-004		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	14.0186	14.0186	4.5300e-003	0.0000	14.1319
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.9200e-003	0.0667	0.1024	1.6000e-004		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	14.0186	14.0186	4.5300e-003	0.0000	14.1319

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.7000e-004	2.0800e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.5887	0.5887	1.0000e-005	0.0000	0.5890
Total	3.0000e-004	1.7000e-004	2.0800e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.5887	0.5887	1.0000e-005	0.0000	0.5890

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3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2700e-003	8.5300e-003	0.0127	2.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	1.7873	1.7873	1.0000e-004	0.0000	1.7898
Total	4.2812	8.5300e-003	0.0127	2.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	1.7873	1.7873	1.0000e-004	0.0000	1.7898

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	6.7000e-004	8.0300e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.2762	2.2762	5.0000e-005	0.0000	2.2774
Total	1.1600e-003	6.7000e-004	8.0300e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.2762	2.2762	5.0000e-005	0.0000	2.2774

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3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2800					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2700e-003	8.5300e-003	0.0127	2.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	1.7873	1.7873	1.0000e-004	0.0000	1.7898
Total	4.2812	8.5300e-003	0.0127	2.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	1.7873	1.7873	1.0000e-004	0.0000	1.7898

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	6.7000e-004	8.0300e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.2762	2.2762	5.0000e-005	0.0000	2.2774
Total	1.1600e-003	6.7000e-004	8.0300e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.2762	2.2762	5.0000e-005	0.0000	2.2774

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8200	3.5294	9.4626	0.0350	3.4713	0.0272	3.4985	0.9300	0.0253	0.9553	0.0000	3,225.2883	3,225.2883	0.1353	0.0000	3,228.6709
Unmitigated	0.8200	3.5294	9.4626	0.0350	3.4713	0.0272	3.4985	0.9300	0.0253	0.9553	0.0000	3,225.2883	3,225.2883	0.1353	0.0000	3,228.6709

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.61	187.92	138.27	106,545	106,545
Single Family Housing	3,617.60	3,765.80	3275.60	9,212,111	9,212,111
Total	3,633.21	3,953.72	3,413.87	9,318,656	9,318,656

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.570990	0.036039	0.209774	0.110012	0.014862	0.004732	0.018347	0.024592	0.001934	0.001739	0.005654	0.000617	0.000710
Single Family Housing	0.570990	0.036039	0.209774	0.110012	0.014862	0.004732	0.018347	0.024592	0.001934	0.001739	0.005654	0.000617	0.000710

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	921.6593	921.6593	0.0453	9.3700e-003	925.5829
NaturalGas Mitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
NaturalGas Unmitigated	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.21554e+007	0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126
Total		0.0655	0.5601	0.2383	3.5800e-003		0.0453	0.0453		0.0453	0.0453	0.0000	648.6579	648.6579	0.0124	0.0119	652.5126

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.44211e+006	921.6593	0.0453	9.3700e-003	925.5829
Total		921.6593	0.0453	9.3700e-003	925.5829

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Unmitigated	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1176	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Total	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1176	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548
Total	3.2203	0.0451	3.9152	2.1000e-004		0.0217	0.0217		0.0217	0.0217	0.0000	6.4015	6.4015	6.1300e-003	0.0000	6.5548

7.0 Water Detail

7.1 Mitigation Measures Water

Year 7 Construction - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	65.6420	0.0329	0.0196	72.3146
Unmitigated	65.6420	0.0329	0.0196	72.3146

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

Year 7 Construction - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 9.84164	9.2232	4.5000e-004	9.0000e-005	9.2625
Single Family Housing	24.7585 / 15.6086	56.4188	0.0325	0.0195	63.0521
Total		65.6420	0.0329	0.0196	72.3146

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	74.3170	4.3920	0.0000	184.1173
Unmitigated	74.3170	4.3920	0.0000	184.1173

Year 7 Construction - Sacramento County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.71	0.1441	8.5200e-003	0.0000	0.3571
Single Family Housing	365.4	74.1729	4.3835	0.0000	183.7602
Total		74.3170	4.3920	0.0000	184.1173

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Year 7 Construction - Sacramento County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix F

Drainage System Modeling Report

Drainage System Modeling Report

for

Natomas Panhandle

City of Sacramento, CA

Datum: NAVD29

SEPTEMBER 23, 2016

Prepared for:

Panhandle owner's group
c/o The Hodgson Company
2514 Chinatown Alley
Sacramento, CA 95816

Executive Summary

This report summarizes the hydrologic and hydraulic analysis of the proposed Panhandle Development, herein referred to as the “Project” located within the County of Sacramento. The Project is a greenfield project located in the North Natomas Community Plan area. The project applicant is currently processing an entitlement application for a General Plan Amendment, Community Plan Amendment, pre-zoning, Planned Unit Development, development agreements, and annexation to the City of Sacramento. Included in the entitlement is an additional 122.3-acre parcel referred to as the Krumenacher parcel.

The primary emphasis of this study is to support the current entitlement application of the following properties:

- Beachfields LLC
- Peter Tasso Cononelos
- Ernest G. Brothers Revocable Trust
- Moontide LLC
- J Rise Richter Trust
- Twin Rivers Unified School District

The Krumenacher parcel is considered not part of this study, however the Project is providing a point of connection for a future storm drain pipe extension. As future development occurs for the Krumenacher parcel, flood control attenuation as well as storm water quality will have to be mitigated on-site.

The Project will drain east to west to a proposed detention basin and will be pumped to an existing twin 60” storm drain pipe system located in Club Center Drive. The detention basin is designed to handle the Project’s flood control requirements as well two off-site shed’s east of the Project. The site currently drains to Club Center Drive and this flow path will be matched in the proposed conditions.

This study provides an analysis preformed in XPSstorm 2014 to determine adequate backbone storm drain sizing and detention basin sizing. Five pumps are included in the detention basin to pump the basin into the existing downstream storm drain system.

The XPSstorm 2014 program was used for the Sacramento Method 10-year and 100-year peak flow rates. Additional analysis was performed using the City’s draft method for the same events. The Manning’s ‘n’ value used in the models for the SD pipe is 0.015. The datum used is NGVD29. The downstream conditions for the XPSstorm model is the basin and five pumps set to turn on at varying stages. The results contained within this report are from the Sacramento Method models.

The proposed Project will comply with the City of Sacramento standards including the requirement for the 10-year water surface elevation be 6-inches below DIs as well as the pads being at least 1 foot above the 100-year flood.

The proposed drainage system as shown will provide adequate conveyance of the 100-year and 10-year event to the City of Sacramento standards.

Section 1 - General

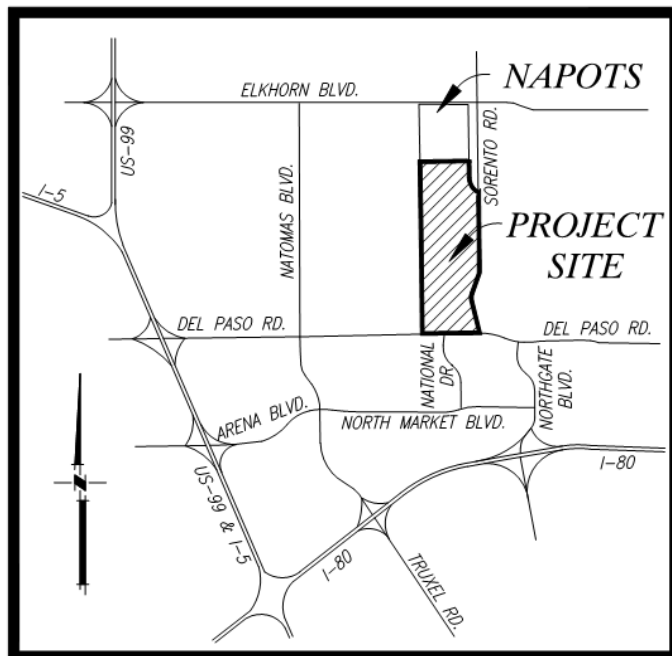
This report summarizes the hydrologic and hydraulic analysis of the Panhandle development located within the City of Sacramento. The site generally drains from East to West and discharges to Club Center Drive. Found in this analysis are calculations to show that the proposed backbone infrastructure has adequate capacity to serve the development and that the detention basin is adequately sized to mitigate flows to levels deemed acceptable by the City and RD1000 (Reclamation District number 1000). A 100-year and a 10-year event analysis using the Sacramento Method is performed for this project using XPStorm.

Section 2 - Purpose

The drainage design information presented in this study demonstrates the ability to service the Panhandle development. This Study will sever as a regional “backbone” drainage analysis for the Project’s entitlement application. As development occurs for the Project, and at the time of improvement plan preparation, more refined drainage analysis will be required for individual villages, however, this study will serve as an overall drainage master plan for future drainage studies needed by the City.

Project Description and Study Characteristics

The Project is located within the County of Sacramento. However, as part of the entitlement application the Project will be annexed to the City of Sacramento. The major roadways nearby are Elkhorn Blvd to the north, Sorento Road to the East, and Del Paso Road to the south. This is a Greenfield project with existing residential developments surrounding the Project area. A vicinity map is provided in Figure 1 below.



VICINITY MAP
N.T.S.

Figure 1. Project Vicinity Map

The Panhandle development will drain an area of approximately 648 acres to the proposed detention basin. This area is comprised mainly of on-site residential area as well as a proposed school site to the north (currently a natural field) and natural conditions to the east of the project. This project will include pipe capacity to drain these off-site areas at their existing conditions flows. The overland release routes will generally follow the piped flow. The site is split into three major sheds (A, B, and C) for purposes of pipe routing and overland release. See Figure 2 below for the overland release shed map.

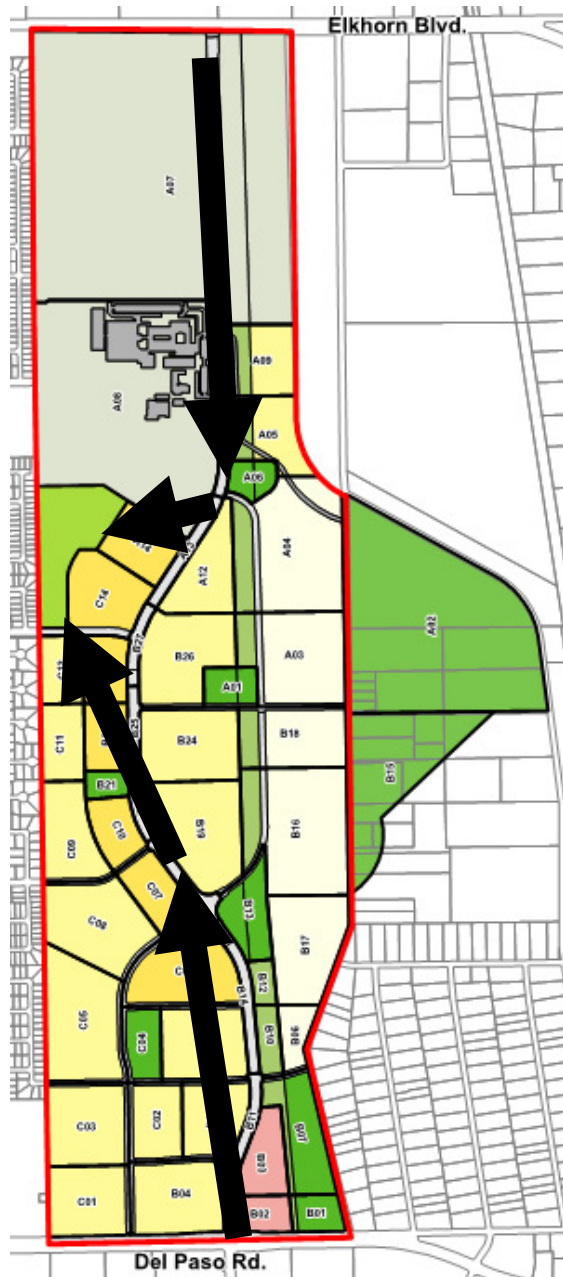


Figure 2. Overland Release Shed Map

Level of Study

This study is intended to size backbone infrastructure. It is not an improvement plan level of study. The proposed on-site model includes large sheds with backbone pipes and a detention basin which is pumped at 68 cfs. This model shows that the site can be adequately drained during the 100-year event.

Topography

The overall site can be characterized as relatively flat terrain with elevations ranging from 15 to 35 feet above mean sea level. The site generally drains from east to west across the site. This project is on NGVD29 which is closely related to the City's datum.

Land Use and Zoning

The proposed zoning for the Project development will be primarily Single-Family Residential (R-1A) with a future school site north of the detention basin part of the project, limited commercial at the southern end, open space for the overhead power line corridor, and park sites mixed throughout. Refer to the attached Land Use Exhibit.

Related Drainage Studies

This study does not rely on previous study results; however, this study does borrow upon a previously submitted study prepared for the Panhandle Project in March 2008. The study was reviewed and commented on by RD 1000 and this study incorporates some of the results of that review as well as existing conditions models as they have not changed.

Design Criteria

The criteria used during the greenfield development of this study is summarized below.

- All Hydrologic and Hydraulic design criteria shall be consistent with the City of Sacramento Section 11 Storm Drainage Design Standards.
- All pads are a minimum of 1.2 foot above the 100-year water surface elevation or 1.5 feet above the overland release elevation.
- 10-year water surface elevation is a minimum of 6 inches below all drainage inlets
- Infill drainage systems shall not result in increased flooding that does harm.

Additionally, since this project is within the Natomas Basin there is an additional requirement by RD 1000 to provide a maximum site discharge of 0.1 cfs per acre of development.

Offsite Conditions

This model assumes that all off-site conditions remain existing and without development. The site to the north, which at this time is planned to be a school site, and the site to the east will eventually develop and must mitigate their discharge. It is anticipated that the RD 1000 requirement of 0.1 cfs per acre of development will be mitigated to and the site itself may not drain through the Panhandle project as it develops in the future. Given this assumption on mitigation, the maximum flow that the Panhandle project will be designed to convey will be in the interim conditions scenario.

There is an additional off-site condition which is considered in this study. The intersection of Sorrento Road and Del Paso Road currently experiences flooding during rainfall events. As part of a good faith effort of the Panhandle project, drainage relief will be provided to this intersection. A pipe will be placed in Del Paso Road towards the intersection with a 10-year HGL below grade to provide relief in the event that the intersection floods. This will be studied in detail as the Panhandle project continues to develop.

Pipe Sizing

The Panhandle project is located within the Natomas basin and is generally a flat project. Given these site conditions the pipes will generally be sized larger than in projects with adequate slopes for overland drainage. In addition to the limited slope for overland release, National Boulevard requires an open lane of travel in both directions limiting the ability for it to provide overland release. These two factors combined cause pipes to be larger than they would be based on the 10-year event flows only.

Section 3 - Hydrologic and Hydraulic Analysis

Pre Project Modeling

A preproject condition model was created in 2005 for the Panhandle project using SacCalc. As the site conditions have not changed, the model was not altered for this study. The existing conditions model shows that 298 cfs is released through the project at Country Club Drive and 18 cfs is released north of the project site. The purpose of this model is to show the existing flows produced by the existing project site, these flows are not what is being required to discharge at for the developed project site.

On-Site Modeling

As stated previously, an XPStorm 2014 model was used to evaluate the on-site drainage. A system comprised of both pipes and street was made for the 100-year and 10-year storm events. The flows as a result of the 10-year storm are contained within the pipe system. The 100-year storm was kept at 0.4' below centerline street grades.

The Sacramento method was used to determine the 10-year and 100-year peak flow rates in the system. Manning's 'n' value used in the model for the SD pipe is 0.015, which will allow any approved material SD pipe to be constructed.

Hydrologic sheds were determined based on grading elevations developed by MacKay and Somps. Drainage shed delineation is provided in Storm Drain Shed Map figure provided in Appendix A. Appendix A also contains information relating to soil conditions for the project site. Figure 3 below shows the XPStorm model node and pipe layout.

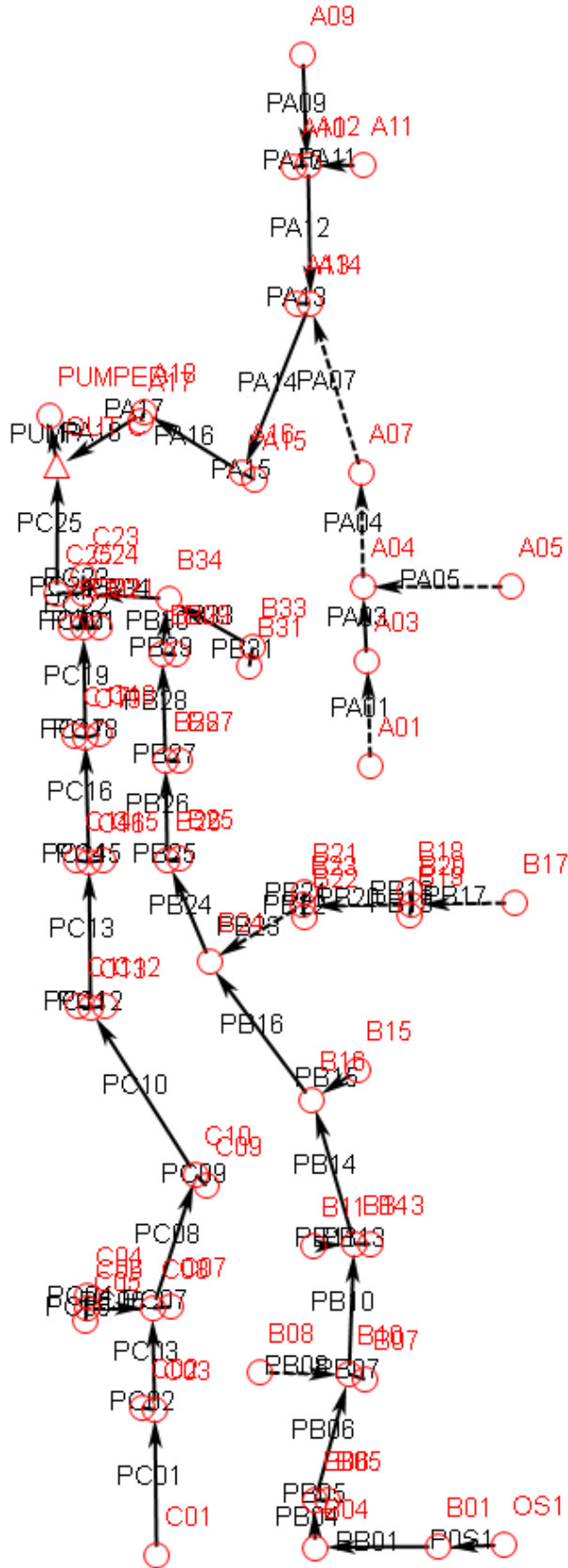


Figure 3. XPS Storm Model node and pipe layout for 10-Year and 100-Year Analysis

10-Year H&H Results

10-Year flows were determined using the XPStorm software for Sacramento Zone 2. The subshed areas, watercourse lengths, slopes, and impervious percentages for each subshed were entered into the model. These subshed characteristics can be seen in Appendix A ‘Model Input’. The model was split into the three major sheds: ‘A’, ‘B’, and ‘C’. All three sheds drain to the proposed detention basin as their downstream condition. The results are summarized below in Table 1 with detailed output available in Appendix B.

Table 1. Summary of results from the 10-Year Hydrologic analyses (NGVD 29).

Node	Gutter Flow Line (Inlet Elevation)	10-Year WSE	Difference	Node	Gutter Flow Line (Inlet Elevation)	10-Year WSE	Difference
A01	19.7	8.6	-11.1	B23	17.7	9.9	-7.8
A03	18.7	8.7	-10.1	B24	16.7	9.5	-7.2
A04	19.5	8.5	-11.1	B26	15.8	9.1	-6.7
A05	19.7	9.2	-10.5	B28	15.9	8.7	-7.2
A07	19.7	8.5	-11.2	B30	15.9	8.3	-7.6
A09	31.9	10.7	-21.2	B31	17.9	9.5	-8.4
A12	28.4	9.2	-19.2	B33	17.4	9.3	-8.1
A14	18.9	8.7	-10.2	B34	15.9	8.1	-7.9
A16	16.6	7.9	-8.8	C01	18.2	13.1	-5.2
A18	17.9	7.8	-10.1	C03	17.2	11.3	-5.9
B01	19.5	14.8	-4.7	C06	18.1	11.2	-6.9
B04	18.0	13.3	-4.7	C08	16.9	10.5	-6.4
B06	18.4	12.0	-6.4	C10	17.1	9.8	-7.3
B08	18.2	11.9	-6.4	C13	15.4	9.4	-6.0
B10	16.9	10.6	-6.3	C16	15.4	8.9	-6.5
B11	16.8	11.3	-5.5	C19	15.4	8.4	-7.1
B14	17.4	10.4	-7.1	C22	15.4	7.9	-7.6
B16	16.3	10.1	-6.3	C24	15.0	7.8	-7.2
B17	23.7	12.1	-11.6	C25	14.0	7.8	-6.2
B20	18.7	10.6	-8.2	OUT C	13.9	7.8	-6.1

The Water Surface Elevations due to the 10-year flows as shown in Table 1 above must be at least 6 inches below the gutter flow line (inlet grate line) to comply with City of Sacramento standards. As designed, the system meets the criteria as stated in the City of Sacramento standards. Figures 4, 5, and 6 below shows the water surface profile along the ‘A’, ‘B’, and ‘C’ corridor respectively for the 10-year conditions.

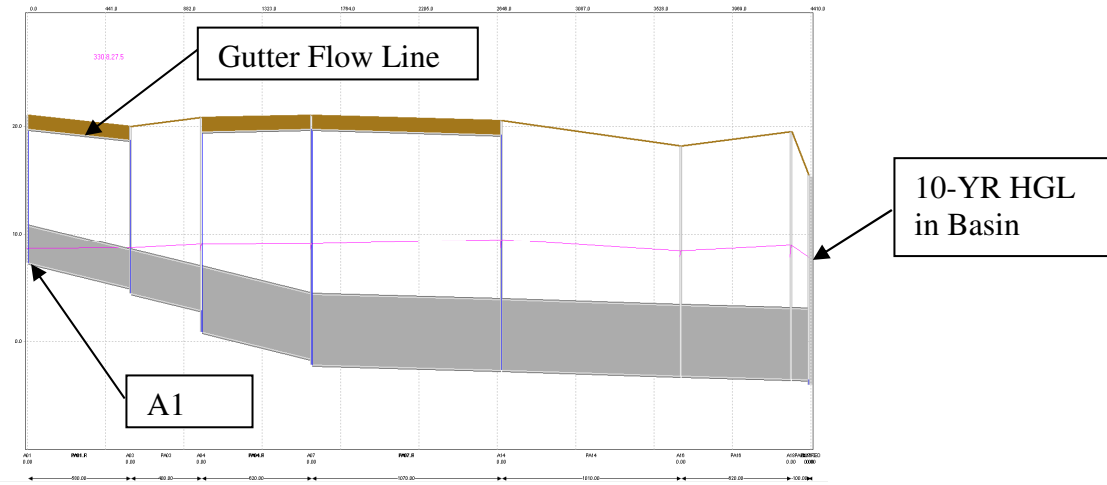


Figure 4. XPStorm 'A' Corridor Profile for 10-Year Flows

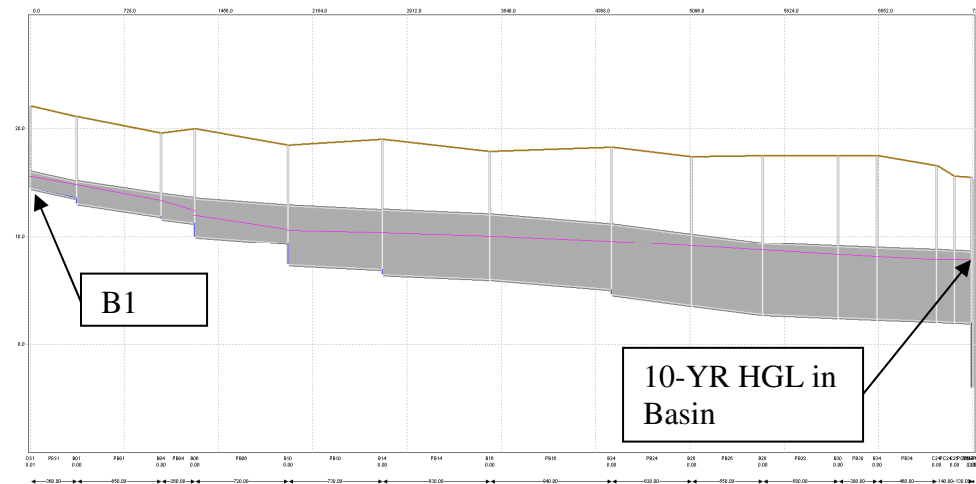


Figure 5. XPStorm 'B' Corridor Profile for 10-Year Flows

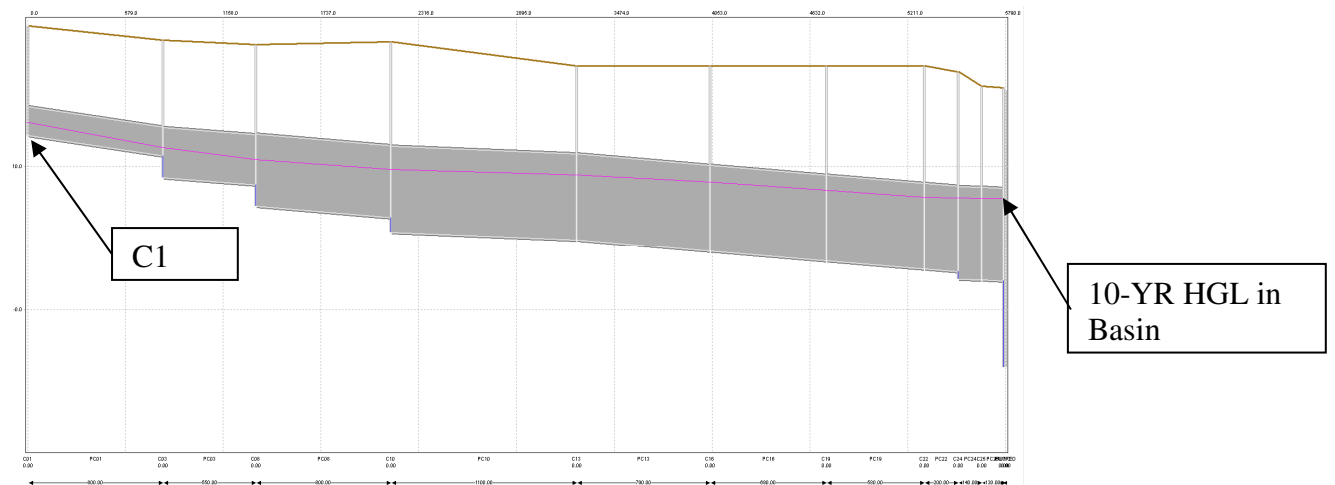


Figure 6. XPStorm 'C' Corridor Profile for 10-Year Flows

100-year H&H Results

The 100-year Hydrologic and Hydraulic analysis uses the same input as the 10-Year flow scenario except for the rainfall event. A scenario was created to run the Sacramento Method Zone 2 100-year hydrographs through the storm drain system and streets.

To determine the conveyance of the streets a typical street section was created for the major streets. National Boulevard was not modeled to convey flow as the street itself cannot allow enough ponding to overtop the overland release points. The typical street used for the roads is based on a typical 54-foot right of way street found in the development. The shape of this section is found in Figure 7 below.

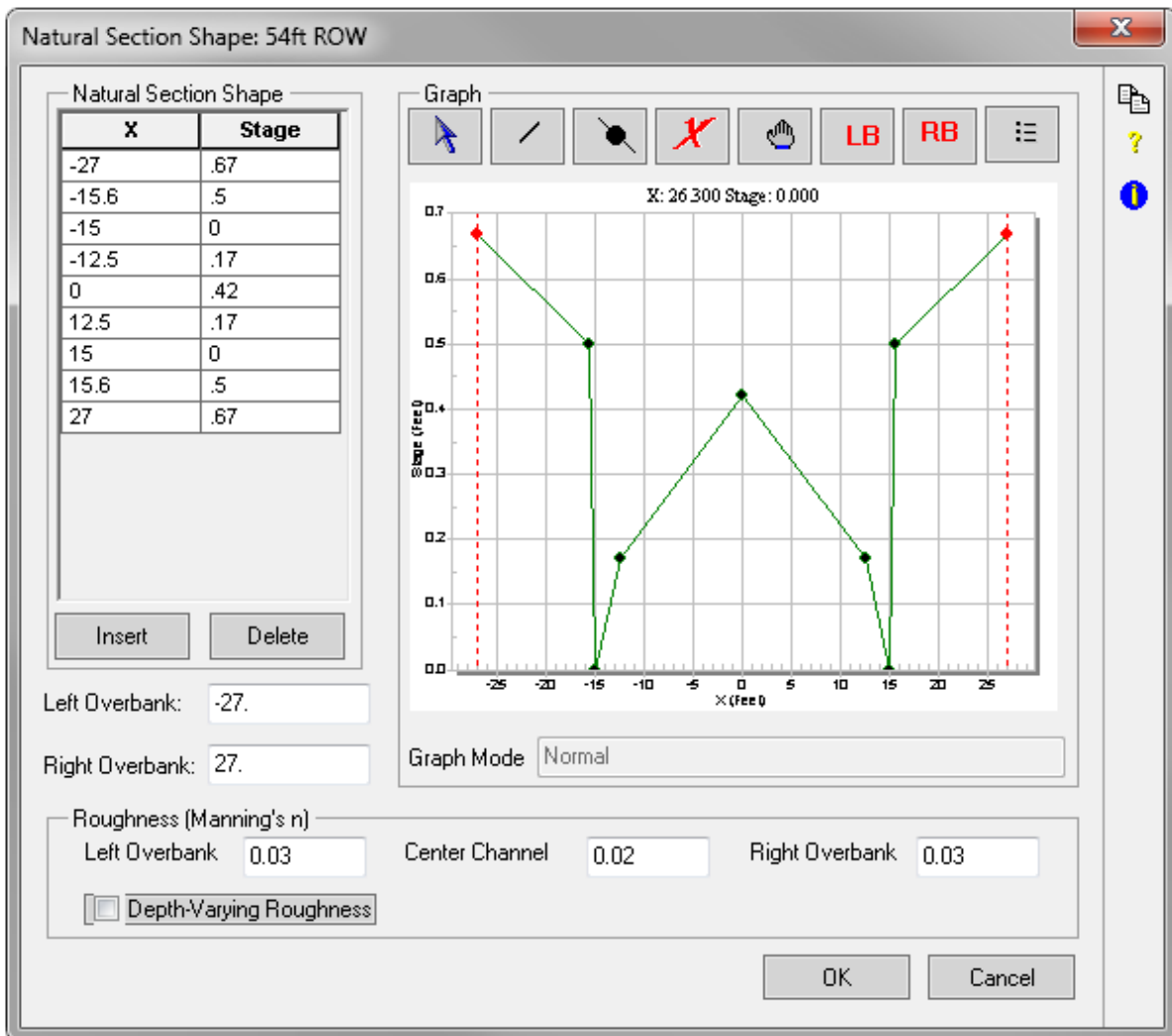


Figure 7. XPS Storm Typical Street Section Used for 100-Year Analysis

The results are described below with complete results found in Appendix C.

The output hydrographs for the 100-year storm flow leaving the development are shown in Figure 8. Shown are the flows to the basin and the flows pumped out of the basin. The peak outflow leaving the site is 67.5 cfs.

A summary of the 100-year HGL vs the gutter flow line is provided in Table 2. Finished pad grades in all areas of the development will provide a minimum of 1.2-foot of freeboard above the 100-year HGL. Appendix D contains a watershed map showing the storm drain system as well as 10-year and 100-year storm flows and resultant water surface elevations.

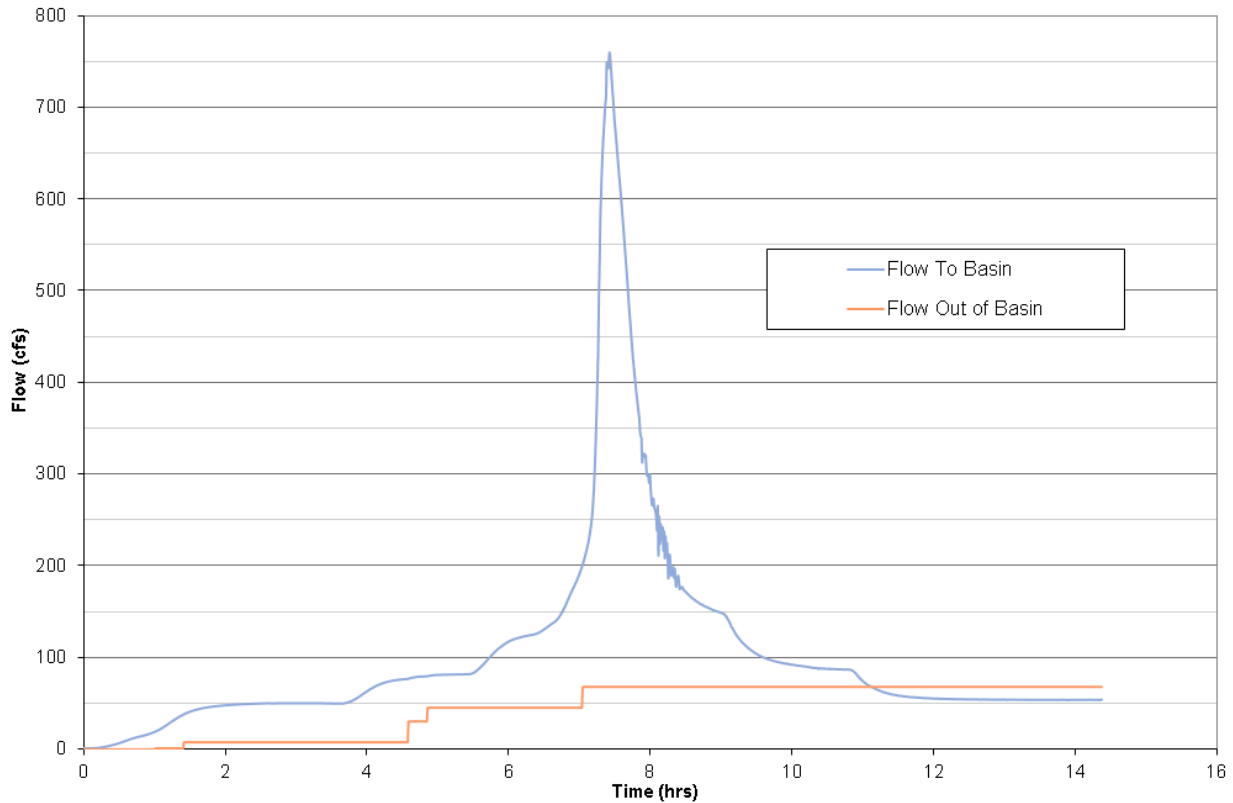


Figure 8. 100-Year Hydrograph for the Proposed Panhandle Project.

Detention Basin Performance

The proposed detention basin has a bottom elevation of -9.5 feet (NGVD29). The top of the storm water quality which is the bottom of the flood control portion is at -4.0 feet. The local street grades allow for a maximum water surface elevation of 13.6 feet. The maximum storage available in the basin for flood control at 13.5 feet is 130.7 acre-feet not including the volume for storm water quality. During the 100-year event the basin fills to an elevation of 13.4 feet which results in a total flood control volume of 129.8 acre feet.

The basin has the capacity to detain both the 100-year 24-hour event and the 100-year 10-day event (WSE 13.5 ft) with adequate freeboard. If LID measures are implemented in the development, there is the potential to reduce the size of the basin at improvement plan level.

Table 2. Summary of results from the 100-Year Hydrologic analyses (NGVD 29).

Node	Gutter Flow Line (Inlet Elevation)	100-Year WSE	Difference	Node	Gutter Flow Line (Inlet Elevation)	100-Year WSE	Difference
A01	19.7	17.0	-2.7	B23	17.7	16.0	-1.7
A03	18.7	16.9	-1.8	B24	16.7	15.2	-1.5
A04	19.5	16.7	-2.8	B26	15.8	13.9	-1.9
A05	19.7	18.2	-1.6	B28	15.9	13.4	-2.5
A07	19.7	16.5	-3.3	B30	15.9	13.4	-2.5
A09	31.9	22.5	-9.4	B31	17.9	13.4	-4.5
A12	28.4	17.4	-11.0	B33	17.4	13.4	-4.0
A14	18.9	15.9	-3.0	B34	15.9	13.4	-2.5
A16	16.6	13.4	-3.2	C01	18.2	15.7	-2.5
A18	17.9	13.4	-4.6	C03	17.2	17.3	0.1
B01	19.5	17.9	-1.6	C06	18.1	17.5	-0.7
B04	18.0	16.8	-1.2	C08	16.9	17.1	0.1
B06	18.4	17.4	-1.1	C10	17.1	15.8	-1.3
B08	18.2	17.4	-0.8	C13	15.4	14.6	-0.8
B10	16.9	17.0	0.0	C16	15.4	13.4	-2.0
B11	16.8	16.8	0.0	C19	15.4	13.4	-2.0
B14	17.4	16.7	-0.7	C22	15.4	13.4	-2.0
B16	16.3	16.3	-0.1	C24	15.0	13.4	-1.6
B17	23.7	18.8	-4.9	C25	14.0	13.4	-0.6
B20	18.7	17.1	-1.7	OUT C	13.9	13.4	-0.6

Stormwater Treatment

As required by the City’s Stormwater Management Plan, and the City’s National Pollution Discharge Elimination System stormwater permit, the Panhandle subdivision shall incorporate Best Management Practices (BMPs) to reduce urban pollutants runoff. A detention basin will serve as the facilitator for stormwater quality treatment for the Panhandle project.

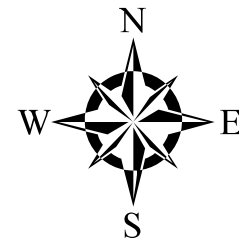
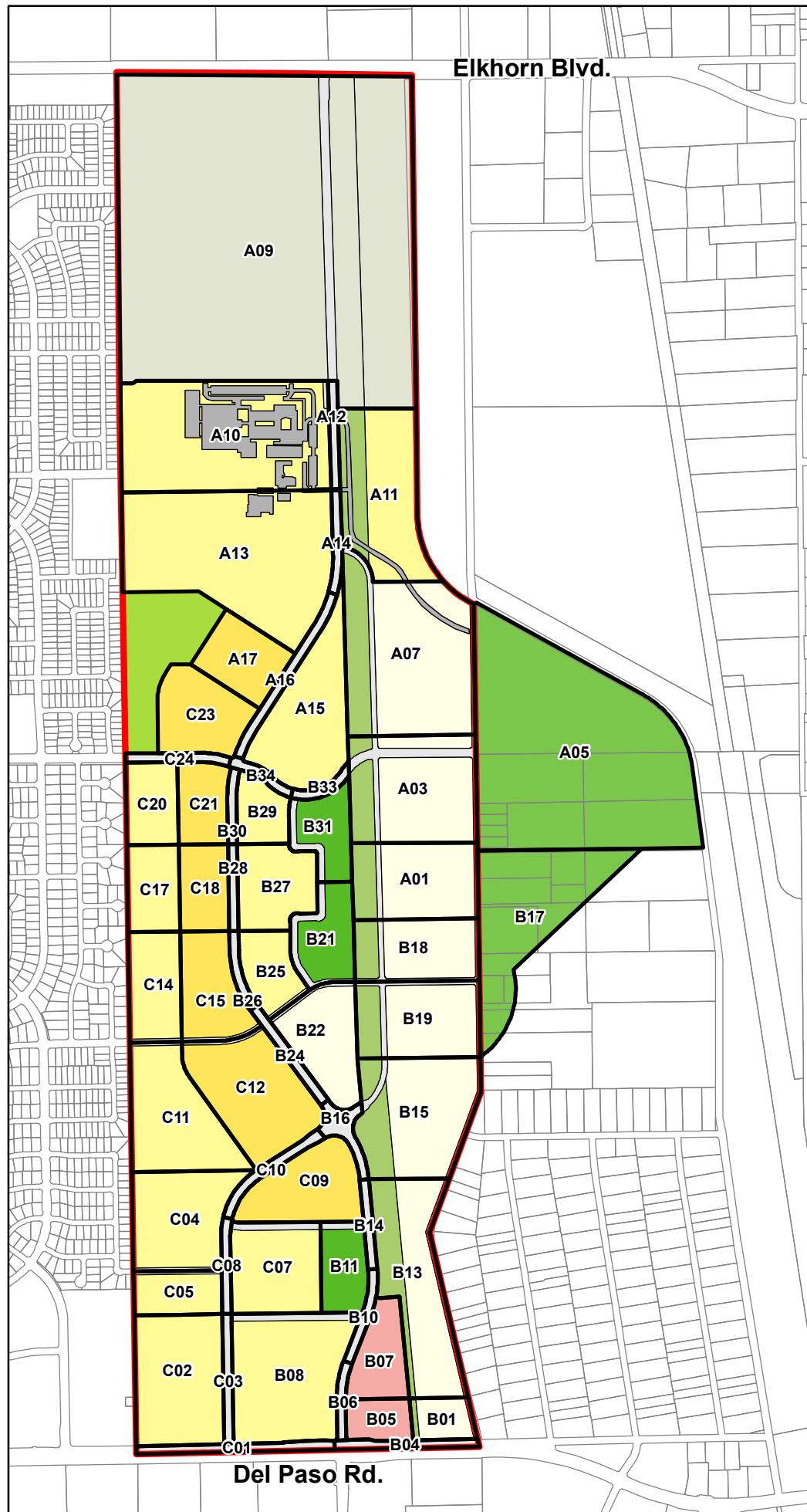
To provide stormwater quality treatment, the wet detention basin will detain approximately 19 acre-ft with an approximate surface area of 3.5 acres. In addition to providing stormwater quality treatment, the basin may function as passive wildlife habitat. Other conjunctive uses may include a connective walking trail from adjacent neighborhoods with viewing outlooks to the basin’s naturalized features.

Section 4 - Conclusions

The proposed drainage system as shown will provide adequate conveyance of the 100-year and 10-year event to the City of Sacramento standards using the Sacramento Method. Additionally, an analysis of the site using the draft City method was performed. It is felt that the Sacramento Method produces a more conservative approach and provides the resultant data in this report.

At this time a pumping capacity of 67.5 cfs is proposed but will be reduced to 60 cfs as the offsite area to the East develops and alters drainage to the south. Changes made to design should be checked to ensure the final system will perform as intended in this study.

APPENDIX A
MODEL INPUT (SHED MAPS AND SOIL MAPS)



Shed Area Summary	Land Use										Grand Total
	Major Road	Offsite Pervious	OS	Park	PD	SC	School Impervious	SNLD-C	SNLD-E	SNLD-T	
A01	0.94		2.46						9.34		12.74
A03	2.82		3.08						12.21		18.11
A05	0.02	53.68									53.70
A07	2.12		5.65				0.49		18.61		26.86
A09	3.77										122.33
A10					118.56						118.56
A11			4.23				9.56			20.77	30.52
A12	1.26						1.09			11.89	17.21
A13	1.25						0.08				1.33
A14	1.25						0.91			32.50	33.41
A15			0.04				0.02				1.27
A16	2.32									14.82	14.85
A17									7.15		7.15
B01	0.20		0.37						2.85		3.42
B04	1.61										1.61
B05						3.59					3.59
B06	0.97										0.97
B07						6.12					6.12
B08	1.29									17.63	18.91
B10	1.19										1.19
B11	0.43			5.02							5.45
B13	1.05		5.08						10.83		16.95
B14	1.10										1.10
B15	1.05		4.28						12.20		17.52
B16	1.95										1.95
B17		18.91									18.91
B18	1.25		1.86						7.11		10.22
B19	1.53		2.32						8.67		12.52
B21	1.56			5.63							7.19
B22	0.48								9.18		9.66
B24	1.45										1.45
B25	0.25									5.25	5.50
B26	0.99										0.99
B27										8.25	8.25
B28	1.06										1.06
B29										4.29	4.29
B30											0.93
B31											6.05
B33	0.82										0.82
B34	0.89										0.89
C01	2.19										2.19
C02										15.23	15.23
C03	1.59										1.59
C04	0.41									12.15	12.56
C05	0.41									4.72	5.13
C07	0.89									10.01	10.91
C08	1.18										1.18
C09									10.30		10.30
C10	1.62										1.62
C11	0.24									13.67	13.91
C12	0.40								14.85		15.25
C14	0.24									7.37	7.61
C15	0.37								8.17		8.54
C17										5.99	5.99
C18									5.68		5.68
C20										5.67	5.67
C21									5.40		5.40
C23									9.05		9.05
C24	1.29										1.29
Grand Total	48.44	72.59	29.37	15.60	118.74	9.71	12.14	60.59	91.00	190.21	648.40

Legend

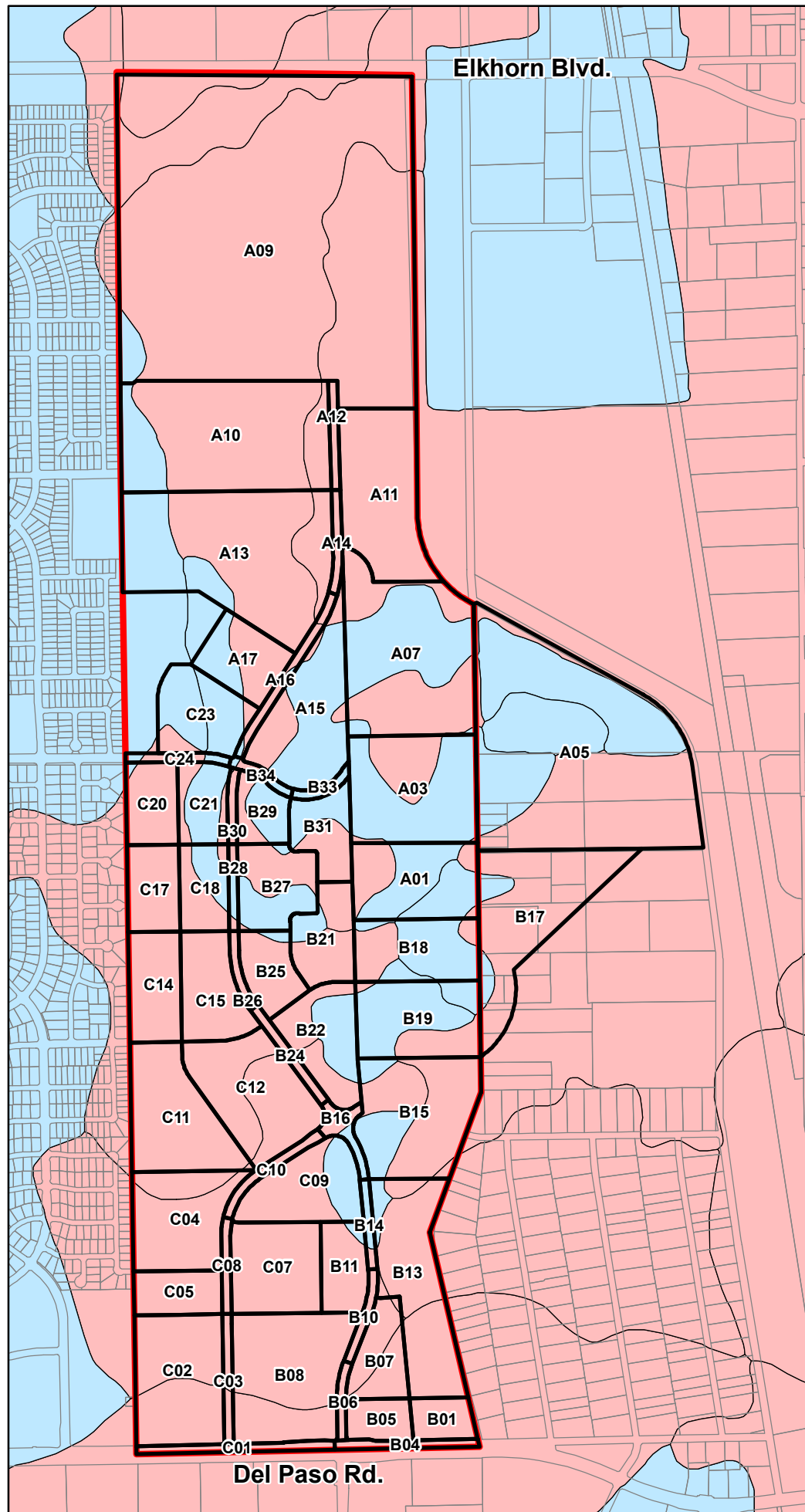
- Project Boundary
- Shed Area
- Land Use**
- Detention
- Interior Road
- Major Road
- OS
- Offsite Pervious
- Park
- SC
- SNLD C
- SNLD-E
- SNLD-T
- School Impervious

The Panhandle

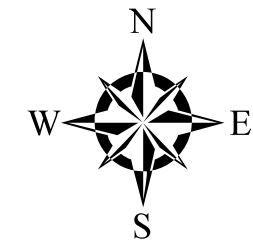
Developed Condition Pervious / Impervious Areas



1551 Eureka Road, Suite 100, Roseville CA. 95661
Job Number: 27141.00 Date: August, 2016



Shed Area Summary	Soil Type				Grand Total
	C	%	D	%	
A01	3.86	30.28%	8.88	69.72%	12.74
A03	5.03	27.78%	13.08	72.22%	18.11
A05	24.01	44.71%	29.69	55.29%	53.70
A07	13.62	50.68%	13.25	49.32%	26.86
A09	120.51	98.52%	1.82	1.48%	122.33
A10	25.87	84.76%	4.65	15.24%	30.52
A11	17.21	100.00%		0.00%	17.21
A12	1.33	100.00%		0.00%	1.33
A13	24.26	72.62%	9.15	27.38%	33.41
A14	1.27	100.00%		0.00%	1.27
A15	4.20	28.26%	10.66	71.74%	14.85
A16	2.05	88.53%	0.27	11.47%	2.32
A17	4.34	60.73%	2.81	39.27%	7.15
B01	3.42	100.00%		0.00%	3.42
B04	1.61	100.00%		0.00%	1.61
B05	3.59	100.00%		0.00%	3.59
B06	0.97	100.00%		0.00%	0.97
B07	6.12	100.00%		0.00%	6.12
B08	18.91	100.00%		0.00%	18.91
B10	1.19	100.00%		0.00%	1.19
B11	5.05	92.68%	0.40	7.32%	5.45
B13	15.91	93.85%	1.04	6.15%	16.95
B14	0.26	23.47%	0.84	76.53%	1.10
B15	13.20	75.32%	4.32	24.68%	17.52
B16	1.18	60.69%	0.77	39.31%	1.95
B17	17.06	90.21%	1.85	9.79%	18.91
B18	3.35	32.77%	6.87	67.23%	10.22
B19	3.46	27.65%	9.06	72.35%	12.52
B21	5.97	83.08%	1.22	16.92%	7.19
B22	5.62	58.22%	4.04	41.78%	9.66
B24	1.45	100.00%		0.00%	1.45
B25	5.11	92.93%	0.39	7.07%	5.50
B26	0.99	100.00%		0.00%	0.99
B27	4.33	52.48%	3.92	47.52%	8.26
B28	0.53	49.79%	0.53	50.21%	1.06
B29	1.59	36.96%	2.71	63.04%	4.29
B30	0.91	97.28%	0.03	2.72%	0.93
B31	3.22	53.19%	2.83	46.81%	6.05
B33		0.00%	0.82	100.00%	0.82
B34	0.35	39.67%	0.54	60.33%	0.89
C01	2.19	100.00%		0.00%	2.19
C02	15.23	100.00%		0.00%	15.23
C03	1.59	100.00%		0.00%	1.59
C04	12.56	100.00%		0.00%	12.56
C05	5.13	100.00%		0.00%	5.13
C07	10.91	100.00%		0.00%	10.91
C08	1.18	100.00%		0.00%	1.18
C09	7.04	68.30%	3.26	31.70%	10.30
C10	1.62	100.00%		0.00%	1.62
C11	13.91	100.00%		0.00%	13.91
C12	15.25	100.00%		0.00%	15.25
C14	7.61	100.00%		0.00%	7.61
C15	8.54	100.00%		0.00%	8.54
C17	5.99	100.00%		0.00%	5.99
C18	3.66	64.37%	2.03	35.63%	5.68
C20	5.49	96.96%	0.17	3.04%	5.67
C21	1.88	34.83%	3.52	65.17%	5.40
C23	1.37	15.20%	7.67	84.80%	9.05
C24	0.76	59.13%	0.53	40.87%	1.29
Grand Total	494.81	76.31%	153.60	23.69%	648.41



Legend

- Project Boundary
- Shed Area
- Soil Type 'C'
- Soil Type 'D'

The Panhandle

Developed Condition Soil Types



1551 Eureka Road, Suite 100, Roseville CA. 95661
 Job Number: 27141.00 Date: August, 2016

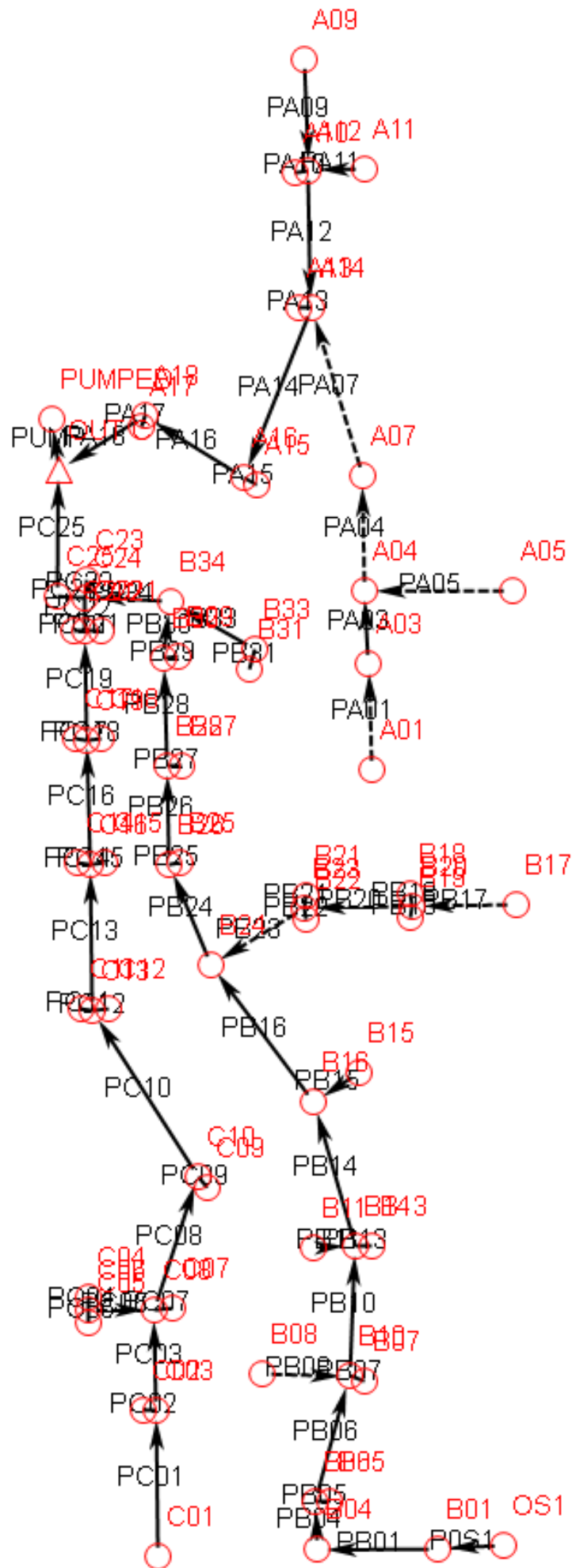
Sacramento Method
Runoff Data

	Area	Lw (ft)	Lc (ft)	US Elevation	DS Elevation	Mean Elevation	Slope (ft/ft)	Precipitation Zone
A01	12.74	1043	479	24.5	20.0	22	0.0043	2
A03	18.11	1112	538	22.0	19.0	21	0.0027	2
A05	53.70	1870	650	25.6	24.0	25	0.0009	2
A07	26.86	1408	182	29.0	20.0	25	0.0064	2
A09	122.33	2820	1190	39.0	25.0	32	0.0050	2
A10	30.52	1808	1017	30.0	29.0	30	0.0006	2
A11	17.21	1320	600	32.0	29.0	31	0.0023	2
A12	1.33	830	415	28.0	25.0	27	0.0036	2
A13	33.41	1972	1114	20.5	19.5	20	0.0005	2
A14	1.27	797	403	25.0	18.5	22	0.0082	2
A15	14.85	1569	195	19.8	17.2	19	0.0017	2
A16	2.32	764	36	18.5	17.2	18	0.0017	2
A17	7.15	847	535	19.0	18.5	19	0.0006	2
B01	3.42	573	115	21.5	20.1	21	0.0024	2
B04	1.61	824	215	20.2	19.5	20	0.0008	2
B05	3.59	644	408	20.0	19.0	20	0.0016	2
B06	0.97	566	250	20.0	18.6	19	0.0025	2
B07	6.12	1048	227	21.5	17.5	20	0.0038	2
B08	18.91	1136	856	19.0	18.5	19	0.0004	2
B10	1.19	216	22	18.5	17.9	18	0.0028	2
B11	5.45	798	347	17.5	17.1	17	0.0005	2
B13	16.95	1833	667	21.5	18.0	20	0.0019	2
B14	1.10	165	17	18.3	17.6	18	0.0042	2
B15	17.52	1558	394	25.0	17.0	21	0.0051	2
B16	1.95	337	34	17.7	16.9	17	0.0024	2
B17	18.91	1640	640	29.0	24.0	27	0.0030	2
B18	10.22	936	701	25.0	19.0	22	0.0064	2
B19	12.52	1001	753	26.0	19.0	23	0.0070	2
B21	7.19	1127	541	19.5	18.0	19	0.0013	2
B22	9.66	1323	846	19.0	18.0	19	0.0008	2
B24	1.45	230	23	18.0	17.0	18	0.0043	2
B25	5.50	873	211	19.0	16.4	18	0.0030	2
B26	0.99	445	143	17.0	16.4	17	0.0013	2
B27	8.25	973	461	19.5	16.5	18	0.0031	2
B28	1.06	537	207	17.2	16.2	17	0.0019	2
B29	4.29	645	88	19.0	16.5	18	0.0039	2
B30	0.93	330	41	17.5	16.5	17	0.0030	2
B31	6.05	900	424	19.5	18.2	19	0.0014	2
B33	0.82	490	204	19.5	18.0	19	0.0031	2
B34	0.89	396	130	18.2	16.5	17	0.0043	2
C01	2.19	1341	608	20.0	17.2	19	0.0021	2
C02	15.23	1690	1216	19.7	17.8	19	0.0011	2
C03	1.59	775	282	18.7	17.8	18	0.0012	2
C04	12.56	928	603	19.3	18.4	19	0.0010	2

Sacramento Method
Runoff Data

	Area	Lw (ft)	Lc (ft)	US Elevation	DS Elevation	Mean Elevation	Slope (ft/ft)	Precipitation Zone
C05	5.13	664	163	19.3	18.4	19	0.0014	2
C07	10.91	1241	603	19.3	17.5	18	0.0015	2
C08	1.18	205	35	18.3	17.7	18	0.0029	2
C09	10.30	1302	276	19.3	17.7	19	0.0012	2
C10	1.62	594	108	19.0	17.7	18	0.0022	2
C11	13.91	1339	744	18.7	16.0	17	0.0020	2
C12	15.25	1568	550	19.0	16.0	18	0.0019	2
C14	7.61	1118	559	17.8	16.0	17	0.0016	2
C15	8.54	1221	311	18.0	16.0	17	0.0016	2
C17	5.99	865	219	17.3	16.5	17	0.0009	2
C18	5.68	846	222	17.8	16.5	17	0.0015	2
C20	5.67	789	161	17.0	16.0	17	0.0013	2
C21	5.40	771	165	17.5	16.0	17	0.0019	2
C23	9.05	761	187	17.5	15.6	17	0.0025	2
C24	1.29	685	281	16.5	14.6	16	0.0028	2
Grand Total	648.40							

APPENDIX B
10-YEAR RESULTS



Sacramento Method
10-Year 24-Hour
Pipe Data Results

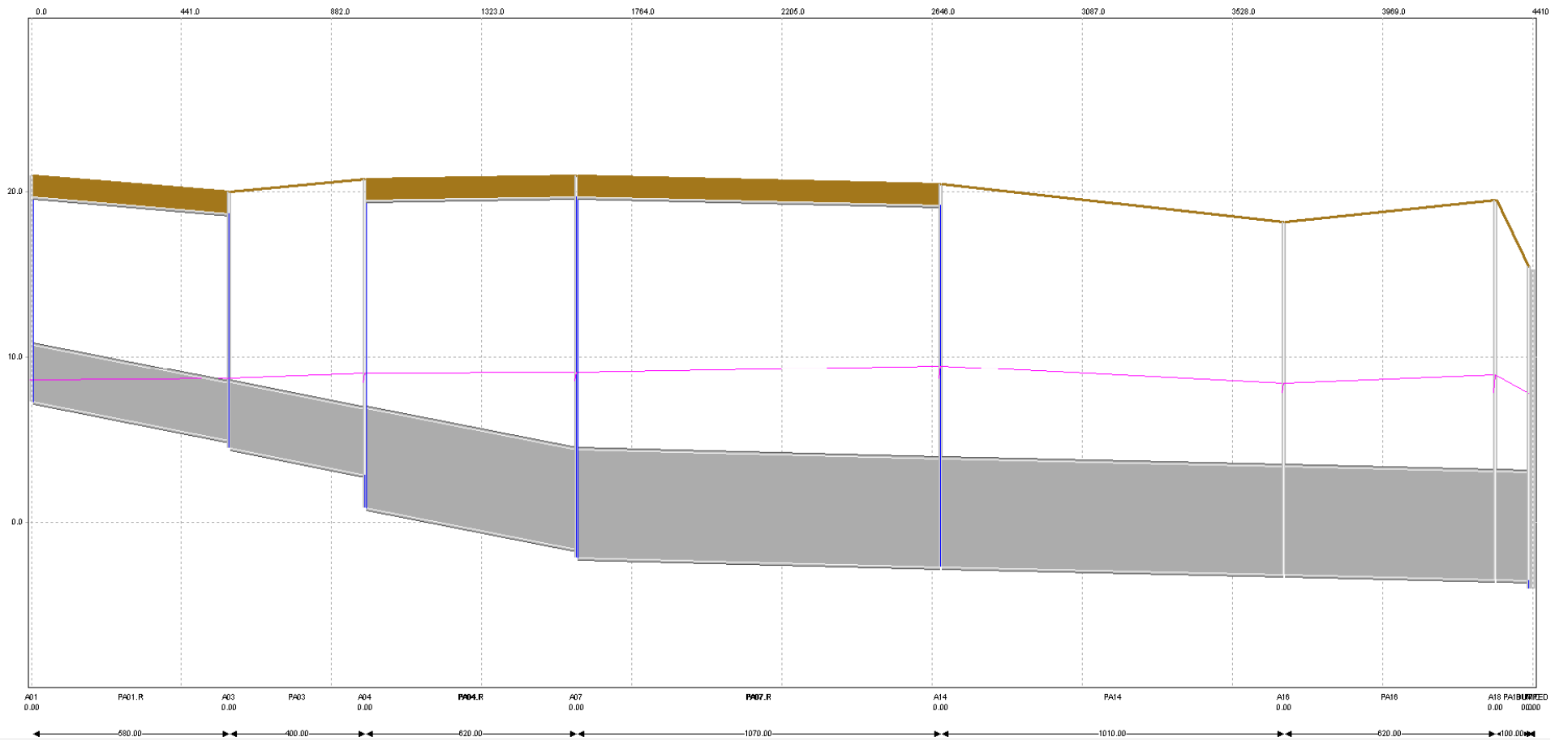
Name	Scenario	US Node Name	Ground Elevation (Spill Crest) ft	Maximum Water Elevation (US) ft	Upstream Invert Elevation ft	Downstream Invert Elevation ft	Diameter (Height) ft	Length ft	Conduit Slope	Roughness	Max Flow cfs	Max Velocity ft/s	Design Full Flow cfs	Design Velocity ft/s
POS1	10yr	OS1	22.10	15.62	14.48	13.58	1.50	360.00	0.25	0.015	4.04	2.96	4.55	2.58
PB01	10yr	B01	21.10	14.83	13.08	11.91	2.00	650.00	0.18	0.015	9.16	3.21	8.32	2.65
PB04	10yr	B04	19.60	13.34	11.66	11.27	2.25	260.00	0.15	0.015	11.63	3.78	10.40	2.61
PB06	10yr	B06	20.00	12.02	10.02	9.37	3.50	720.00	0.09	0.015	18.24	3.37	26.20	2.72
PB05	10yr	B05	21.00	12.17	11.12	11.02	2.50	75.00	0.13	0.015	6.34	3.38	12.98	2.64
PB10	10yr	B10	18.50	10.59	7.37	6.93	5.50	730.00	0.06	0.015	42.86	3.41	71.45	3.01
PB07	10yr	B07	19.50	11.26	9.95	9.87	3.00	75.00	0.11	0.015	11.60	4.00	18.88	2.67
PB08.P	10yr	B08	19.50	11.87	9.82	9.37	3.50	500.00	0.09	0.015	20.74	3.70	26.16	2.72
PB08.R	10yr	B08	19.50	-9E+99	18.22	17.22	0.00	500.00	0.00	0.014	0.00	0.00	20.52	1.39
PB14	10yr	B14	19.00	10.37	6.43	6.01	6.00	830.00	0.05	0.015	57.69	3.29	82.57	2.92
PB11.P	10yr	B11	18.10	11.34	10.23	9.93	2.50	230.00	0.13	0.015	5.91	2.91	12.84	2.62
PB11.R	10yr	B11	18.10	-9E+99	16.82	17.72	0.00	230.00	0.00	0.014	0.00	0.00	28.70	1.95
PB13	10yr	B13	20.00	11.01	9.51	9.43	3.00	75.00	0.11	0.015	15.40	4.44	18.88	2.67
PB16	10yr	B16	17.90	10.06	6.01	5.07	6.00	940.00	0.10	0.015	73.34	3.99	116.07	4.11
PB15	10yr	B15	18.90	11.34	9.33	9.01	3.00	290.00	0.11	0.015	20.13	4.15	19.20	2.72
PB24	10yr	B24	18.30	9.54	4.57	3.64	6.50	620.00	0.15	0.015	119.28	4.36	175.98	5.30
PB26	10yr	B26	17.40	9.11	3.64	2.81	6.50	550.00	0.15	0.015	123.93	4.17	176.51	5.32
PB25	10yr	B25	18.40	9.60	8.28	8.14	2.00	75.00	0.18	0.015	9.05	4.20	8.47	2.70
PB28	10yr	B28	17.50	8.75	2.81	2.52	6.50	580.00	0.05	0.015	130.81	4.15	101.60	3.06
PB27	10yr	B27	18.50	9.01	7.45	7.31	2.00	75.00	0.18	0.015	12.05	4.70	8.47	2.70
PB30	10yr	B30	17.50	8.32	2.52	2.37	6.50	300.00	0.05	0.015	134.23	4.34	101.60	3.06
PB29	10yr	B29	18.50	8.43	7.16	7.02	2.00	75.00	0.18	0.015	8.29	4.06	8.47	2.70
PB34	10yr	B34	17.50	8.08	2.37	2.14	6.50	460.00	0.05	0.015	140.92	4.63	101.60	3.06
PB33	10yr	B33	19.00	9.33	7.82	6.87	2.00	530.00	0.18	0.015	7.74	3.17	8.30	2.64
PC24	10yr	C24	16.60	7.82	2.14	2.07	6.50	140.00	0.05	0.015	263.97	8.86	101.60	3.06
PC25	10yr	C25	15.60	7.82	2.07	2.00	6.50	130.00	0.05	0.015	263.97	9.76	105.44	3.18
PB31	10yr	B31	19.20	9.52	8.04	7.82	2.00	120.00	0.18	0.015	7.15	2.89	8.39	2.67
PC23	10yr	C23	17.60	8.63	6.78	6.64	2.00	75.00	0.18	0.015	15.75	5.31	8.47	2.70
PB23.P	10yr	B23	19.00	9.91	6.43	6.07	5.00	600.00	0.06	0.015	48.89	3.73	55.29	2.82

Sacramento Method
10-Year 24-Hour
Pipe Data Results

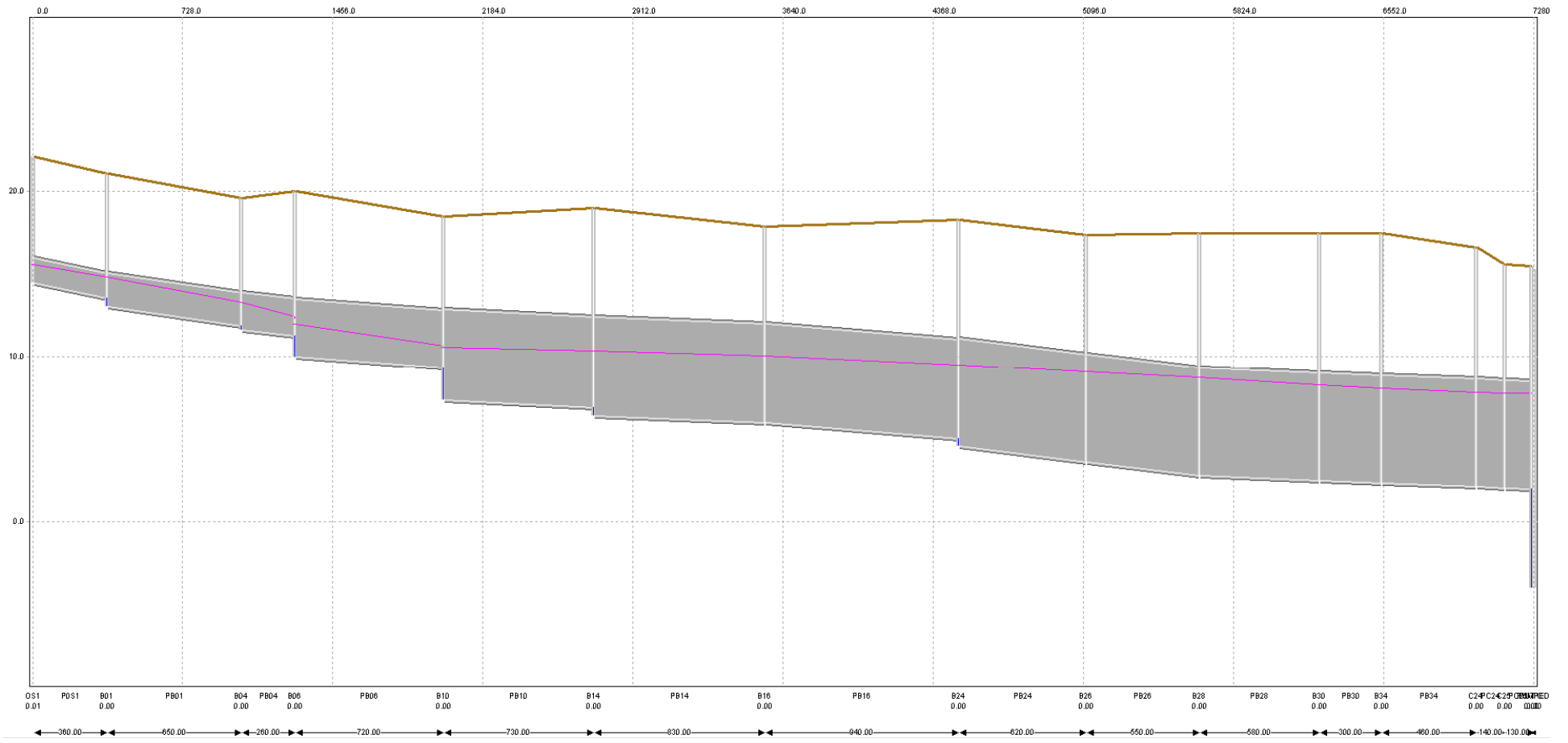
Name	Scenario	US Node Name	Ground Elevation (Spill Crest) ft	Maximum Water Elevation (US) ft	Upstream Invert Elevation ft	Downstream Invert Elevation ft	Diameter (Height) ft	Length ft	Conduit Slope	Roughness	Max Flow cfs	Max Velocity ft/s	Design Full Flow cfs	Design Velocity ft/s
PB23.R	10yr	B23	19.00	-9E+99	17.72	17.02	0.00	600.00	0.00	0.014	0.00	0.00	15.67	1.06
PB18	10yr	B18	21.00	10.65	8.97	8.89	3.00	75.00	0.11	0.015	12.51	3.54	18.88	2.67
PB19	10yr	B19	21.00	10.68	8.97	8.89	3.00	75.00	0.11	0.015	15.11	3.96	18.88	2.67
PB22	10yr	B22	20.00	9.98	8.51	8.43	3.00	75.00	0.11	0.015	9.87	3.55	18.88	2.67
PB21	10yr	B21	20.00	10.80	9.57	9.43	2.00	75.00	0.18	0.015	7.90	3.99	8.47	2.70
PB17.P	10yr	B17	25.00	12.07	10.14	9.39	2.50	580.00	0.13	0.015	13.47	3.45	12.78	2.60
PB17.R	10yr	B17	25.00	-9E+99	23.72	18.72	0.00	580.00	0.00	0.014	0.00	0.00	42.60	2.89
PB20.P	10yr	B20	20.00	10.56	7.89	7.43	4.00	570.00	0.08	0.015	34.39	4.03	35.37	2.81
PB20.R	10yr	B20	20.00	-9E+99	18.72	17.72	0.00	570.00	0.00	0.014	0.00	0.00	19.22	1.30
PC01	10yr	C01	19.80	13.07	12.19	10.75	2.00	800.00	0.18	0.015	2.95	2.31	8.32	2.65
PC03	10yr	C03	18.80	11.33	9.25	8.75	3.50	550.00	0.09	0.015	19.90	3.41	26.29	2.73
PC02	10yr	C02	19.80	11.98	10.35	10.25	2.50	75.00	0.13	0.015	15.87	4.77	12.98	2.64
PC08	10yr	C08	18.50	10.48	7.25	6.45	5.00	800.00	0.10	0.015	52.39	4.16	71.38	3.64
PC07	10yr	C07	19.50	11.38	9.85	9.75	2.50	75.00	0.13	0.015	13.98	4.55	12.98	2.64
PC06.P	10yr	C06	19.40	11.18	9.09	8.75	3.50	380.00	0.09	0.015	22.87	3.95	26.08	2.71
PC06.R	10yr	C06	19.40	-9E+99	18.12	17.22	0.00	380.00	0.00	0.014	0.00	0.00	22.33	1.51
PC05	10yr	C05	20.40	11.39	10.19	10.09	2.50	75.00	0.13	0.015	8.61	3.81	12.98	2.64
PC04	10yr	C04	20.40	11.84	10.19	10.09	2.50	75.00	0.13	0.015	16.17	4.80	12.98	2.64
PC10	10yr	C10	18.70	9.82	5.45	4.90	6.00	1100.00	0.05	0.015	60.87	2.85	82.07	2.90
PC09	10yr	C09	19.70	11.37	9.59	9.45	2.00	75.00	0.18	0.015	14.95	5.18	8.47	2.70
PC13	10yr	C13	17.00	9.44	4.90	4.11	6.00	790.00	0.10	0.015	90.30	3.93	116.07	4.11
PC12	10yr	C12	18.00	10.73	8.76	8.65	2.25	75.00	0.15	0.015	19.98	5.52	10.28	2.59
PC11	10yr	C11	18.00	11.05	9.04	8.90	2.00	75.00	0.18	0.015	17.26	5.59	8.47	2.70
PC16	10yr	C16	17.00	8.92	4.11	3.42	6.00	690.00	0.10	0.015	104.90	4.33	116.07	4.11
PC15	10yr	C15	18.00	9.85	8.25	8.11	2.00	75.00	0.18	0.015	12.56	4.78	8.47	2.70
PC14	10yr	C14	18.00	9.65	8.25	8.11	2.00	75.00	0.18	0.015	10.02	4.36	8.47	2.70
PC19	10yr	C19	17.00	8.38	3.42	2.84	6.00	580.00	0.10	0.015	113.53	4.60	116.07	4.11
PC18	10yr	C18	18.00	8.90	7.56	7.42	2.00	75.00	0.18	0.015	9.17	4.21	8.47	2.70
PC17	10yr	C17	18.00	8.88	7.56	7.42	2.00	75.00	0.18	0.015	8.99	4.18	8.47	2.70

Sacramento Method
10-Year 24-Hour
Pipe Data Results

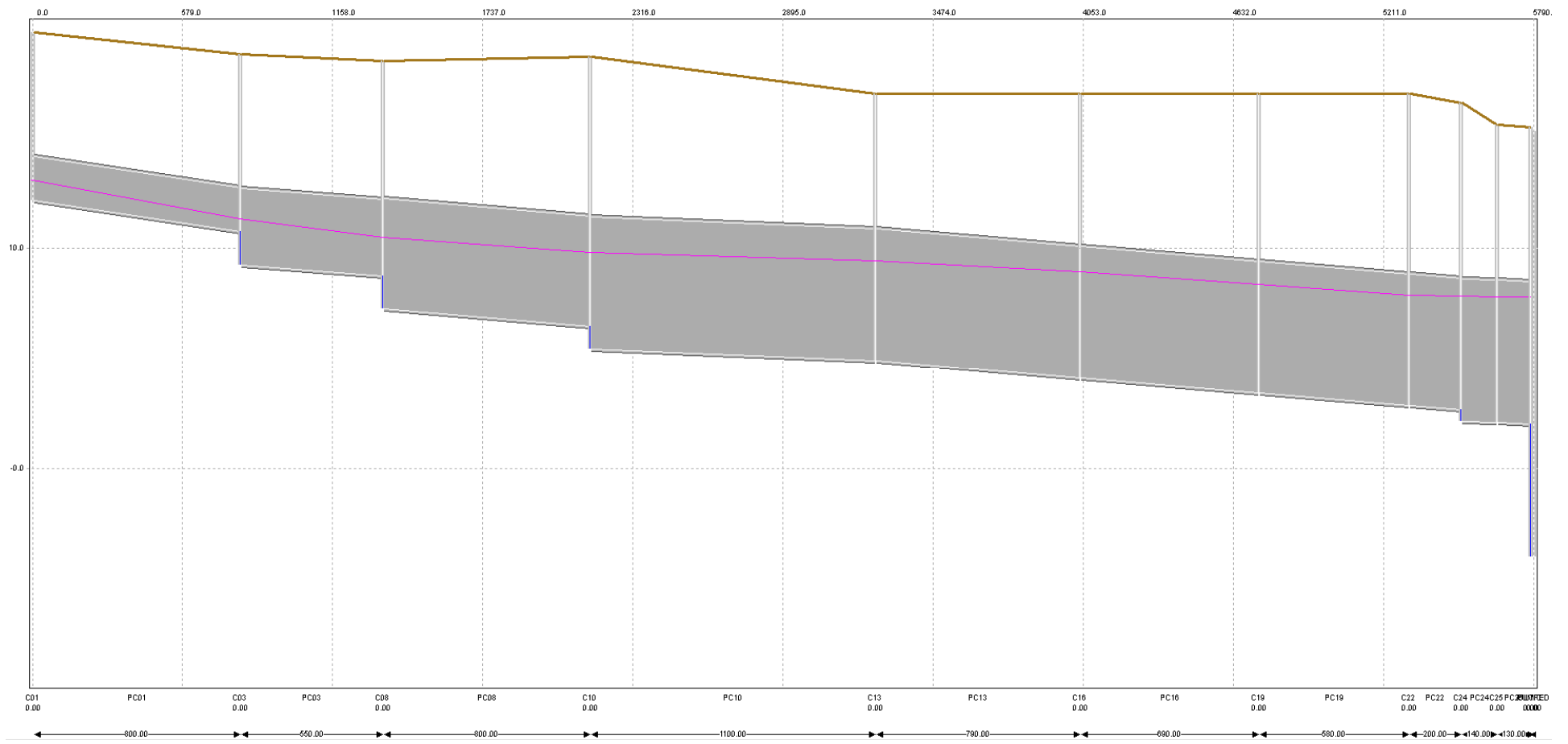
Name	Scenario	US Node Name	Ground Elevation (Spill Crest) ft	Maximum Water Elevation (US) ft	Upstream Invert Elevation ft	Downstream Invert Elevation ft	Diameter (Height) ft	Length ft	Conduit Slope	Roughness	Max Flow cfs	Max Velocity ft/s	Design Full Flow cfs	Design Velocity ft/s
PC22	10yr	C22	17.00	7.86	2.84	2.64	6.00	200.00	0.10	0.015	121.29	4.92	116.07	4.11
PC21	10yr	C21	18.00	8.33	6.98	6.84	2.00	75.00	0.18	0.015	9.35	4.24	8.47	2.70
PC20	10yr	C20	18.00	8.32	6.98	6.84	2.00	75.00	0.18	0.015	9.21	4.22	8.47	2.70
PA01.P	10yr	A01	21.00	8.62	7.29	4.97	3.50	580.00	0.40	0.015	15.59	4.82	55.15	5.73
PA01.R	10yr	A01	21.00	-9E+99	19.72	18.72	0.00	580.00	0.00	0.014	0.00	0.00	19.05	1.29
PA04.P	10yr	A04	20.80	9.03	0.87	-1.61	6.00	620.00	0.40	0.015	49.30	3.26	232.14	8.21
PA04.R	10yr	A04	20.80	-9E+99	19.52	19.72	0.00	620.00	0.00	0.014	0.00	0.00	8.24	0.56
PA07.P	10yr	A07	21.00	9.06	-2.11	-2.64	6.50	1070.00	0.05	0.015	69.95	2.10	101.13	3.05
PA07.R	10yr	A07	21.00	-9E+99	19.72	19.22	0.00	1070.00	0.00	0.014	0.00	0.00	9.92	0.67
PA14	10yr	A14	20.50	9.45	-2.64	-3.14	6.50	1010.00	0.05	0.015	198.64	5.97	101.10	3.05
PA13	10yr	A13	21.50	9.82	0.43	0.36	3.50	75.00	0.09	0.015	32.42	3.35	26.64	2.77
PA16	10yr	A16	18.20	8.40	-3.14	-3.45	6.50	620.00	0.05	0.015	212.29	6.36	101.60	3.06
PA15	10yr	A15	19.20	8.31	0.96	0.86	2.50	75.00	0.13	0.015	21.74	4.46	12.98	2.64
PA18	10yr	A18	19.50	8.90	-3.45	-3.50	6.50	100.00	0.05	0.015	217.98	6.33	101.60	3.06
PA17	10yr	A17	20.50	7.83	0.65	0.55	2.50	75.00	0.13	0.015	9.35	2.07	12.98	2.64
PA05.P	10yr	A05	21.00	9.20	4.47	2.87	4.00	800.00	0.20	0.015	33.82	3.74	55.67	4.43
PA05.R	10yr	A05	21.00	-9E+99	19.72	19.52	0.00	800.00	0.00	0.014	0.00	0.00	7.25	0.49
PA09	10yr	A09	33.50	11.44	0.71	0.23	4.00	600.00	0.08	0.015	75.19	5.93	35.21	2.80
PA10	10yr	A10	31.00	9.76	1.31	1.23	3.00	75.00	0.11	0.015	31.55	4.43	18.88	2.67
PA11	10yr	A11	31.00	10.02	1.58	1.23	3.00	320.00	0.11	0.015	18.52	2.61	19.12	2.70
PA12	10yr	A12	30.00	9.69	-1.77	-2.14	6.00	750.00	0.05	0.015	102.34	3.60	81.52	2.88
PA03	10yr	A03	20.00	8.69	4.47	2.87	4.00	400.00	0.40	0.015	35.44	5.90	78.73	6.27
PUMP1	10yr	OUT C	15.50	0.00							0.00	0.00	0.00	0.00
PUMP2	10yr	OUT C	15.50	0.00							0.00	0.00	0.00	0.00
PUMP3	10yr	OUT C	15.50	0.00							0.00	0.00	0.00	0.00
PUMP4	10yr	OUT C	15.50	0.00							0.00	0.00	0.00	0.00
PUMP5	10yr	OUT C	15.50	0.00							0.00	0.00	0.00	0.00



10-Year Profile

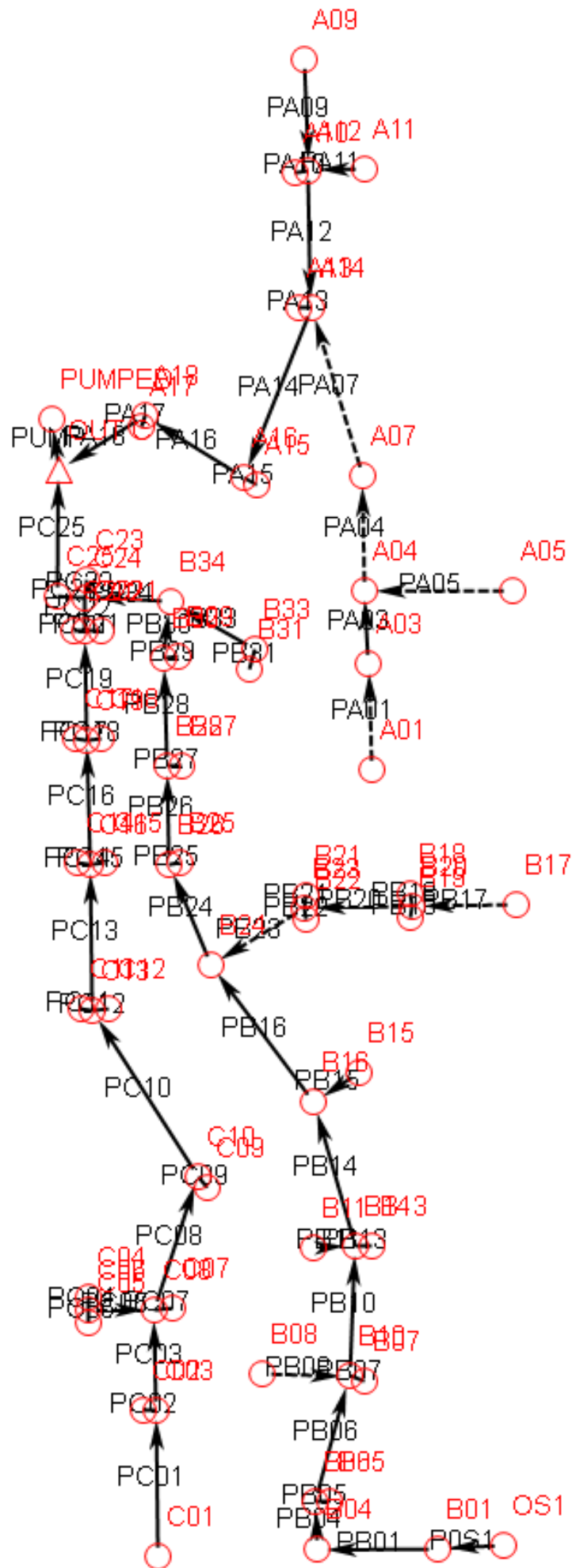


10-Year Profile



10-Year Profile

APPENDIX C
100-YEAR RESULTS



Sacramento Method
100-Year 24-Hour
Pipe Data Results

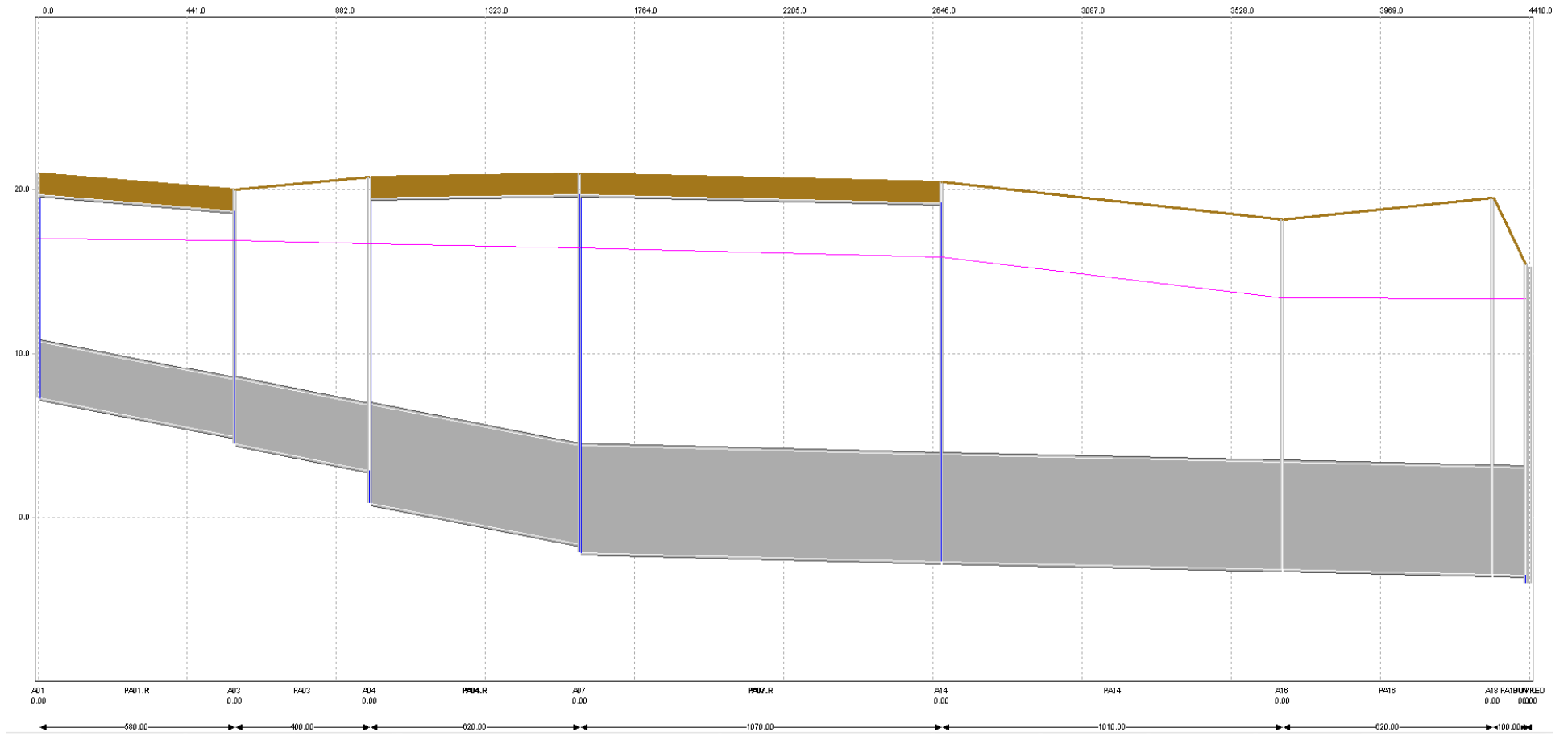
Name	Upstream Node Name	Ground Elevation (Spill Crest) ft	Maximum Water Elevation (US) ft	Upstream Invert Elevation ft	Downstream Invert Elevation ft	Diameter (Height) ft	Length ft	Conduit Slope	Roughness	Max Flow cfs	Max Velocity ft/s	Design Full Flow cfs	Design Velocity ft/s
POS1	OS1	22.1	20.269	14.48	13.58	1.5	360	0.25	0.015	4.35	2.96	4.55	2.58
PB01	B01	21.1	19.289	13.08	11.91	2	650	0.18	0.015	12.45	3.96	8.32	2.65
PB04	B04	19.6	18.631	11.66	11.27	2.25	260	0.15	0.015	16.23	4.29	10.4	2.61
PB06	B06	20	17.857	10.02	9.37	3.5	720	0.09	0.015	26.90	3.83	26.2	2.72
PB05	B05	21	17.889	11.12	11.02	2.5	75	0.13	0.015	9.70	3.67	12.98	2.64
PB10	B10	18.5	17.016	7.37	6.93	5.5	730	0.06	0.015	57.58	3.58	71.45	3.01
PB07	B07	19.5	17.038	9.95	9.87	3	75	0.11	0.015	17.98	4.7	18.88	2.67
PB08.P	B08	19.5	17.827	9.82	9.37	3.5	500	0.09	0.015	32.38	3.64	26.16	2.72
PB08.R	B08	19.5	-9.00E+99	18.22	17.22	0	500	0	0.014	0.00	0	20.52	1.39
PB14	B14	19	16.705	6.43	6.01	6	830	0.05	0.015	85.24	3.46	82.57	2.92
PB11.P	B11	18.1	16.81	10.23	9.93	2.5	230	0.13	0.015	9.54	3.37	12.84	2.62
PB11.R	B11	18.1	-9.00E+99	16.82	17.72	0	230	0	0.014	0.00	0	28.7	1.95
PB13	B13	20	16.823	9.51	9.43	3	75	0.11	0.015	23.48	4.26	18.88	2.67
PB16	B16	17.9	16.284	6.01	5.07	6	940	0.1	0.015	110.95	4.01	116.07	4.11
PB15	B15	18.9	17.043	9.33	9.01	3	290	0.11	0.015	30.17	4.71	19.2	2.72
PB24	B24	18.3	15.223	4.57	3.64	6.5	620	0.15	0.015	189.37	5.69	175.98	5.3
PB26	B26	17.4	14.035	3.64	2.81	6.5	550	0.15	0.015	196.96	5.92	176.51	5.32
PB25	B25	18.4	14.131	8.28	8.14	2	75	0.18	0.015	13.72	4.97	8.47	2.7
PB28	B28	17.5	13.413	2.81	2.52	6.5	580	0.05	0.015	209.22	6.29	101.6	3.06
PB27	B27	18.5	13.416	7.45	7.31	2	75	0.18	0.015	17.79	5.64	8.47	2.7
PB30	B30	17.5	13.405	2.52	2.37	6.5	300	0.05	0.015	214.55	6.45	101.6	3.06
PB29	B29	18.5	13.407	7.16	7.02	2	75	0.18	0.015	12.94	4.84	8.47	2.7
PB34	B34	17.5	13.401	2.37	2.14	6.5	460	0.05	0.015	225.56	6.75	101.6	3.06
PB33	B33	19	13.406	7.82	6.87	2	530	0.18	0.015	13.19	4.18	8.3	2.64
PC24	C24	16.6	13.398	2.14	2.07	6.5	140	0.05	0.015	410.68	11.87	101.6	3.06
PC25	C25	15.6	13.412	2.07	2	6.5	130	0.05	0.015	412.30	12.59	105.44	3.18
PB31	B31	19.2	13.409	8.04	7.82	2	120	0.18	0.015	11.81	3.74	8.39	2.67
PC23	C23	17.6	13.41	6.78	6.64	2	75	0.18	0.015	24.15	7.73	8.47	2.7
PB23.P	B23	19	16.06	6.43	6.07	5	600	0.06	0.015	83.30	4.22	55.29	2.82

Sacramento Method
100-Year 24-Hour
Pipe Data Results

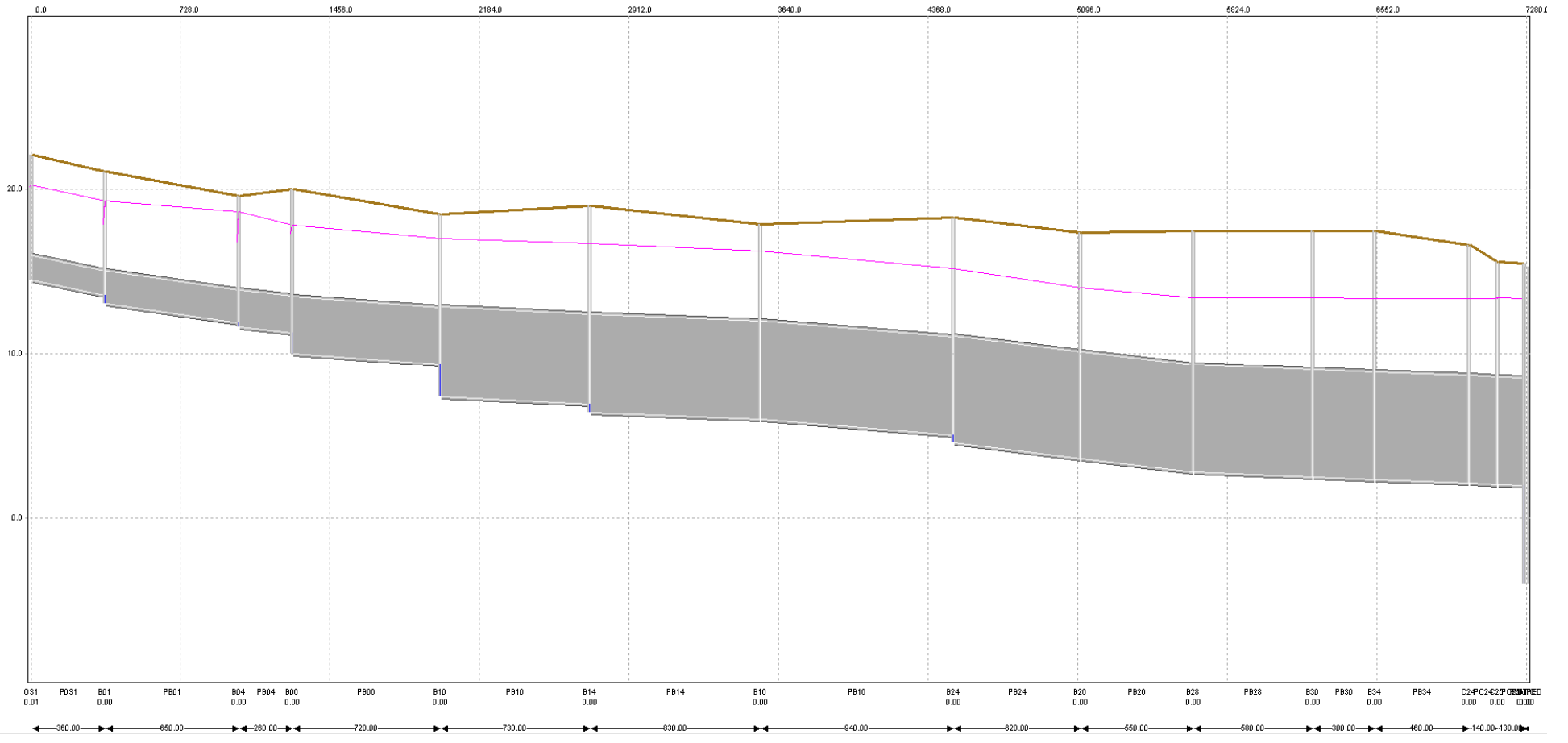
Name	Upstream Node Name	Ground Elevation (Spill Crest) ft	Maximum Water Elevation (US) ft	Upstream Invert Elevation ft	Downstream Invert Elevation ft	Diameter (Height) ft	Length ft	Conduit Slope	Roughness	Max Flow cfs	Max Velocity ft/s	Design Full Flow cfs	Design Velocity ft/s
PB23.R	B23	19	-9.00E+99	17.72	17.02	0	600	0	0.014	0.00	0	15.67	1.06
PB18	B18	21	17.159	8.97	8.89	3	75	0.11	0.015	19.09	3.35	18.88	2.67
PB19	B19	21	17.186	8.97	8.89	3	75	0.11	0.015	22.40	3.81	18.88	2.67
PB22	B22	20	16.116	8.51	8.43	3	75	0.11	0.015	14.48	3.32	18.88	2.67
PB21	B21	20	16.297	9.57	9.43	2	75	0.18	0.015	13.22	4.7	8.47	2.7
PB17.P	B17	25	18.812	10.14	9.39	2.5	580	0.13	0.015	21.93	4.43	12.78	2.6
PB17.R	B17	25	-9.00E+99	23.72	18.72	0	580	0	0.014	0.00	0	42.6	2.89
PB20.P	B20	20	17.105	7.89	7.43	4	570	0.08	0.015	55.37	4.39	35.37	2.81
PB20.R	B20	20	-9.00E+99	18.72	17.72	0	570	0	0.014	0.00	0	19.22	1.3
PC01	C01	19.8	17.922	12.19	10.75	2	800	0.18	0.015	5.04	2.76	8.32	2.65
PC03	C03	18.8	17.536	9.25	8.75	3.5	550	0.09	0.015	29.41	3.28	26.29	2.73
PC02	C02	19.8	17.838	10.35	10.25	2.5	75	0.13	0.015	22.67	4.68	12.98	2.64
PC08	C08	18.5	17.072	7.25	6.45	5	800	0.1	0.015	77.36	4.22	71.38	3.64
PC07	C07	19.5	17.359	9.85	9.75	2.5	75	0.13	0.015	20.01	5.11	12.98	2.64
PC06.P	C06	19.4	17.599	9.09	8.75	3.5	380	0.09	0.015	31.99	4.31	26.08	2.71
PC06.R	C06	19.4	-9.00E+99	18.12	17.22	0	380	0	0.014	0.00	0	22.33	1.51
PC05	C05	20.4	17.683	10.19	10.09	2.5	75	0.13	0.015	13.13	4.36	12.98	2.64
PC04	C04	20.4	17.932	10.19	10.09	2.5	75	0.13	0.015	23.42	5.33	12.98	2.64
PC10	C10	18.7	15.873	5.45	4.9	6	1100	0.05	0.015	96.50	3.4	82.07	2.9
PC09	C09	19.7	16.443	9.59	9.45	2	75	0.18	0.015	22.13	6.99	8.47	2.7
PC13	C13	17	15.254	4.9	4.11	6	790	0.1	0.015	147.52	5.2	116.07	4.11
PC12	C12	18	16.061	8.76	8.65	2.25	75	0.15	0.015	29.11	7.28	10.28	2.59
PC11	C11	18	16.454	9.04	8.9	2	75	0.18	0.015	25.01	7.91	8.47	2.7
PC16	C16	17	13.925	4.11	3.42	6	690	0.1	0.015	173.80	6.13	116.07	4.11
PC15	C15	18	14.927	8.25	8.11	2	75	0.18	0.015	18.72	5.9	8.47	2.7
PC14	C14	18	14.346	8.25	8.11	2	75	0.18	0.015	14.62	4.91	8.47	2.7
PC19	C19	17	13.399	3.42	2.84	6	580	0.1	0.015	191.96	6.75	116.07	4.11
PC18	C18	18	13.403	7.56	7.42	2	75	0.18	0.015	13.87	4.99	8.47	2.7
PC17	C17	18	13.403	7.56	7.42	2	75	0.18	0.015	13.42	4.91	8.47	2.7

Sacramento Method
100-Year 24-Hour
Pipe Data Results

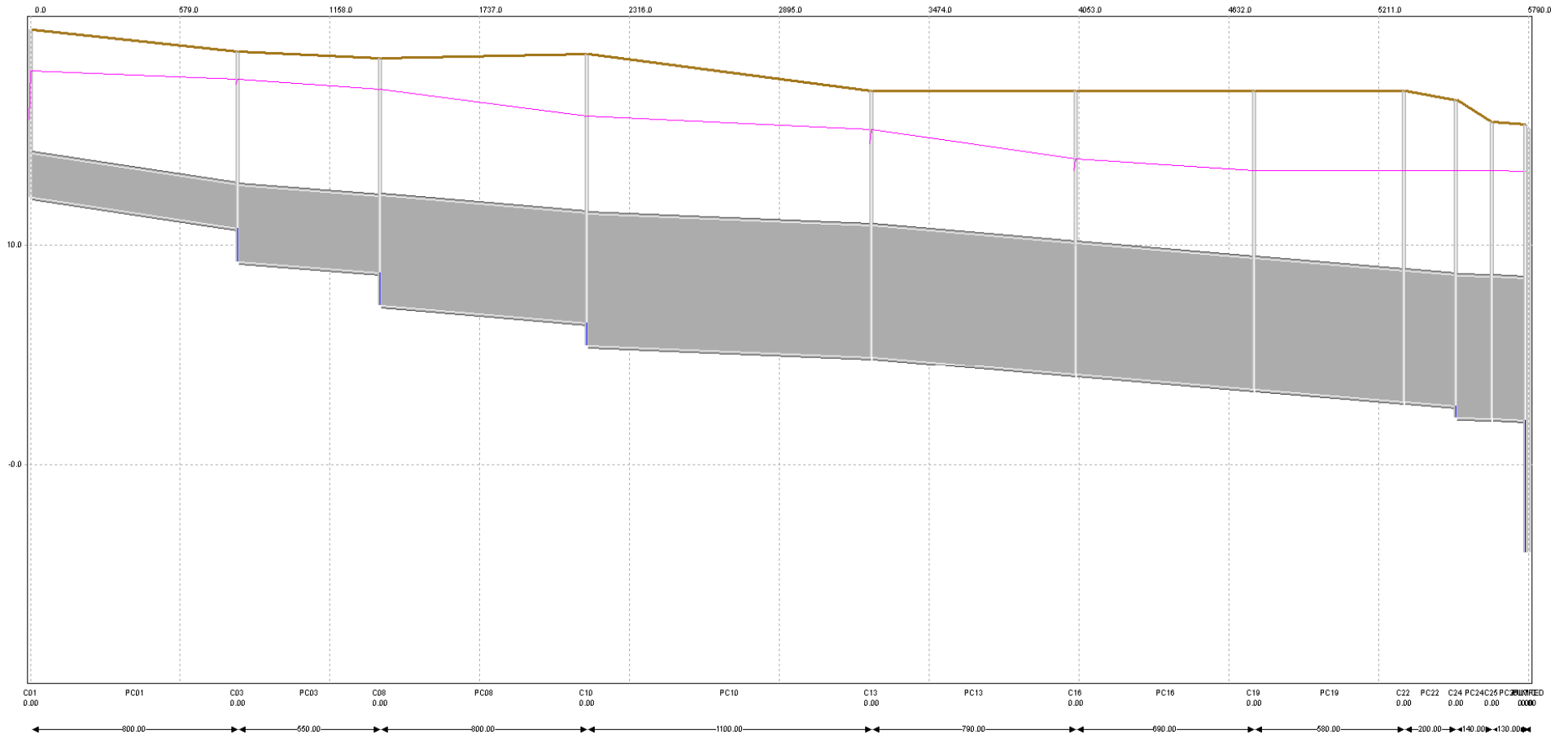
Name	Upstream Node Name	Ground Elevation (Spill Crest) ft	Maximum Water Elevation (US) ft	Upstream Invert Elevation ft	Downstream Invert Elevation ft	Diameter (Height) ft	Length ft	Conduit Slope	Roughness	Max Flow cfs	Max Velocity ft/s	Design Full Flow cfs	Design Velocity ft/s
PC22	C22	17	13.402	2.84	2.64	6	200	0.1	0.015	209.52	7.12	116.07	4.11
PC21	C21	18	13.404	6.98	6.84	2	75	0.18	0.015	14.34	5.07	8.47	2.7
PC20	C20	18	13.404	6.98	6.84	2	75	0.18	0.015	13.94	5.01	8.47	2.7
PA01.P	A01	21	17.034	7.29	4.97	3.5	580	0.4	0.015	23.73	3.93	55.15	5.73
PA01.R	A01	21	-9.00E+99	19.72	18.72	0	580	0	0.014	0.00	0	19.05	1.29
PA04.P	A04	20.8	16.751	0.87	-1.61	6	620	0.4	0.015	86.14	3.27	232.14	8.21
PA04.R	A04	20.8	-9.00E+99	19.52	19.72	0	620	0	0.014	0.00	0	8.24	0.56
PA07.P	A07	21	16.46	-2.11	-2.64	6.5	1070	0.05	0.015	136.35	4.07	101.13	3.05
PA07.R	A07	21	-9.00E+99	19.72	19.22	0	1070	0	0.014	0.00	0	9.92	0.67
PA14	A14	20.5	15.938	-2.64	-3.14	6.5	1010	0.05	0.015	316.78	9.44	101.1	3.05
PA13	A13	21.5	16.065	0.43	0.36	3.5	75	0.09	0.015	45.75	4.66	26.64	2.77
PA16	A16	18.2	13.417	-3.14	-3.45	6.5	620	0.05	0.015	339.32	10.16	101.6	3.06
PA15	A15	19.2	13.418	0.96	0.86	2.5	75	0.13	0.015	32.88	6.61	12.98	2.64
PA18	A18	19.5	13.378	-3.45	-3.5	6.5	100	0.05	0.015	351.14	10.55	101.6	3.06
PA17	A17	20.5	13.378	0.65	0.55	2.5	75	0.13	0.015	14.07	2.85	12.98	2.64
PA05.P	A05	21	18.155	4.47	2.87	4	800	0.2	0.015	54.10	4.24	55.67	4.43
PA05.R	A05	21	-9.00E+99	19.72	19.52	0	800	0	0.014	0.00	0	7.25	0.49
PA09	A09	33.5	22.548	0.71	0.23	4	600	0.08	0.015	119.63	9.27	35.21	2.8
PA10	A10	31	17.654	1.31	1.23	3	75	0.11	0.015	45.02	6.2	18.88	2.67
PA11	A11	31	17.667	1.58	1.23	3	320	0.11	0.015	28.37	3.92	19.12	2.7
PA12	A12	30	17.429	-1.77	-2.14	6	750	0.05	0.015	165.56	5.78	81.52	2.88
PA03	A03	20	16.944	4.47	2.87	4	400	0.4	0.015	55.90	4.39	78.73	6.27
PUMP1	OUT C	15.5	0							0.00	0	0	0
PUMP2	OUT C	15.5	0							0.00	0	0	0
PUMP3	OUT C	15.5	0							0.00	0	0	0
PUMP4	OUT C	15.5	0							0.00	0	0	0
PUMP5	OUT C	15.5	0							0.00	0	0	0



100-Year Profile

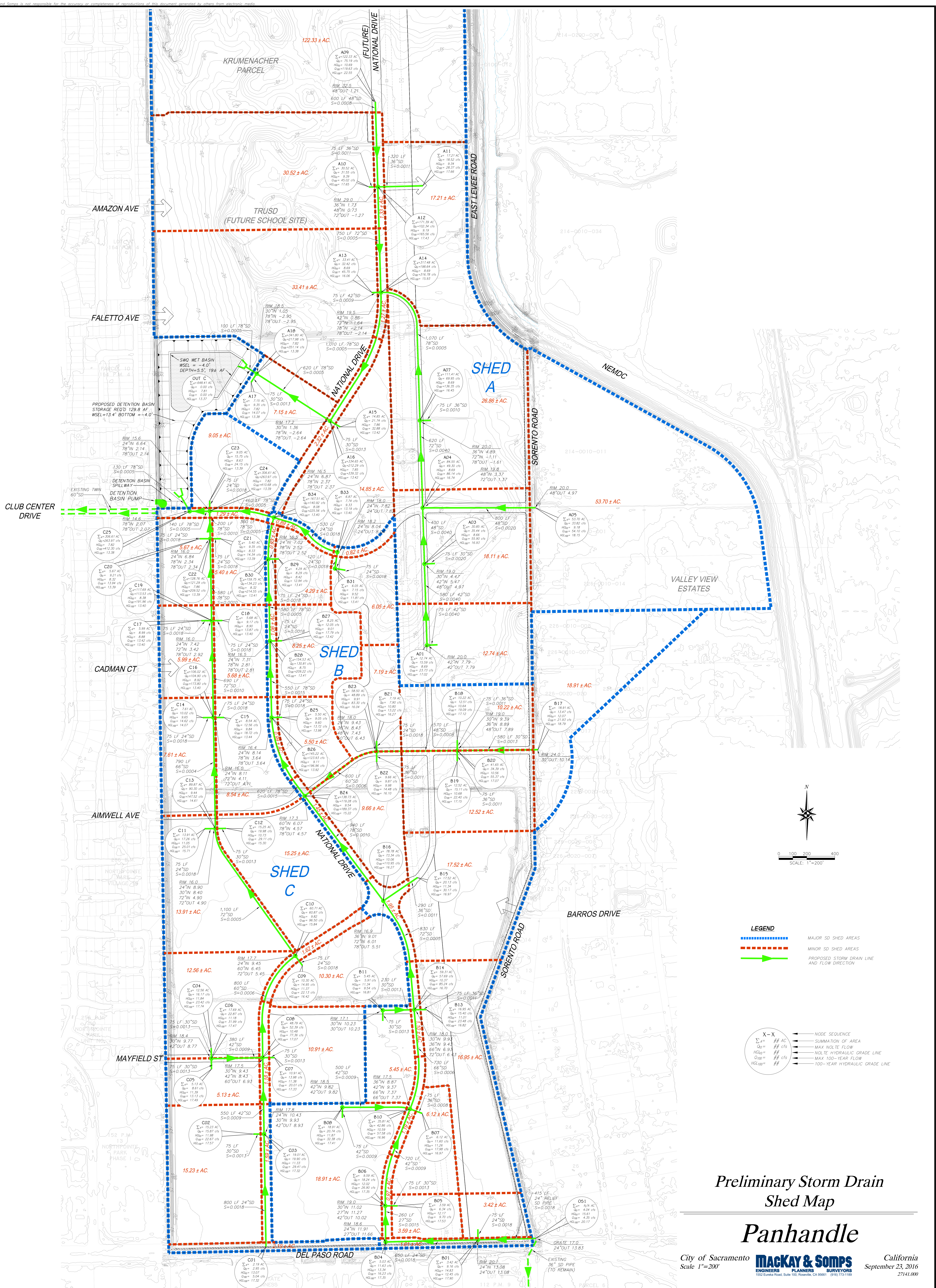


100-Year Profile



100-Year Profile

APPENDIX D
PANHANDLE STORM DRAIN SYSTEM AND RESULT MAP



Preliminary Storm Drain
Shed Map

Panhandle

City of Sacramento
Scale 1"=200'

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
1552 Evans Road, Suite 100, Roseville, CA 95661 (916) 773-1189

California
September 23, 2016
27141.000

PRELIMINARY - Subject to Revision

Appendix G

Noise Modeling Data



Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L _{eq} dBA)	Equipment	Reference Emission Noise Levels (L _{max}) at 50 feet ¹	Usage Factor ¹
Threshold	1,690	50.0	Paver	85	0.5
Northpointe Park	50	88.2	Grader	85	0.4
Valley View Acres	50	88.2	Dozer	85	0.4
			Excavator	85	0.4
			Scraper	85	0.4
			Ground Type	soft	
			Source Height	12	
			Receiver Height	5	
			Ground Factor ²	0.60	
			Predicted Noise Level³	L_{eq} dBA at 50 feet³	
			Paver	82.0	
			Grader	81.0	
			Dozer	81.0	
			Excavator	81.0	
			Scraper	81.0	
			Combined Predicted Noise Level (L_{eq} dBA at 50 feet)		
					88.2

Sources:

¹ Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

² Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

³ Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.



Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L _{max} dBA)	Equipment	Reference Emission	Usage Factor ¹
				Noise Levels (L _{max}) at 50 feet ¹	
Threshold	1,509	55.0	Paver	85	1
Northpointe Park	50	92.0	Grader	85	1
Valley View Acres	50	92.0	Dozer	85	1
			Excavator	85	1
			Scraper	85	1
			Ground Type	soft	
			Source Height	12	
			Receiver Height	5	
			Ground Factor ²	0.60	
			Predicted Noise Level³	Lmax dBA at 50 feet³	
			Paver	85.0	
			Grader	85.0	
			Dozer	85.0	
			Excavator	85.0	
			Scraper	85.0	
			Combined Predicted Noise Level (L_{max} dBA at 50 feet)		
					92.0

Sources:

¹ Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

² Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

³ Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(\text{U.F.}) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Traffic Noise Spreadsheet Calculator



Project: Panhandle Annexation and PUD Summary (Existing Conditions)

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

				Input										Output					
Number	Name	Segment Description and Location		ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
		From	To			Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve		% Night	70 dBA	65 dBA	60 dBA	55 dBA	
Existing Conditions																			
1	Elkhorn Blvd	SR-99	E Commerce Way	18,700	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.7	44	95	205	442	
2	Elkhorn Blvd	E Commerce Way	Northborough Dr	17,300	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.3	42	90	195	419	
3	Elkhorn Blvd	Northborough Dr	Natomas Blvd	16,200	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.1	40	86	186	401	
4	Elkhorn Blvd	Natomas Blvd	Sageview Dr	19,000	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.7	45	96	207	446	
5	Elkhorn Blvd	Sageview Dr	E Levee Rd	17,100	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.3	42	90	193	416	
6	Elkhorn Blvd	E Levee Rd	Marysville Blvd	17,500	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.4	42	91	196	423	
7	Natomas Blvd	North Bend Dr	Club Center Dr	26,700	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.2	56	121	260	560	
8	Natomas Blvd	Club Center Dr	Elkhorn Blvd	13,000	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.1	35	75	161	347	
9	Del Paso Rd	Truxel Rd	Gateway Park Blvd	21,300	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.2	48	104	224	482	
10	Del Paso Rd	Gateway Park Blvd	Black Rock Dr	22,400	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.5	50	107	231	498	
11	Del Paso Rd	Black Rock Dr	National Dr	20,800	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.1	47	102	220	474	
12	Del Paso Rd	National Dr	Northgate Blvd	20,700	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.1	47	102	219	473	
13	Northgate Blvd	Del Paso Rd	North Market Blvd	23,500	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.2	41	89	191	411	
14	Northgate Blvd	North Market Blvd	I-80	36,000	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.1	55	118	254	546	
15	Main Avenue	Northgate Blvd	Norwood Ave	19,700	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.4	37	79	170	365	
16	Sageview Rd	Elkhorn Blvd	Bridgexcross Dr	3,700	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	54.6	9	20	44	94	
17	Bridgexcross Dr	East of Honor Pkwy		2,800	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	50.1	5	10	22	47	
18	Regency Park Cir	North of Club Center Dr		5,300	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	52.9	7	15	33	72	
19	Danbrook Dr	South of Club Center Dr		5,100	25	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	52.7	7	15	33	70	
20	Sorento Rd	North of Del Paso Road		340	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	44.2	2	4	9	19	
21	Club Center Dr	Danbrook Drive to Danbrook Drive		3,200	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	54.0	9	18	40	85	
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%						

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator



Project: Panhandle Annexation and PUD Summary (Existing to Sensitive Receptors)

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input								Output							
Number	Name	From	To	ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics			CNEL, (dBA) _{5,6,7}	CNEL, with Soundwall Reduction (dBA)	Distance to Contour, (feet) ₃						
						Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night			70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																			
1	Elkhorn Blvd	SR-99	E Commerce Way	18,700	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.7	51.7	39	84	181	390
2	Elkhorn Blvd	E Commerce Way	Northborough Dr	17,300	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.4	51.4	37	80	172	370
3	Elkhorn Blvd	Northborough Dr	Natomas Blvd	16,200	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.1	51.1	35	76	164	354
4	Elkhorn Blvd	Natomas Blvd	Sageview Dr	19,000	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.8	51.8	39	85	183	394
5	Elkhorn Blvd	Sageview Dr	E Levee Rd	17,100	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.5	63.5	37	79	170	367
6	Elkhorn Blvd	E Levee Rd	Marysville Blvd	17,500	45	50	50	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.1	68.1	37	80	173	373
7	Natomas Blvd	North Bend Dr	Club Center Dr	26,700	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.3	62.3	49	106	229	494
8	Natomas Blvd	Club Center Dr	Elkhorn Blvd	13,000	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.2	59.2	31	66	142	306
9	Del Paso Rd	Truxel Rd	Gateway Park Blvd	21,300	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.4	59.4	42	92	197	425
10	Del Paso Rd	Gateway Park Blvd	Black Rock Dr	22,400	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.6	59.6	44	95	204	439
11	Del Paso Rd	Black Rock Dr	National Dr	20,800	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.3	64.3	42	90	194	418
12	Del Paso Rd	National Dr	Northgate Blvd	20,700	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.3	64.3	42	90	194	417
13	Northgate Blvd	Del Paso Rd	North Market Blvd	23,500	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.4	63.4	36	78	168	363
14	Northgate Blvd	North Market Blvd	I-80	36,000	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.2	65.2	48	104	224	482
15	Main Avenue	Northgate Blvd	Norwood Ave	19,700	40	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.5	64.5	32	69	150	322
16	Sageview Rd	Elkhorn Blvd	Bridgecross Dr	3,700	35	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.6	55.6	8	18	39	83
17	Bridgecross Dr	East of Honor Pkwy		2,800	25	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.1	56.1	4	9	19	41
18	Regency Park Cir	North of Club Center Dr		5,300	25	60	60	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	55.4	55.4	6	14	29	63
19	Danbrook Dr	South of Club Center Dr		5,100	25	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	58.7	58.7	6	13	29	62
20	Sorento Rd	North of Del Paso Road		340	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	43.4	43.4	2	4	8	17
21	Club Center Dr	Danbrook Drive to Danbrook Drive		3,200	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	53.2	53.2	8	16	35	75

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator



Project: Panhandle Annexation and PUD Summary (Existing+Project to Sensitive Receptors)

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input										Output					
Number	Name	From	To	ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	CNEL, with Soundwall Reduction (dBA)	Distance to Contour, (feet) ₃				
Existing Conditions						Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night			70 dBA	65 dBA	60 dBA	55 dBA
1	Elkhorn Blvd	SR-99	E Commerce Way	19,400	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.9	51.9	40	86	185	399
2	Elkhorn Blvd	E Commerce Way	Northborough Dr	18,200	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.6	51.6	38	82	178	383
3	Elkhorn Blvd	Northborough Dr	Natomas Blvd	17,000	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.3	51.3	37	79	170	366
4	Elkhorn Blvd	Natomas Blvd	Sageview Dr	18,700	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.7	51.7	39	84	181	390
5	Elkhorn Blvd	Sageview Dr	E Levee Rd	23,200	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.8	64.8	45	97	209	450
6	Elkhorn Blvd	E Levee Rd	Marysville Blvd	20,500	45	50	50	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.8	68.8	41	89	192	414
7	Natomas Blvd	North Bend Dr	Club Center Dr	28,000	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.5	62.5	51	110	237	510
8	Natomas Blvd	Club Center Dr	Elkhorn Blvd	12,200	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.9	58.9	29	63	136	293
9	Del Paso Rd	Truxel Rd	Gateway Park Blvd	22,300	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.6	59.6	44	94	203	438
10	Del Paso Rd	Gateway Park Blvd	Black Rock Dr	29,700	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.9	60.9	53	114	246	530
11	Del Paso Rd	Black Rock Dr	National Dr	18,300	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.8	63.8	38	83	178	384
12	Del Paso Rd	National Dr	Northgate Blvd	27,500	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.5	65.5	50	109	234	504
13	Northgate Blvd	Del Paso Rd	North Market Blvd	27,900	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.1	64.1	41	88	189	407
14	Northgate Blvd	North Market Blvd	I-80	40,200	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.7	65.7	52	112	241	519
15	Main Avenue	Northgate Blvd	Norwood Ave	19,800	40	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.5	64.5	32	70	150	323
16	Sageview Rd	Elkhorn Blvd	Bridgecross Dr	1,000	35	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	54.9	49.9	3	7	16	35
17	Bridgecross Dr	East of Honor Pkwy		2,600	25	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	55.8	55.8	4	9	18	39
18	Regency Park Cir	North of Club Center Dr		5,600	25	60	60	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	55.6	55.6	7	14	31	66
19	Danbrook Dr	South of Club Center Dr		3,800	25	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	57.4	57.4	5	11	24	51
20	Sorento Rd	North of Del Paso Road		5,200	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	55.3	55.3	10	22	48	104
21	Club Center Dr	Danbrook Drive to Danbrook Drive		4,600	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	54.7	54.7	10	21	45	96

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator



Project: Panhandle Annexation and PUD Summary (Cumulative to Sensitive Receptors)

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

				Input									Output						
Number	Name	Segment Description and Location		ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	CNEL, with (dBA)	Distance to Contour, (feet) ₃				
		From	To			Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve			% Night	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																			
1	Elkhorn Blvd	SR-99	E Commerce Way	21,800	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	58.2	53.2	49	105	227	489
2	Elkhorn Blvd	E Commerce Way	Northborough Dr	27,100	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.1	54.1	57	122	263	566
3	Elkhorn Blvd	Northborough Dr	Natomas Blvd	26,000	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.0	54.0	55	119	255	550
4	Elkhorn Blvd	Natomas Blvd	Sageview Dr	30,000	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.6	54.6	61	130	281	605
5	Elkhorn Blvd	Sageview Dr	E Levee Rd	28,900	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.6	66.6	59	127	274	590
6	Elkhorn Blvd	E Levee Rd	Marysville Blvd	28,500	45	50	50	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	71.0	71.0	58	126	271	585
7	Natomas Blvd	North Bend Dr	Club Center Dr	28,400	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.4	63.4	58	126	271	584
8	Natomas Blvd	Club Center Dr	Elkhorn Blvd	15,300	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.7	60.7	39	83	179	386
9	Del Paso Rd	Truxel Rd	Gateway Park Blvd	28,900	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.6	61.6	59	127	274	590
10	Del Paso Rd	Gateway Park Blvd	Black Rock Dr	28,500	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.5	61.5	58	126	271	585
11	Del Paso Rd	Black Rock Dr	National Dr	27,900	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.4	66.4	58	124	268	577
12	Del Paso Rd	National Dr	Northgate Blvd	28,000	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.4	66.4	58	125	268	578
13	Northgate Blvd	Del Paso Rd	North Market Blvd	24,500	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	64.4	64.4	42	91	196	423
14	Northgate Blvd	North Market Blvd	I-80	37,600	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.2	66.2	56	121	261	562
15	Main Avenue	Northgate Blvd	Norwood Ave	27,400	40	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.7	66.7	46	98	211	455
16	Sageview Rd	Elkhorn Blvd	Bridgecross Dr	5,400	35	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	63.1	58.1	12	26	56	121
17	Bridgecross Dr	East of Honor Pkwy		2,500	25	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.4	56.4	4	9	20	44
18	Regency Park Cir	North of Club Center Dr		5,300	25	60	60	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.2	56.2	7	15	33	72
19	Danbrook Dr	South of Club Center Dr		6,300	25	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.4	60.4	8	17	37	81
20	Sorento Rd	North of Del Paso Road		800	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	47.9	47.9	3	7	16	34
21	Club Center Dr	Danbrook Drive to Danbrook Drive		3,200	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	54.0	54.0	9	18	40	85

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator



Project: Panhandle Annexation and PUD Summary (Cumulative+Project to Sensitive Receptors)

		Input											Output							
Noise Level Descriptor: CNEL Site Conditions: Soft Traffic Input: ADT Traffic K-Factor:		Distance to Directional											CNEL, (dBA) _{5,6,7}	CNEL, with (dBA)	Distance to Contour, (feet) ₃					
		ADT	Speed (mph)	Centerline, (feet) ₄		Traffic Distribution Characteristics					70 dBA	65 dBA			60 dBA	55 dBA				
				Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve			% Night							
Number	Name	Segment Description and Location	From	To																
Existing Conditions																				
1	Elkhorn Blvd	SR-99	E Commerce Way	E Commerce Way	22,700	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	58.4	53.4	50	108	233	503
2	Elkhorn Blvd	E Commerce Way	Northborough Dr	Northborough Dr	27,500	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.2	54.2	57	123	265	571
3	Elkhorn Blvd	Northborough Dr	Natomas Blvd	Natomas Blvd	26,400	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.0	54.0	56	120	258	556
4	Elkhorn Blvd	Natomas Blvd	Sageview Dr	Sageview Dr	28,300	45	300	300	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.3	54.3	58	125	270	582
5	Elkhorn Blvd	Sageview Dr	E Levee Rd	E Levee Rd	35,400	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	67.4	68	146	314	676
6	Elkhorn Blvd	E Levee Rd	Marysville Blvd	Marysville Blvd	32,400	45	50	50	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	71.6	71.6	64	137	296	637
7	Natomas Blvd	North Bend Dr	Club Center Dr	Club Center Dr	29,200	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.5	63.5	59	128	276	594
8	Natomas Blvd	Club Center Dr	Elkhorn Blvd	Elkhorn Blvd	13,400	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.1	60.1	35	76	164	354
9	Del Paso Rd	Truxel Rd	Gateway Park Blvd	Gateway Park Blvd	30,300	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.8	61.8	61	131	283	609
10	Del Paso Rd	Gateway Park Blvd	Black Rock Dr	Black Rock Dr	35,100	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	62.4	67	145	312	672
11	Del Paso Rd	Black Rock Dr	National Dr	National Dr	26,900	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.3	66.3	56	121	261	563
12	Del Paso Rd	National Dr	Northgate Blvd	Northgate Blvd	35,300	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	67.4	67.4	67	145	313	675
13	Northgate Blvd	Del Paso Rd	North Market Blvd	North Market Blvd	29,400	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.2	65.2	48	103	222	477
14	Northgate Blvd	North Market Blvd	I-80	I-80	42,400	40	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.8	66.8	61	131	283	609
15	Main Avenue	Northgate Blvd	Norwood Ave	Norwood Ave	28,000	40	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.8	66.8	46	100	214	462
16	Sageview Rd	Elkhorn Blvd	Bridgecross Dr	Bridgecross Dr	2,100	35	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.0	54.0	6	14	30	64
17	Bridgecross Dr	East of Honor Pkwy			2,300	25	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.1	56.1	4	9	19	41
18	Regency Park Cir	North of Club Center Dr			6,600	25	60	60	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	57.1	57.1	8	18	39	83
19	Danbrook Dr	South of Club Center Dr			7,200	25	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	61.0	61.0	9	19	41	88
20	Sorento Rd	North of Del Paso Road			5,700	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.5	56.5	13	27	58	125
21	Club Center Dr	Danbrook Drive to Danbrook Drive			4,300	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	55.3	55.3	10	22	48	104

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Attenuation Calculations for Stationary Noise Sources

KEY: Orange cells are for input.
 Grey cells are intermediate calculations performed by the model.
 Green cells are data to present in a written analysis (output).

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 3: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level			Attenuation Characteristics				Attenuated Noise Level at Receptor			
	noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	noise level (dBA)	@	distance (ft)	With 6 dBA Reduction for sound barrier (dBA)
Syar Concrete Facility Leq	80.0	@	50	soft	12	5	0.60	47.4	@	900	41.4
Power Line Leq	46.0	@	50	hard	50	5	0.00	40.0	@	100	NA
Commercial Loading Dock Leq (Day)	71.0	@	50	soft	12	5	0.60	55.1	@	205	NA
Commercial Loading Dock Leq (Night)	71.0	@	50	soft	12	5	0.60	49.9	@	325	NA
Commercial Loading Dock Lmax (Day)	86.0	@	50	soft	12	5	0.60	75.2	@	130	NA
Commercial Loading Dock Lmax (Night)	86.0	@	50	soft	12	5	0.60	70.1	@	205	NA
Off Site Commercial Loading Dock Lmax	84.0	@	40	soft	12	5	0.60	56.7	@	450	NA
Off Site Commercial Loading Dock Lmax (Night)	84.0	@	40	soft	12	5	0.60				
							0.66				
							0.66				
							0.66				
							0.66				
							0.66				
							0.66				

Notes:
 Estimates of attenuated noise levels do not account for reductions from intervening barriers, including walls, trees, vegetation, or structures of any type.

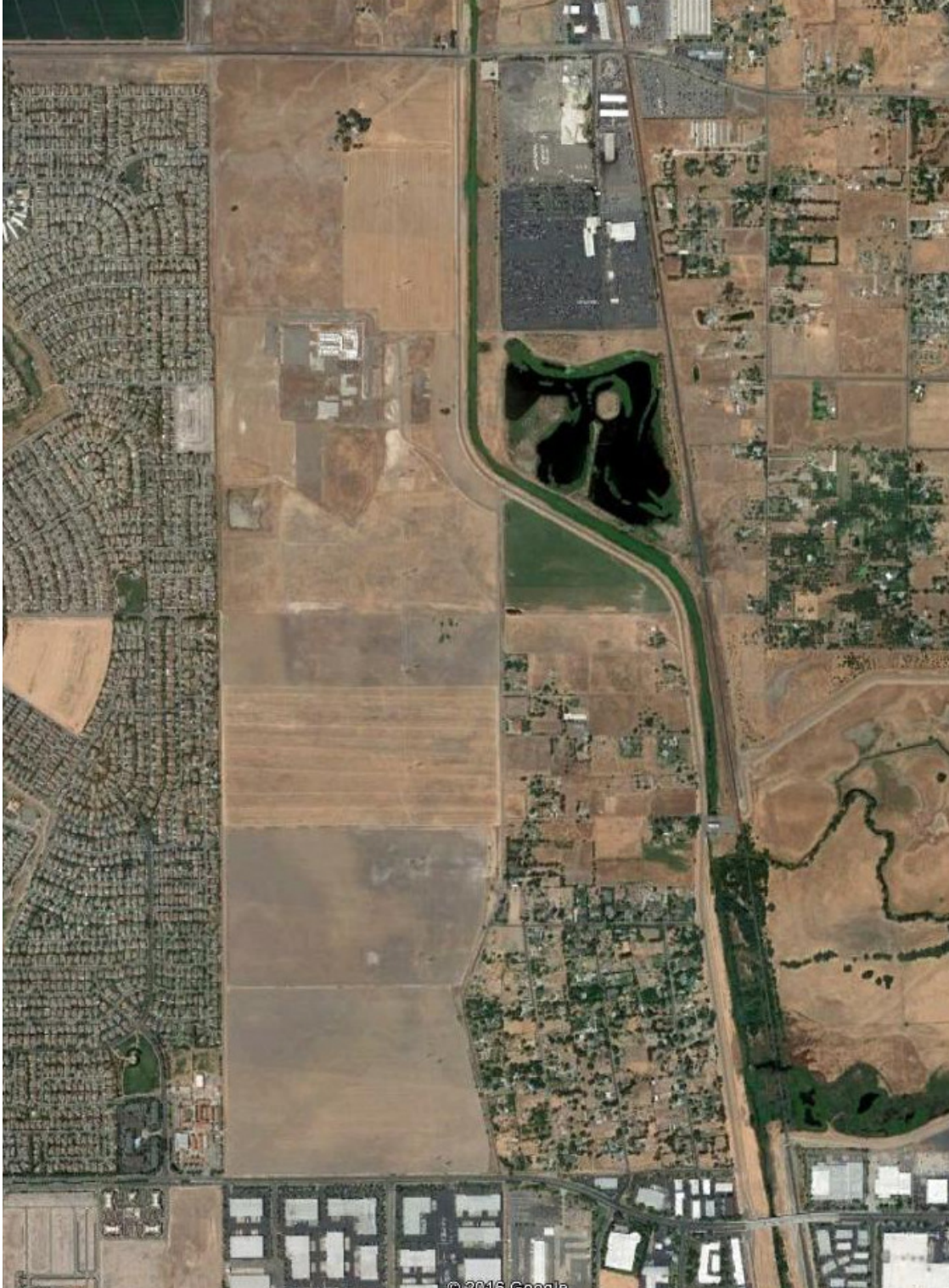
Computation of the attenuated noise level is based on the equation presented on pg. 12-3 and 12-4 of FTA 2006.
 Computation of the ground factor is based on the equation presented in Figure 6-23 on pg. 6-23 of FTA 2006, where the distance of the reference noise level can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

Sources:
 Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Record #	Time	Duration	Run Time	LAeq	LAE	LASmin	LASmin Time	LASmax	LASmax Time	LApeak (max)	LApeak (max) Time	LAS5.00	LAS10.00	LAS33.30	LAS50.00	LAS66.60	LAS90.00	SEA	LCeq	LAeq
ST-1	15:06:15	00:15:01.6	00:15:01.6	44.8	74.3	36.3	15:10:59	58.5	15:11:06	77.0	15:11:06	49.5	48.3	44.6	43.2	42.0	39.0	-99.9	68.1	44.8
ST-2	04:40:34	00:15:01.2	00:15:01.2	69.8	99.3	50.2	04:43:16	78.6	04:49:46	103.8	04:40:46	74.4	73.1	70.6	68.8	66.1	58.4	-99.9	74.4	69.8
ST-3	05:09:25	00:15:02.0	00:15:02.0	74.7	###	46.8	05:16:01	88.6	05:18:33	104.9	05:18:32	79.2	78.1	75.0	72.9	70.2	61.5	-99.9	80.7	74.7
ST-4	05:38:35	00:15:04.8	00:15:04.8	52.1	81.7	39.7	05:53:28	89.9	05:38:35	101.8	05:38:49	55.8	50.2	45.2	43.8	42.6	41.3	-99.9	61.7	52.1

Appendix H

Transportation Analysis



**Transportation Analysis Section 4.10
Panhandle Annexation**

Prepared for
City of Sacramento

March 9, 2017



8950 Cal Center Drive, Suite 340
Sacramento, California 95826
(916) 368-2000

4.10 TRANSPORTATION AND CIRCULATION

4.10.1 Introduction

This transportation and circulation section discusses existing and cumulative transportation and circulation conditions associated with the proposed Panhandle Annexation project (proposed project). The analysis includes consideration of motorized vehicle traffic impacts on roadway capacity, vehicle-miles travelled (VMT), and potential impacts to transit, bicycle, and pedestrians. In addition, an evaluation of construction impacts is also included. Quantitative transportation analyses have been conducted for the following scenarios:

- Existing (without project)
- Existing Plus Project
- Cumulative (2036) (no project)
- Cumulative (2036) Plus Project

In addition, a limited quantitative review of Cumulative (post-2036) conditions is described in Section 4.10.5 “Non-CEQA Effects”.

For more details of the project, please see Section 4.10.4 and Chapter 2, Project Description.

Comments received in response to the NOP (see Appendix A) focused on several aspects of the project related to transportation and circulation. All relevant transportation comments raised are addressed in this section. A summary of the comments received is provided as follows:

Roadway System and Connectivity

Comments focused on the proposed project’s roadway network and its connection to the existing and planned roadway systems. This includes connections to the adjacent residential areas of North Natomas to the west and the Valley View Acres area to the east (Sorento Road connections). Additionally, the effects of the roadway connections in accommodating other planned development, including the North Precinct project north of Elkhorn Boulevard, were mentioned. Commenters were concerned about increased traffic volumes, congestion, speeding, safety, and effects on pedestrians.

East Natomas Education Complex

Access to the partially completed East Natomas Education Complex was questioned, particularly regarding access to Sorento Road.

Pedestrian Access

Many comments focused on the importance of pedestrian access to the project site. WalkSacramento provided specific comments regarding the types of pedestrian facilities and street crossings.

Bicycle Access

Commenters mentioned the need for safe on-street and off-street bikeways to accommodate bicyclists, and close gaps in the existing system.

VMT Analysis

Caltrans requested VMT analysis and the provision of measures to shift travel to transit, walking, and bicycling.

Cumulative (post-2036) Growth

Sacramento County requested the consideration of land use beyond SACOG's adopted 2036 horizon year, including potential major developments in Placer, Sacramento, and Sutter Counties.

Documents reviewed for this section include the *Sacramento 2035 General Plan* (City of Sacramento 2015), the *2016 Bikeway Master Plan* (City of Sacramento 2016), *Sacramento County Bikeway Master Plan* (Sacramento County 2011), the *City of Sacramento Pedestrian Master Plan* (City of Sacramento 2006), the *State Route 99 & Interstate 5 Corridor System Management Plan* (Caltrans 2009), the *Interstate 80 and Capital City Freeway Corridor System Management Plan* (Caltrans 2009), and the *2016 Metropolitan Transportation Plan/Sustainable Communities Strategy* (Sacramento Area Council of Governments [SACOG] 2016).

Information referenced in the preparation of this section includes data from the regional travel model provided by SACOG, freeway ramp and intersection traffic count data collected by the City of Sacramento, Sacramento County, and NDS / ATD, and freeway traffic count data provided by Caltrans. Supporting traffic documentation is included in Appendix H.

4.10.2 Environmental Setting

The existing roadway, transit, bicycle, and pedestrian transportation systems within the study area are described below. Figure 4.10-1 illustrates the roadway system near the project site.

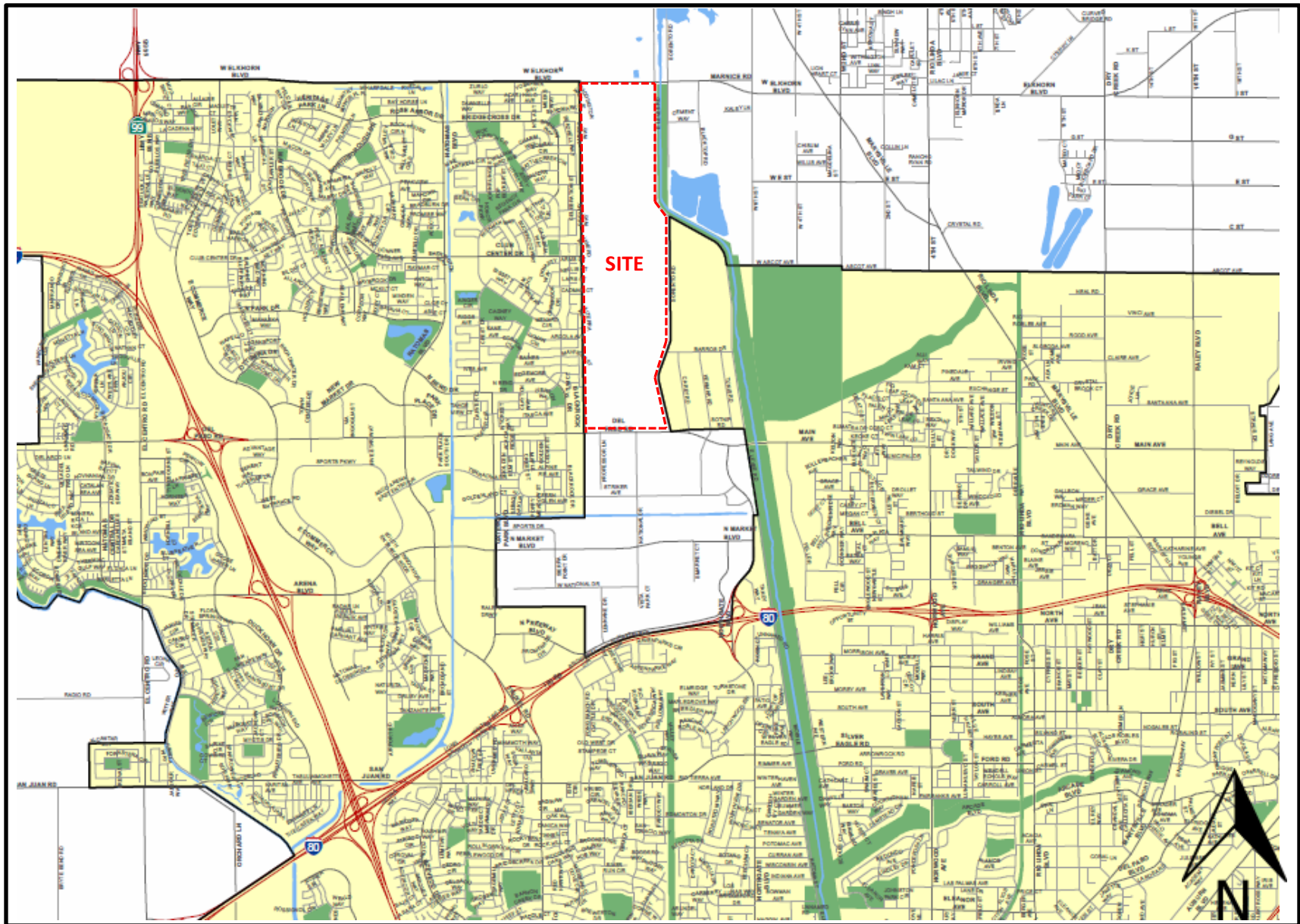


Figure 4.10-1
Site Location

Roadway System

The roadway component of the transportation system near the proposed project is described below.

- Interstate 80 (I-80) is a six-lane freeway to the south of the project area. It runs primarily east-west and provides access to the Natomas community in addition to interregional connections east to Reno, Nevada and beyond, and west to the San Francisco Bay area. Access to I-80 is provided primarily by interchanges at Truxel Road and Northgate Boulevard. I-80 in the project vicinity had been under construction since August 2011, primarily for the construction of HOV lanes. The project was completed in December 2016.
- Interstate 5 (I-5) is a multi-lane freeway that serves as the commute corridor between Downtown Sacramento and North Natomas. Just north of the Del Paso Road interchange, I-5 curves towards the west and continues to the Sacramento International Airport, Yolo County, and beyond. Access to I-5 is provided primarily by the Del Paso Road interchange.
- State Route 99 (SR 99) is a four-lane freeway that serves as the commute corridor between Yuba and Sutter Counties and Sacramento. SR 99 extends north from the junction of I-5 just north the Del Paso Road interchange. SR 99 continues into Sutter County and beyond. Access to SR 99 is provided via the Elkhorn Boulevard interchange.
- Elkhorn Boulevard is an east-west roadway beginning at Power Line Road west of SR 99 and extending towards the east into Sacramento County through the Rio Linda and Antelope communities to Interstate 80 (I-80) where it becomes Greenback Lane. Elkhorn Boulevard is a primarily a two-lane roadway within the study area and serves residential uses in North Natomas and commute trips between unincorporated Sacramento County communities and SR 99.
- Del Paso Road is an east-west roadway beginning at Power Line Road west of I-5 and continuing easterly to Northgate Boulevard where it becomes Main Avenue. Del Paso Road is primarily a six-lane roadway between I-5 and Blackrock Drive. Westbound Del Paso Road narrows to two lanes between Gateway Park Boulevard and Park Place Drive as it crosses the East Drainage Canal. Del Paso Road provides access to adjacent residential neighborhoods, retail, light industrial and commercial uses.
- Natomas Boulevard / Truxel Road is a north-south roadway west of the project site. Natomas Boulevard extends south from Elkhorn Boulevard primarily as a four-lane roadway, widens to five lanes (three southbound, two northbound) at Club Center Drive, and to six lanes south of North Park Drive. Natomas Boulevard is a primary arterial serving residential uses within North Natomas and becomes Truxel Road at the Del Paso Road

intersection. Truxel Road continues south as an eight-lane road to I-80, and then as a four-lane roadway through South Natomas to Garden Highway.

- Club Center Drive is an east-west collector roadway serving residential areas within North Natomas. The roadway varies in width from two to four through lanes.
- Gateway Park Boulevard is a two to four lane roadway between Truxel Road and North Bend Road. South of Del Paso Road, Gateway Park Boulevard serves the light industrial and retail uses in North Natomas and north of Del Paso Road, Gateway Park Boulevard serves residential uses.
- National Drive extends south of Del Paso Road as a four-lane roadway and serves primarily light industrial uses.
- Northgate Boulevard is a four to six-lane roadway within the study area, extending south of Del Paso Road to I-80 and beyond. Northgate Boulevard primarily serves light industrial uses between Del Paso Road and I-80.
- East Levee Road is a two-lane rural road. North of Elkhorn Boulevard, it continues into Sutter County. The roadway is barricaded immediately south of Elkhorn Boulevard, blocking through motor vehicle traffic between Elkhorn Boulevard and Sorento Road. South of Sorento Road, it continues to Sotnip Road, just north of Main Avenue.
- Sorento Road is a two-lane roadway between Del Paso Road and East Levee Road. It serves residential uses of the Valley View Acres neighborhood.
- Kenmar Road is a north-south two-lane roadway. North of Del Paso Road, it extends to Barros Drive and serves residential uses. South of Del Paso Road, it extends to Striker Avenue and serves an industrial area and the City of Sacramento North Area Corporation Yard.

Pedestrian System

The quality of the pedestrian system varies in the site vicinity.

- Recently developed areas in North Natomas west of the project site generally have a complete pedestrian system, with sidewalks on both sides of most streets, and marked crosswalks at major intersections.
- To the south in the Panhandle light industrial area, there are sidewalks on both sides of most streets, and marked crosswalks at major intersections.
- There are no sidewalks along the streets in the Valley View Acres neighborhood to the east of the project site.
- There are no sidewalks along Elkhorn Boulevard north of the project site.

- There are sidewalks along both sides of Del Paso Road in the site vicinity, except for the north side along the project frontage and east to Carey Road

Bicycle System

Figure 4.10-2 illustrates the existing and proposed bicycle system in the site vicinity.

- To the west of the project, site, there are bikeways throughout North Natomas, including along Del Paso Road, Club Center Drive, and Elkhorn Boulevard.
- To the east of the project site, the bikeway system is currently sparse. There are bikeways along Del Paso Road and Northgate Boulevard. South of Del Paso Road, access is provided to an off-street bikeway along the Walter S. Ueda Parkway, extending south to the American River. North of Del Paso Road, bicyclists can continue travelling on East Levee Road to Elkhorn Boulevard (bypassing the gate) and beyond.

Transit System

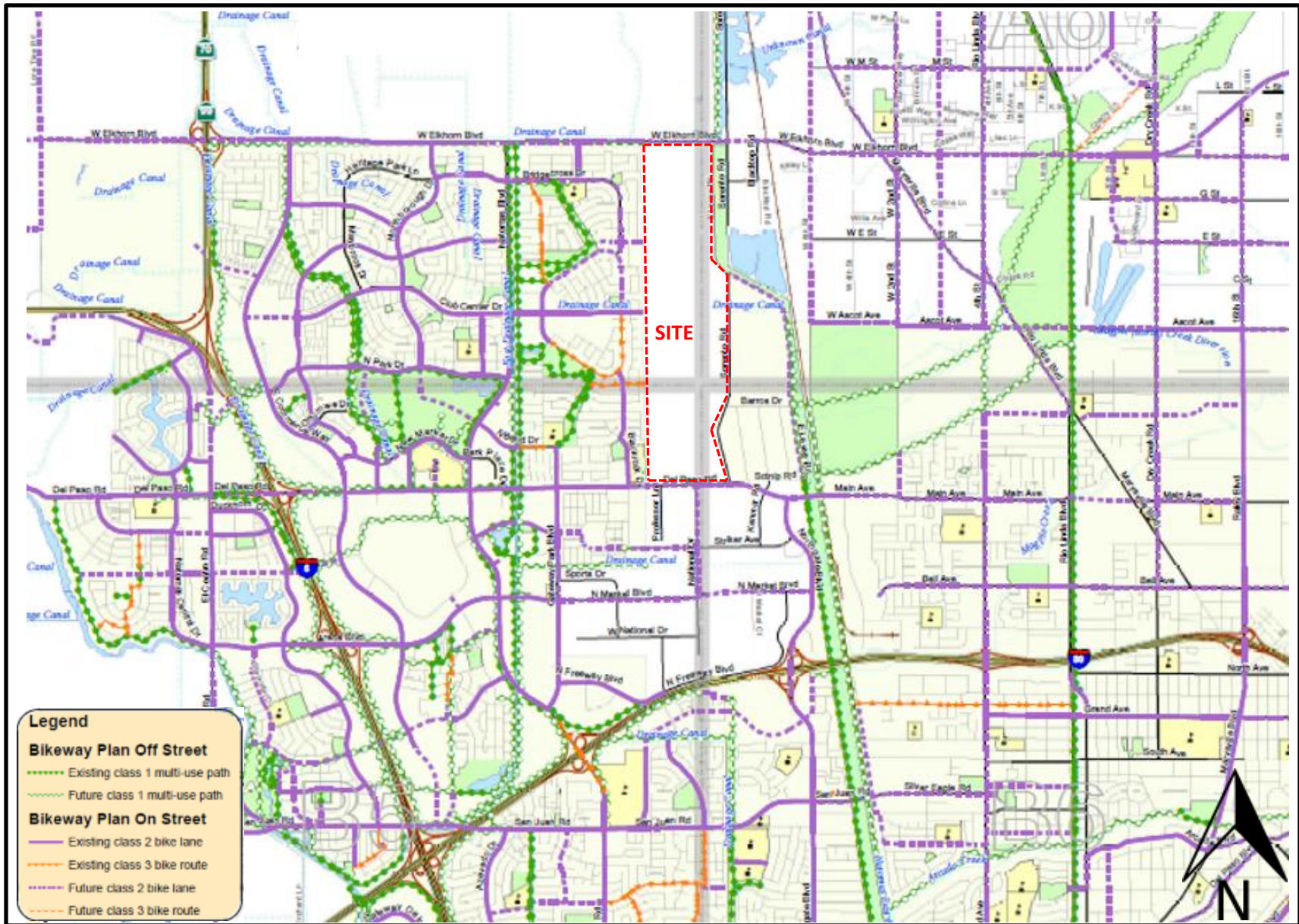
The Sacramento Regional Transit District (RT) operates 69 bus routes and 42.9 miles of light rail covering a 418 square-mile service area. Buses and light rail run 365 days a year using 76 light rail vehicles, 205 buses powered by compressed natural gas (CNG) and 23 shuttle vans. Buses operate daily from 5 a.m. to 11 p.m. every 12 to 60 minutes, depending on the route. Light rail trains begin operation at 4 a.m. with service every 15 minutes during the day and every 30 minutes in the evening and on weekends. Blue Line and Gold Line trains operate until 12:30 a.m. and the Gold Line to Folsom operates until 7 p.m. Green Line trains operate every 30 minutes Monday through Friday from approximately 6 a.m. to 8:30 p.m. (no weekend or holiday service).

RT transit service in the site vicinity is illustrated in Figure 4.10-3.

RT Route 13 (Northgate) operates in each direction along North Market Boulevard at National Drive, about 0.65 miles south of the site. To the west, the route loops through North Natomas on Gateway Park Boulevard, Truxel Road, and Arena Boulevard, providing access to Natomas Marketplace. To the east, the route continues southerly along Northgate Boulevard and Arden Way to the Arden / Del Paso Light Rail Station, which is the closest light rail station to the project site.

Route 13 operates at approximately one hour headways on Monday through Friday from approximately 6:00 a.m. to 9:00 p.m. There is no Saturday, Sunday, or Holiday service.

The North Natomas Transportation Management Associate operates the Flyer Shuttle, a peak-period scheduled route transit service between North Natomas and Downtown Sacramento. The Eastside Route (170) operates four buses to Downtown during the a.m. period, and four buses from Downtown during the p.m. period. The bus operates through the North Natomas neighborhoods immediately west of the project site, along North Bend Drive, Danbrook Drive, and Bridgecross Drive.



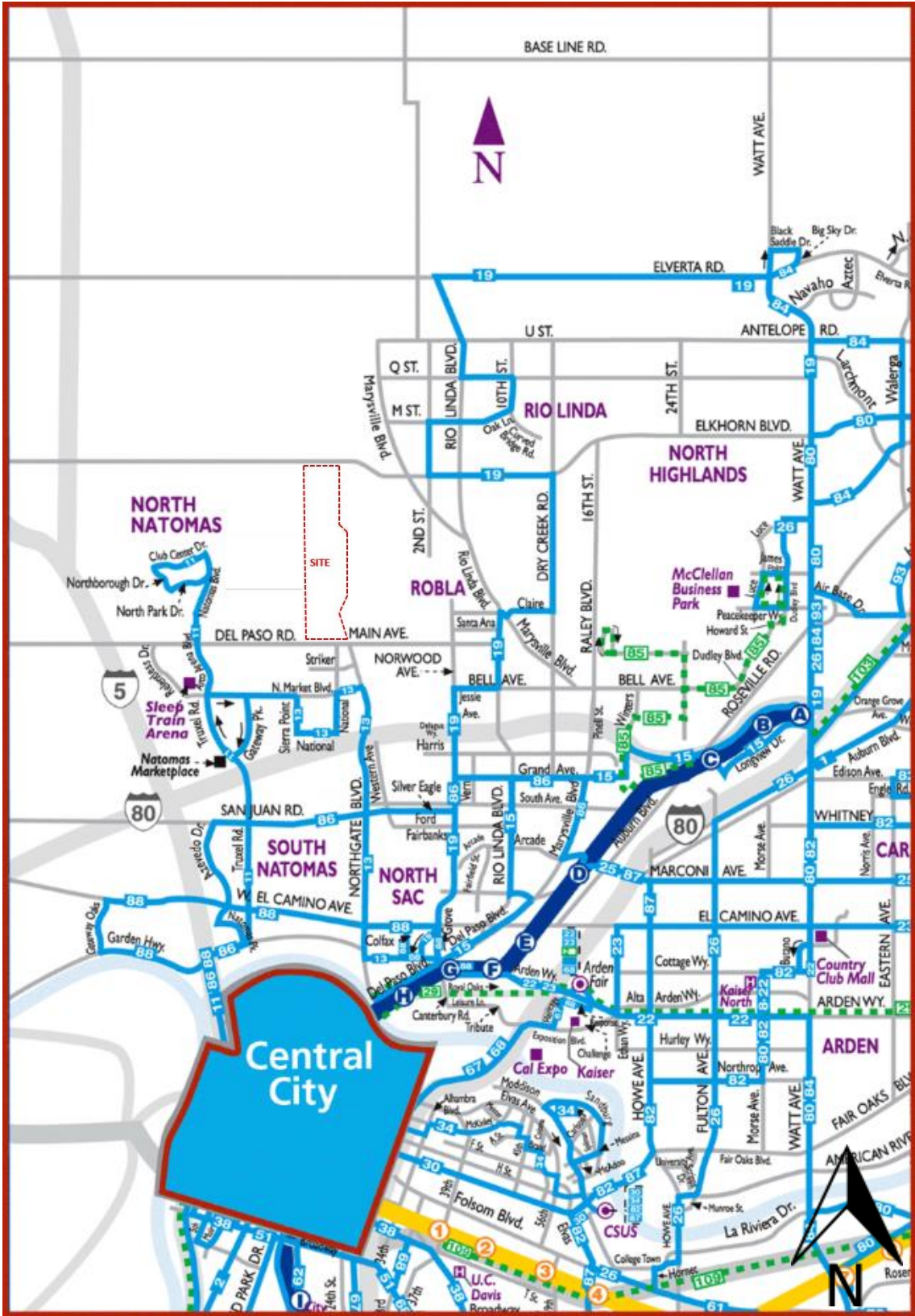


Figure 4.10-3
Regional Transit Services

Study Area

For traffic analysis purposes, a set of intersections, roadway segments, and freeway facilities were selected based upon the anticipated volume of project traffic, the distributional patterns of project traffic, and known locations of operational difficulty. The following locations, illustrated in Figure 4.10-4, were identified:

- Intersections
 1. East Commerce Way / Elkhorn Boulevard (signalized)
 2. Natomas Boulevard / Elkhorn Boulevard (signalized)
 3. E. Levee Road / Elkhorn Boulevard (unsignalized)
 4. Marysville Boulevard / Elkhorn Boulevard (signalized)
 5. Northborough Drive / Elkhorn Boulevard (signalized)
 6. Natomas Boulevard / Club Center Drive (signalized)
 7. Natomas Boulevard / Truxel Road / Del Paso Road (signalized)
 8. Gateway Park Boulevard / Del Paso Road (signalized)
 9. National Drive / Del Paso Road (signalized)
 10. Sorento Road / Del Paso Road (unsignalized)
 11. Kenmar Road / Del Paso Road (unsignalized)
 12. Northgate Boulevard / Del Paso Road (signalized)
 13. Northgate Boulevard / North Market Boulevard (signalized)
 14. National Drive / North Market Boulevard (signalized)
 15. 16th Street / Elkhorn Boulevard (signalized)
 16. Elkhorn Boulevard / SR 99 Southbound Ramps (unsignalized)
 17. Elkhorn Boulevard / SR 99 Northbound Ramps (signalized)
 18. Del Paso Road / I-5 Southbound Ramps (signalized)
 19. Del Paso Road / I-5 Northbound Ramps (signalized)
 20. Truxel Road / I-80 Westbound Ramps (signalized)
 21. Truxel Road / I-80 Eastbound Ramps (signalized)
 22. Northgate Boulevard / I-80 Westbound Ramps (signalized)
 23. Northgate Boulevard / I-80 Eastbound Ramps (signalized)

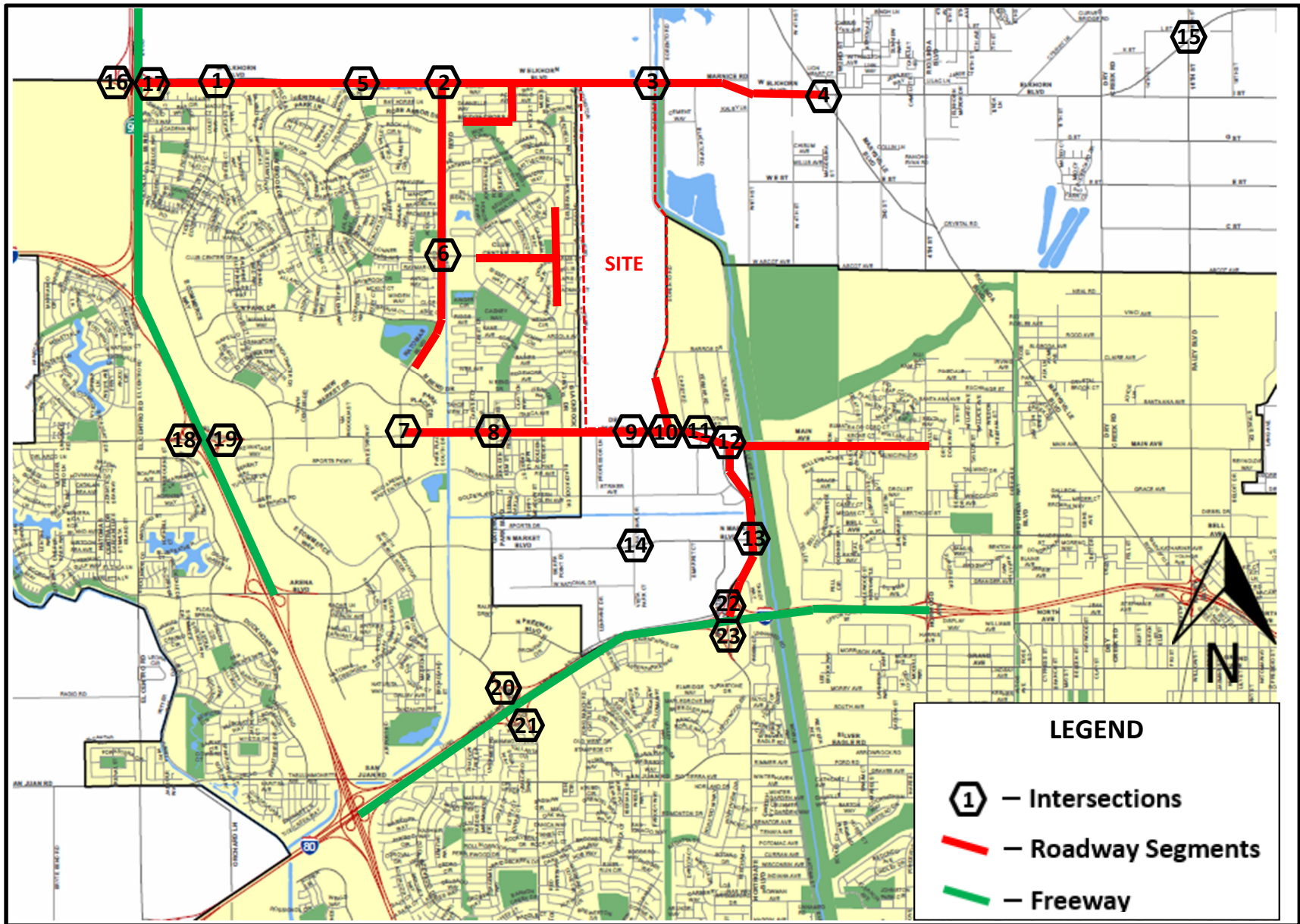


Figure 4.10-4
Study Area



- Roadway Segments
 - Elkhorn Boulevard
 - ◆ SR 99 to East Commerce Way
 - ◆ East Commerce Way to Northborough Drive
 - ◆ Northborough Drive to Natomas Boulevard
 - ◆ Natomas Boulevard to Sageview Drive
 - ◆ Sageview Drive to E. Levee Road
 - ◆ E. Levee Road to Marysville Boulevard
 - Natomas Boulevard
 - ◆ North Bend Drive to Club Center Drive
 - ◆ Club Center Drive to Elkhorn Boulevard
 - Del Paso Road
 - ◆ Truxel Road to Gateway Park Boulevard
 - ◆ Gateway Park Boulevard to Black Rock Drive
 - ◆ Black Rock Drive to National Drive
 - ◆ National Drive to Northgate Boulevard
 - Northgate Boulevard
 - ◆ Del Paso Road to North Market Boulevard
 - ◆ North Market Boulevard to I-80
 - Main Avenue
 - ◆ Northgate Boulevard to Norwood Avenue
 - Sageview Drive
 - ◆ Elkhorn Boulevard to Bridgecross Drive
 - Bridgecross Drive
 - ◆ East of Honor Parkway
 - Regency Park Circle
 - ◆ North of Club Center Drive

- Danbrook Drive
 - ◆ South of Club Center Drive
- Sorento Road
 - ◆ North of Del Paso Road
- Club Center Drive
 - ◆ Danbrook Drive to Danbrook Drive
- Freeway Mainline
 - I-5
 - ◆ Arena Boulevard to Del Paso Road
 - ◆ Del Paso Road to SR 99
 - SR 99
 - ◆ I-5 to Elkhorn Boulevard
 - ◆ Elkhorn Boulevard to Elverta Road
 - I-80
 - ◆ I-5 to Truxel Road
 - ◆ Truxel Road to Northgate Boulevard
 - ◆ Northgate Boulevard to Norwood Avenue
- Interchange Freeway Ramp Termini
 - Intersections 16 through 23

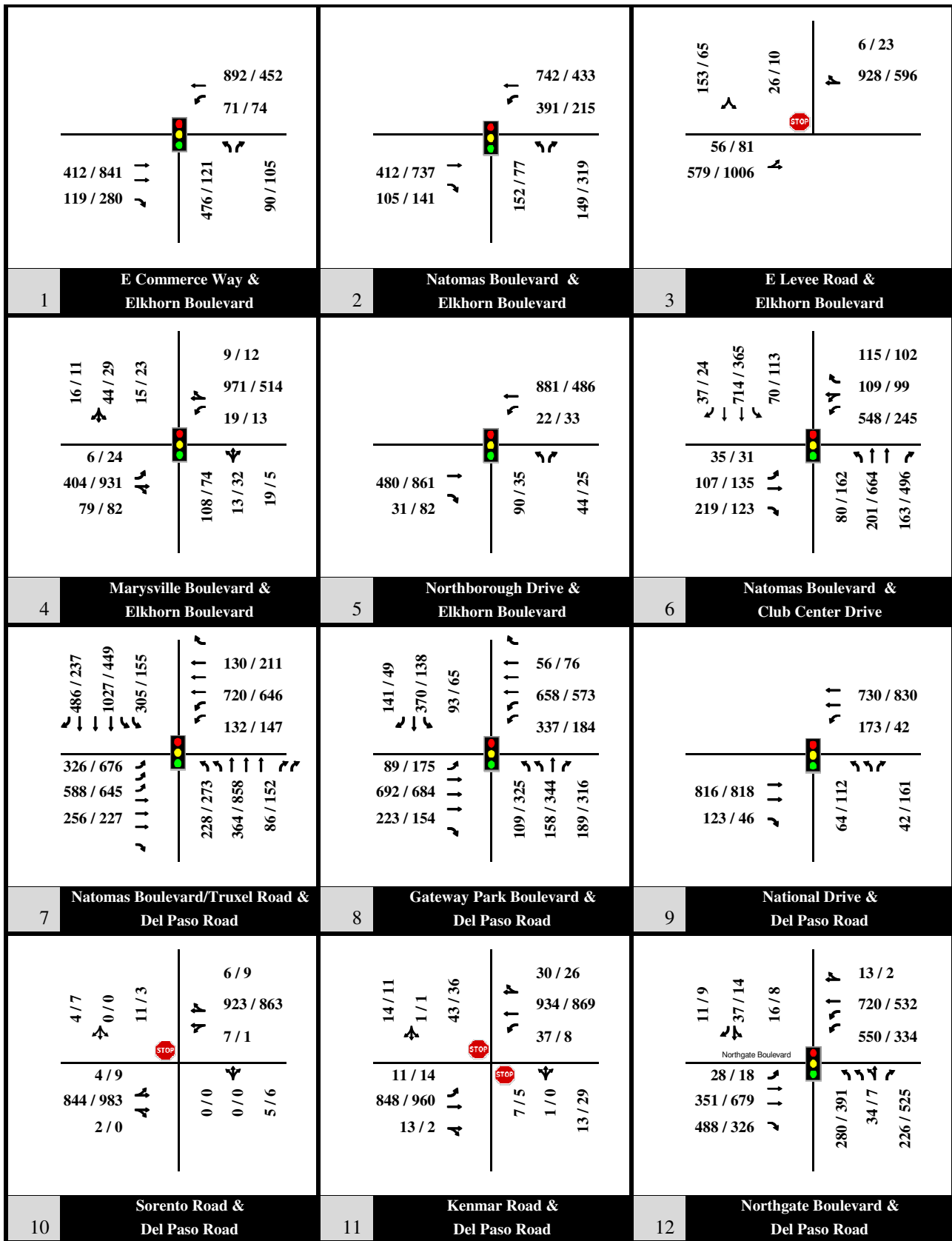
Existing Intersection Geometry

Existing intersection geometry (number of approach lanes and traffic control) is illustrated in Figure 4.10-5. Additional geometric data is included in Appendix H.

Existing Traffic Volumes and Data

Intersections

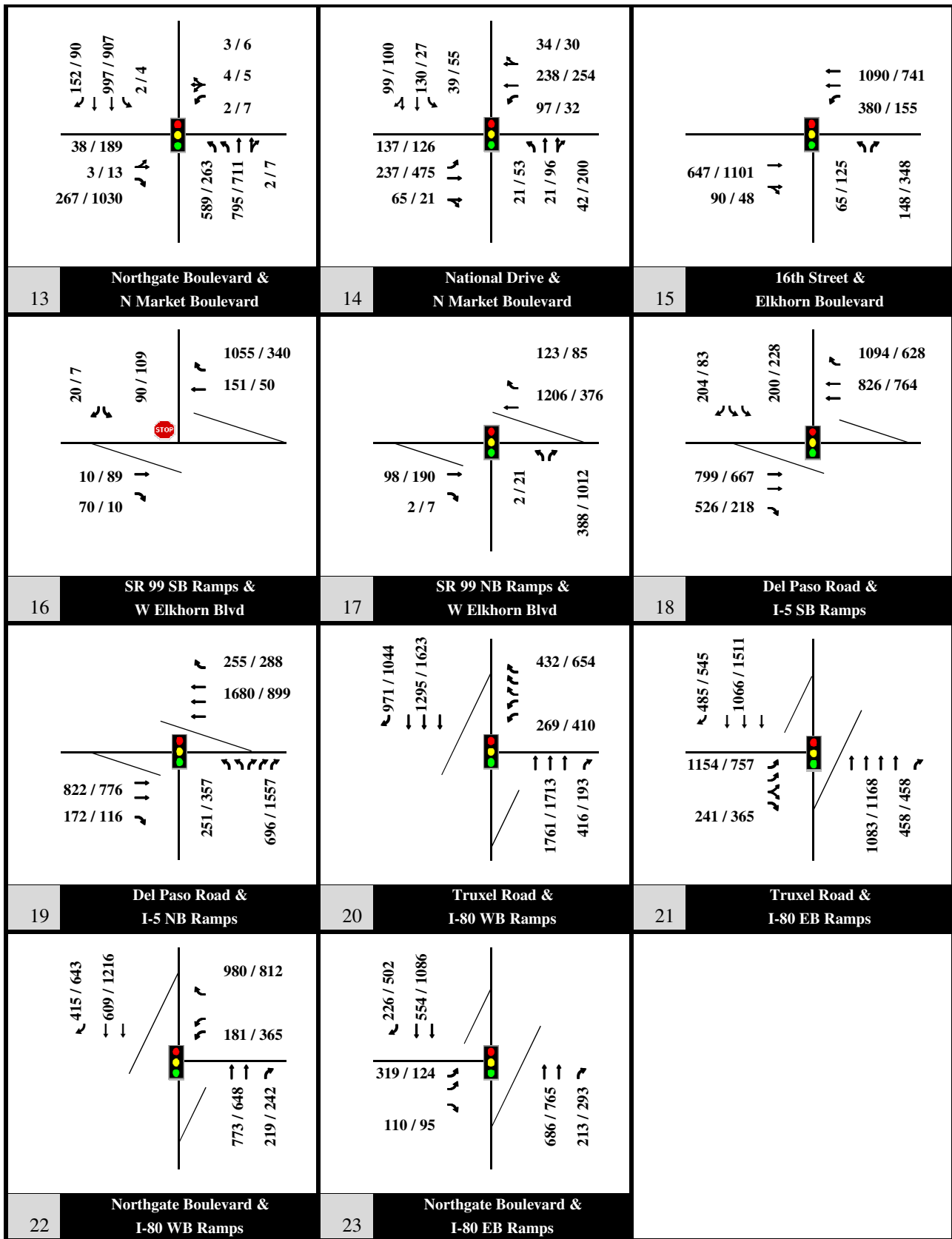
For intersections 1 through 15, peak period intersection turning movement counts were conducted for the a.m. weekday peak period (7:00 to 9:00 a.m.) and the p.m. weekday peak period (4:00 to 6:00 p.m.) on Tuesday, April 12, 2016.



KEY

- 31 / 27 = AM / PM peak hour traffic volume
- = Signalized intersection
- = Intersection approach lane
- = Stop sign control
- N St. & E St. = North-south street / east-west street

Figure 4.10-5a
Existing
Volumes and Geometry



KEY

- 31 / 27 = AM / PM peak hour traffic volume
- 🚦 = Signalized intersection
- ↔ = Intersection approach lane
- 🛑 = Stop sign control

N St. & E St. = North-south street / east-west street

Figure 4.10-5b
Existing
Volumes and Geometry

For intersections 16 through 23, peak period intersection turning movement count data was obtained from the North Natomas Freeway Monitoring Program. These counts were conducted on Tuesday March 10, 2015 or Thursday April 2, 2015.

Roadway Segments

Where available, daily (24-hour) weekday traffic counts were obtained for roadways from the Sacramento County Department of Transportation Traffic Volume Flow Map and from City of Sacramento records. Additional counts were collected at sixteen locations on Tuesday, April 12, 2016, and one location on Tuesday, January 31, 2017.

Freeway Peak Hour Volumes and Speeds

Freeway mainline volume data was taken from the Caltrans Performance Measurement System (PeMS). Since I-80 was under construction during the data collection phase of this transportation analysis, affecting both traffic volumes and travel speeds, data for I-80 was gathered for the first three weeks of May 2011, the most recent non-summer period unaffected by construction. Data for SR 99 and I-5 was gathered for the first three weeks of May 2016.

Freeway Ramp Termini Queuing

Queuing data was obtained from the North Natomas Freeway Monitoring Program. These observations were made on Tuesday March 10, 2015.

Traffic count data is included in Appendix H.

4.10.3 Regulatory Setting

Federal

No pertinent federal regulations affect the proposed project.

State

The I-5, I-80, and SR 99 freeway systems are under the jurisdiction of the California Department of Transportation (Caltrans). In the Caltrans' Corridor System Management Plans for these facilities, the 20-year concept level of service is "F", because improvements necessary to improve the LOS to E are not feasible due to environmental, right-of-way, financial, and other constraints.

Regional

SACOG is responsible for the preparation of, and updates to, the Metropolitan Transportation Plan (MTP) / Sustainable Communities Strategy (SCS) 2036 (SACOG 2016) and the corresponding Metropolitan Transportation Improvement Program (MTIP) for the six-county Sacramento region. The MTP/SCS provides a 20-year transportation vision and corresponding list of projects. The MTIP identifies short-term projects (7-year horizon) in more detail. The updated MTP/SCS 2036 was adopted by the SACOG board in February 2016.

Local

The study area roadways system is under the jurisdiction of the City of Sacramento and Sacramento County.

City of Sacramento

The Mobility Element of the *Sacramento 2035 General Plan* outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following goals and policies are relevant to this study.

Goal M 1.1 Comprehensive Transportation System. Provide a multimodal transportation system that supports the social, economic and environmental vision, goals, and objectives of the City, and is effectively planned, funded, managed, operated, and maintained.

Policy M 1.1.1 Right-of-Ways. The City shall preserve and manage rights-of-way consistent with: the circulation diagram, the City Street Design Standards, the goal to provide Complete Streets as described in Goal M 4.2, and the modal priorities for each street segment and intersection established in Policy M4.4.1: Roadway Network Development, Street Typology System.

Policy M 1.1.2 Transportation System. The City shall manage the travel system to ensure safe operating conditions.

Policy M 1.1.4 Facilities and Infrastructure. The City shall effectively operate and maintain transportation facilities and infrastructure to preserve the quality of the system.

Goal M 1.2 Multimodal System. Increase multimodal accessibility (i.e., the ability to complete desired personal or economic transactions via a range of transportation modes and routes) throughout the city and region with an emphasis on walking, bicycling, and riding transit.

Policy M 1.2.1 Multimodal Choices. The City shall develop an integrated, multimodal transportation system that improves the attractiveness of walking, bicycling, and riding

transit over time to increase travel choices and aid in achieving a more balanced transportation system and reducing air pollution and greenhouse gas emissions.

Policy M 1.2.2 Level of Service (LOS) Standard. The City shall implement a flexible context sensitive Level of Service (LOS) standard, and will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure Vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions, including AM and PM peak hour with the following exceptions described below and mapped on Figure M-1:

- A. Core Area (Central City Community Plan Area) - LOS F allowed
- B. Priority Investment Areas – LOS F allowed
- C. LOS E Roadways - LOS E is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.
 - 65th Street: Elvas Avenue to 14th Avenue
 - Arden Way: Royal Oaks Drive to I-80 Business
 - Broadway: Stockton Boulevard to 65th Street
 - College Town Drive: Hornet Drive to La Rivera Drive
 - El Camino Avenue: I-80 Business to Howe Avenue
 - Elder Creek Road: Stockton Boulevard to Florin Perkins Road
 - Elder Creek Road: South Watt Avenue to Hedge Avenue
 - Fruitridge Road: Franklin Boulevard to SR 99
 - Fruitridge Road: SR 99 to 44th Street
 - Howe Avenue: El Camino Avenue to Auburn Boulevard
 - Sutterville Road: Riverside Boulevard to Freeport Boulevard

LOS E is also allowed on all roadway segments and associated intersections located within ½ mile walking distance of light rail stations.

- D. Other LOS F Roadways - LOS F is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.

- 47th Avenue: State Route 99 to Stockton Boulevard
 - Arcade Boulevard: Marysville Boulevard to Roseville Road
 - Carlson Drive: Moddison Avenue to H Street
 - El Camino Avenue: Grove Avenue to Del Paso Boulevard
 - Elvas Avenue: J Street to Folsom Boulevard
 - Elvas Avenue/56th Street: 52nd Street to H Street
 - Florin Road: Havenside Drive to Interstate 5
 - Florin Road: Freeport Boulevard to Franklin Boulevard
 - Florin Road: Interstate 5 to Freeport Boulevard
 - Folsom Boulevard: 47th Street to 65th Street
 - Folsom Boulevard: Howe Avenue to Jackson Highway
 - Folsom Boulevard: US 50 to Howe Avenue
 - Freeport Boulevard: Sutterville Road (North) to Sutterville Road (South)
 - Freeport Boulevard: 21st Street to Sutterville Road (North)
 - Freeport Boulevard: Broadway to 21st Street
 - Garden Highway: Truxel Road to Northgate Boulevard
 - H Street: Alhambra Boulevard to 45th Street
 - H Street 45th: Street to Carlson Drive
 - Hornet Drive: US 50 Westbound On-ramp to Folsom Boulevard
 - Howe Avenue: US 50 to Fair Oaks Boulevard
 - Howe Avenue: US 50 to 14th Avenue
 - Raley Boulevard: Bell Avenue to Interstate 80
 - South Watt Avenue: US 50 to Kiefer Boulevard
 - West El Camino Avenue: Northgate Boulevard to Grove Avenue
- E. If maintaining the above LOS standards would, in the City's judgment be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation, and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project. Additionally, the City shall not expand the physical capacity of the planned roadway network to accommodate a

project beyond that identified in Figure M4 and M4a (2035 General Plan Roadway Classification and Lanes).

Policy M 1.2.3 Transportation Evaluation. The City shall evaluate discretionary projects for potential impacts to traffic operations, traffic safety, transit service, bicycle facilities, and pedestrian facilities, consistent with the City's Traffic Study Guidelines.

Policy M 1.2.4 Multimodal Access. The City shall facilitate the provision of multimodal access to activity centers such as commercial centers and corridors, employment centers, transit stops/stations, airports, schools, parks, recreation areas, medical centers, and tourist attractions.

Goal M 1.3 Barrier Removal. Improve accessibility and system connectivity by removing physical and operational barriers to safe travel.

Policy M 1.3.1 Grid Network. To promote efficient travel for all modes, the City shall require all new residential, commercial, or mixed-use development that proposes or is required to construct or extend streets to develop a transportation network that is well-connected, both internally and to off-site networks preferably with a grid or modified gridform.

The City shall require private developments to provide internal complete streets (see Goal M.4.2) that connect to the existing roadway system.

Policy M 1.3.2 Eliminate Gaps. The City shall eliminate "gaps" in roadways, bikeways, and pedestrian networks. To this end:

c. The City shall construct new bikeways and pedestrian paths in existing neighborhoods to improve connectivity.

Policy M 1.3.3 Improve Transit Access. The City shall support the Sacramento Regional Transit District (RT) in addressing identified gaps in public transit networks by working with RT to appropriately locate passenger facilities and stations, pedestrian walkways and bicycle access to transit stations and stops, and public rights of way as necessary for transit- only lanes, transit stops, and transit vehicle stations and layover.

Policy M 1.3.4 Barrier Removal for Accessibility. The City shall remove barriers, where feasible, to allow people of all abilities to move freely and efficiently throughout the city.

Policy M 1.3.6 Multi-Jurisdictional Transportation Corridors. The City shall work with adjacent jurisdictions and the Sacramento Area Council of Governments (SACOG) to identify existing and future transportation corridors that should be linked across

jurisdictional boundaries to provide desired upstream and downstream traffic operations and to preserve sufficient right-of-way.

Policy M 1.3.7 Regional Transportation Planning. The City shall continue to actively participate in Sacramento Area Council of Government's (SACOG's) regional transportation planning efforts to coordinate priorities with neighboring jurisdictions and continue to work with all local transit providers and the California Department of Transportation (Caltrans) on transportation planning, operations, and funding.

Goal M 1.4 Transportation Demand Management. Reduce reliance on the private automobile.

Policy M 1.4.1 Increase Vehicle Occupancy. The City shall work with a broad range of agencies (e.g., SACOG, SMAQMD, Sacramento RT, Caltrans) to encourage and support programs that increase regional average vehicle occupancy, including the provision of traveler information, shuttles, preferential parking for carpools/vanpools, transit pass subsidies, road and parking pricing, and other methods.

Policy M 1.4.2 Automobile Commute Trip Reduction. The City shall encourage employers to reduce the number of single-occupant vehicle commute trips to their sites by enforcing the existing trip reduction ordinance in the City Code.

Policy M 1.4.3 Transportation Management Associations. The City shall encourage commercial, retail, and residential developments to participate in or create Transportation Management Associations to reduce single-occupant vehicle trips.

Policy M 1.4.4 Off-Peak Deliveries. The City shall encourage business owners to schedule deliveries at off-peak traffic periods.

Goal M 1.5 Emerging Technologies and Services. Use emerging transportation technologies and services to increase transportation system efficiency.

Policy M 1.5.1 Facilities for Emerging Technologies. The City shall assist in the provision of support facilities such as advanced fueling stations (e.g., electric and hydrogen) for emerging technologies.

Policy M 1.5.5 Support Zero- and Low-Emission Vehicle Adoption. The City shall continue to collaborate with its State and regional partners to support rapid adoption of zero-emissions and low-emission vehicles, including standardizing infrastructure and regulations for public electric vehicle charging stations, streamlining the permit-process for private electric vehicle charging stations (including home charging stations), developing

guidelines and standards for dedicated and preferential parking for zero- and low-emissions vehicles (including charging stations for plug-in-electric vehicles, where necessary).

Policy M 1.5.7 Freeway Improvement Coordination. The City shall work with Caltrans and adjacent jurisdictions to identify funding for improvements that address cumulative effects of planned development on the freeway system.

Goal M 2.1 Integrated Pedestrian System. Design, construct, and maintain a universally accessible, safe, convenient, integrated and well-connected pedestrian system that promotes walking.

Policy M 2.1.1 Pedestrian Master Plan. The City shall maintain and implement a Pedestrian Master Plan that carries out the goals and policies of the General Plan. All new development shall be consistent with the applicable provisions of the Pedestrian Master Plan.

Policy M 2.1.2 Sidewalk Design. The City shall require that sidewalks wherever possible be developed at sufficient width to accommodate all users including persons with disabilities and complement the form and function of both the current and planned land use context of each street segment (i.e. necessary buffers, amenities, outdoor seating space).

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

Policy M 2.1.4 Cohesive and Continuous Network. The City shall develop a pedestrian network of public sidewalks, street crossings, and other pedestrian paths that makes walking a convenient and safe way to travel citywide. The network should include a dense pattern of routes in pedestrian-oriented areas such as the Central City and include wayfinding where appropriate.

Policy M 2.1.5 Housing and Destination Connections. The City shall require new subdivisions and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as transit stops and stations, schools, parks, and shopping centers.

Policy M 2.1.7 Safe Pedestrian Crossings. The City shall improve pedestrian safety at appropriate intersections and mid-block locations by providing safe pedestrian crossings.

Policy M 2.1.9 Safe Sidewalks. The City shall require pedestrian facilities to be constructed in compliance with adopted design standards.

Goal M 3.1 Safe, Comprehensive, and Integrated Transit System. Create and maintain a safe, comprehensive, and integrated transit system as an essential component of a multimodal transportation system.

Policy M 3.1.1 Transit for All. The City shall support a well-designed transit system that provides accessibility and mobility for all Sacramento residents, workers and visitors. The City shall enhance bicycle and pedestrian access to stations.

Policy M 3.1.12 New Facilities. The City shall work with transit providers and private developers to incorporate transit facilities into new private development and City project designs including incorporation of transit infrastructure (i.e., electricity, fiber-optic cable, etc.), alignments for transit route extensions, new station locations, bus stops, and transit patron waiting area amenities (i.e. benches, real-time traveler information screens).

Policy M 3.1.18 Developer Contributions. Consistent with the City's established transportation impact analysis and mitigation guidelines, the City shall require developer contributions for bus facilities and services and related improvements.

Goal M 4.1 Street and Roadway System. Create a context-sensitive street and roadway system that provides access to all users and recognizes the importance that roads and streets play as public space. As such, the City shall strive to balance the needs for personal travel, goods movement, parking, social activities, business activities, and revenue generation, when planning, operating, maintaining, and expanding the roadway network.

Policy M 4.1.1 Emergency Access. The City shall develop a roadway system that is redundant (i.e., includes multiple alternative routes) to the extent feasible to ensure mobility in the event of emergencies.

Policy M 4.1.2 Balancing Community, Social, Environmental, and Economic Goals. The City shall evaluate and strive to address community, environmental, and citywide economic development goals when adding or modifying streets, roads, bridges, and other public rights-of-way.

Policy M 4.1.6 Roundabouts. Where feasible, the City shall consider roundabouts as an intersection traffic control option with demonstrated air quality, safety, and mobility benefits.

Goal M 4.2 Complete Streets. The City shall plan, design, operate and maintain all streets and roadways to accommodate and promote safe and convenient travel for all users – pedestrians, bicyclists, transit riders, and persons of all abilities, as well as freight and motor vehicle drivers.

Policy M 4.2.1 Accommodate All Users. The City shall ensure that all new roadway projects and any reconstruction projects designate sufficient travel space for all users including bicyclists, pedestrians, transit riders, and motorists except where pedestrians and bicyclists are prohibited by law from using a given facility.

Policy M 4.2.2 Pedestrian and Bicycle-Friendly Streets. In areas with high levels of pedestrian activity (e.g., employment centers, residential areas, mixed-use areas, schools), the City shall ensure that all street projects support pedestrian and bicycle travel. Improvements may include narrow lanes, target speeds less than 35 miles per hour, sidewalk widths consistent with the Pedestrian Master Plan, street trees, high-visibility pedestrian crossings, and bikeways (e.g. Class II and Class III bike lanes, bicycle boulevards, separated bicycle lanes and/or parallel multi-use pathways).

Policy M 4.2.3 Adequate Street Tree Canopy. The City shall ensure that all new roadway projects and major reconstruction projects provide for the development of an adequate street tree canopy.

Goal M 4.3 Neighborhood Traffic. Enhance the quality of life within existing neighborhoods through the use of neighborhood traffic management and traffic calming techniques, while recognizing the City’s desire to provide a grid system that creates a high level of connectivity.

Policy M 4.3.1 Neighborhood Traffic Management. The City shall continue wherever possible to design streets and approve development applications in a manner as to reduce high traffic flows and parking problems within residential neighborhoods.

Policy M 4.3.2 Traffic Calming Measures. Consistent with the Roadway Network and Street Typology policies in this General Plan and Goal M 4.3, the City shall use traffic calming measures to reduce vehicle speeds and volumes while also encouraging walking and bicycling.

Goal M 4.4 Roadway Functional Classification and Street Typology. Maintain an interconnected system of streets that allows travel on multiple routes by multiple modes, balancing access, mobility and place making functions with sensitivity to the existing and planned land use context of each corridor and major street segment.

Policy M 4.4.1 Roadway Network Development. The City shall develop the roadway network depicted in the Circulation Diagram is shown in (General Plan) Figures M4 and

M4a. The lanes shown in these figures represent the number expected to be constructed by 2035 based on current funding projections.

Policy M 4.4.2 Transportation Performance Metrics. The City shall apply appropriate transportation performance metrics and thresholds in a manner consistent with State law and the community values expressed in the goals and policies of this general plan when measuring transportation system impacts for subsequent projects, making General Plan consistency determinations, and developing transportation financing programs.

Goal M 5.1 Integrated Bicycle System. Create and maintain a safe, comprehensive, and integrated bicycle system and set of support facilities throughout the city that encourage bicycling that is accessible to all. Provide bicycle facilities, programs and services and implement other transportation and land use policies as necessary to achieve the City's bicycle mode share goal as documented in the Bicycle Master Plan.

Policy M 5.1.1 Bicycle Master Plan. The City shall maintain and implement a Bicycle Master Plan that carries out the goals and policies of the General Plan. All new development shall be consistent with the applicable provisions of the Bicycle Master Plan.

Policy M 5.1.2 Appropriate Bikeway Facilities. The City shall provide bikeway facilities that are appropriate to the street classifications and type, number of lanes, traffic volume, and speed on all rights-of-way.

Policy M 5.1.3 Continuous Bikeway Network. The City shall provide a continuous bikeway network consisting of bike-friendly facilities connecting residential neighborhoods with key destinations and activity centers (e.g., transit facilities, shopping areas, education institutions, employment centers).

Policy M 5.1.4 Conformance to Applicable Standards. The City shall require all bikeways to conform to applicable Federal, State, and City standards while considering a full range of innovative bikeway design best practices.

Policy M 5.1.5 Motorists, Bicyclists, and Pedestrian Conflicts. The City shall develop safe and convenient bikeways, streets, roadways, and intersections that reduce conflicts between bicyclists and motor vehicles on streets, between bicyclists and pedestrians on multi-use trails and sidewalks, and between all users at intersections.

Policy M 5.1.6 Connections between New Development and Bicycle Facilities. The City shall require that new development provides connections to and does not interfere with existing and proposed bicycle facilities.

Policy M 5.1.7 Bikeway Requirements. The City shall provide bike lanes on all repaved and/or reconstructed arterial and collector streets to the maximum extent feasible. The appropriate facility type for each roadway segment shall be consistent with the Roadway Network and Street Typologies defined in this General Plan.

Policy M 5.1.8 Connections between New Development and Bikeways. The City shall ensure that new commercial and residential development projects construct bikeway facilities identified in the Bicycle Master Plan that have a direct nexus with the project.

Policy M 5.1.9 Conversion of Underused Facilities. The City shall convert underused rights-of-way, including drainage canals, freeway easements, railroad corridors, and underutilized travel and parking lanes to bikeways bicycle and/or pedestrian facilities where possible and appropriate.

Policy M 5.1.11 Bike Facilities in New Developments. The City shall require that major new development projects (e.g., employment centers, educational institutions, recreational and retail destinations, and commercial centers) provide bicycle parking (i.e., short-term bicycle parking for visitors and long-term bicycle parking for residents or employees), personal lockers, showers, and other bicycle-support facilities.

Policy M 5.1.14 Encourage Bicycle Use. The City shall encourage bicycle use in all neighborhoods, especially where short trips are most common.

Goal M 9.1 Transportation Funding. Provide sufficient funding to construct, maintain, and operate transportation facilities and services needed to achieve the City's mobility goals.

Policy M 9.1.1 New Development. The City shall require new development to contribute towards the construction of offsite facilities and provision of services to achieve the City's mobility goals.

Policy M 9.1.5 Fair Share for Transportation Infrastructure Improvements. The City shall require all new development to dedicate right-of-way, construct facilities, or pay its fair share for needed transportation infrastructure improvements that support all travel modes, including pedestrian, bicycle, and transit facilities, roadway improvements, and transportation demand management (TDM) programs and services.

Sacramento County

The Sacramento County General Plan of 2005 – 2030, Amended November 9, 2011, Circulation Element provides goals, policies, and implementation measures to provide greater mobility

through a balanced transportation system. The following policy applies to the transportation analysis of facilities in the unincorporated County:

Policy CI-9. Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.

Level of Service Analysis and Methodology

Field reconnaissance was undertaken to ascertain the traffic control characteristics of each of the study area intersections and roadway segments. Determination of roadway operating conditions is based upon comparison of known or projected traffic volumes during peak hours to roadway capacity. In an urban setting, roadway capacity is generally governed by intersection characteristics, and intersection delay is used to determine “levels of service.” Levels of service (LOS) describe roadway operating conditions. LOS is a qualitative measure of the effect of several factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, delay, and operating costs. LOS are designated A through F from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents over capacity and/or forced flow conditions.

Applicability of Level of Service Policies

As outlined above, Caltrans, the City of Sacramento, and Sacramento County have different LOS goals for facilities. In general, the most conservative (best LOS) policy has been applied in the analysis. The following summarizes the LOS goals used in this analysis:

- Intersections
 - LOS D
 - ◆ Intersections 1, 2, 5 through 8, 10, 13, and 16 through 23.
 - LOS D (with project) / LOS E (without project)
 - ◆ Intersections 3 and 9.

- LOS E
 - ◆ Intersections 4, 11, 12, 14, and 15.
- Roadway Segments
 - LOS E
 - ◆ Elkhorn Boulevard east of East Levee Road
 - LOS D
 - ◆ All other segments

Intersection Analysis

For intersections in Caltrans, City, or County jurisdiction, intersection analyses were conducted using a methodology outlined in the Transportation Research Board’s Special Report 209, Highway Capacity Manual 2010 (HCM 2010) (TRB 2010). The methodology utilized is known as “operational analysis.” This procedure calculates an average control delay per vehicle at an intersection, and assigns a level of service designation based upon the delay. Table 4.10-1 presents the level of service criteria for signalized intersections on the HCM 2010 methodology. At some signalized intersections, traffic signal characteristics cannot be adequately analyzed by the HCM 2010 methodology, due to methodological or software constraints. In these cases, the prior methodology, HCM 2000, was utilized (TRB 2000).

**Table 4.10-1
Intersection Level of Service Criteria**

Level of Service (LOS)	Total Delay Per Vehicle (seconds)	
	<i>Signalized</i>	<i>Unsignalized</i>
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80	> 50

Source: TRB 2010.

Roadway Segments

Level of service analyses were conducted for roadway segments in the study area based upon daily traffic volumes, number of traffic lanes between intersections, and roadway characteristics. The capacity class categories are based upon the nature of traffic flow along the facility, including number of interruptions due to intersection control and “side-friction” due to driveways and local streets. For each capacity class, relationships were developed between daily traffic volumes and roadway level of service.

Table 4.10-2 summarizes the maximum daily traffic volumes associated with each level of service designation and capacity class combination. Although the segment-based level of service calculations are based upon daily traffic volumes, the resultant levels of service are representative of peak hour conditions.

Freeway Analysis

Freeway mainline segments were analyzed utilizing methodologies outlined in the HCM 2010. Table 4.10-3 presents the level of service criteria for the freeway mainline segments.

Results of Existing Condition Analysis

Study area intersections and freeway facilities were evaluated for weekday AM and PM peak hours. Roadway segments were evaluated based upon daily traffic volumes.

Intersection Operations

Table 4.10-4 summarizes the existing a.m. and p.m. peak hour operating conditions at the study area intersections. At unsignalized intersections with City jurisdiction, the average intersection level of service is utilized to determine conformity with the City’s goal. Individual movements may operate at worse levels of service.

All of the study area intersections meet the level of service goals.

Roadway Segments

Table 4.10-5 summarizes the existing daily volumes and level of service on the study area roadway segments.

The following roadway segments do not meet the LOS goals:

- Elkhorn Boulevard – SR 99 to Northborough Drive

**Table 4.10-2
Level of Service Threshold for Roadway Segments**

Operational Class	Number of Lanes	ADT Level-of-Service Capacity Threshold				
		A	B	C	D	E
Arterial - Low Access Control	2	9,000	10,500	12,000	13,500	15,000
	4	18,000	21,000	24,000	27,000	30,000
	6	27,000	31,500	36,000	40,500	45,000
Arterial - Moderate Access Control	2	10,800	12,600	14,400	16,200	18,000
	4	21,600	25,200	28,800	32,400	36,000
	6	32,400	37,800	43,200	48,600	54,000
Arterial - High Access Control	2	12,000	14,000	16,000	18,000	20,000
	4	24,000	28,000	32,000	36,000	40,000
	6	36,000	43,000	48,000	54,000	60,000
Collector Street - Minor	2	5,250	6,125	7,000	7,875	8,750
Collector Street - Major	2	8,400	9,800	11,200	12,600	14,000
	4	16,800	19,600	22,400	25,200	28,000
Local Street	2	3,000	3,500	4,000	4,500	5,000
Facility Type	Stops / Mile		Driveways		Speed	
Arterial - Low Access Control	4 +		Frequent		25 – 35 mph	
Arterial - Moderate Access Control	2 – 4		Limited		35 – 45 mph	
Arterial - High Access Control	1 - 2		None		45 – 55 mph	

Source: Draft Master Environmental Impact Report for the City of Sacramento 2035 General Plan Update, August 2014.

**Table 4.10-3
Level of Service Thresholds for Freeway Operations**

Level of Service (LOS)	Maximum Density (Passenger Cars Per Mile Per Lane)
	Mainline
A	≤ 11
B	> 11 and ≤ 18
C	> 18 and ≤ 26
D	> 26 and ≤ 35
E	> 35 and ≤ 45
F	> 45

Source: TRB 2010.

**Table 4.10-4
Existing Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour		PM Peak Hour	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)
1. East Commerce Way / Elkhorn Boulevard	D	Signalized	C	23.7	A	8.8
2. Natomas Boulevard / Elkhorn Boulevard	D	Signalized	B	17.9	C	31.5
3. E. Levee Road/Elkhorn Boulevard	E	Unsignalized	A	7.3	A	1.6
Eastbound Left Turn			B	10.3	A	9.1
Southbound			F	68.3	D	26.7
4. Marysville Boulevard / Elkhorn Boulevard	E	Signalized	C	33.1	D	37.3
5. Northborough Drive / Elkhorn Boulevard	D	Signalized	B	19.2	B	18.6
6. Natomas Boulevard/Club Center Drive	D	Signalized	C	33.3	D	40.5
7. Natomas Boulevard / Truxel Road / Del Paso Road	D	Signalized	D	42.0	D	48.6
8. Gateway Park Boulevard / Del Paso Road	D	Signalized	D	38.0	D	39.0
9. National Drive / Del Paso Road	E	Signalized	C	33.7	B	13.8
10. Sorento Road / Del Paso Road	D	Unsignalized	A	0.4	A	0.3
Northbound			B	11.3	B	12.0
Southbound			E	36.3	C	20.8
Eastbound Left Turn			A	9.9	A	9.7
Westbound Left Turn			A	9.6	B	10.2
11. Kenmar Road / Del Paso Road	E	Unsignalized	A	2.9	A	1.9
Northbound			D	27.8	C	18.3
Southbound			F	79.1	F	59.3
Eastbound Left Turn			B	10.2	A	9.9
Westbound Left Turn			A	9.9	B	10.1
12. Northgate Boulevard / Del Paso Road	E	Signalized	C	24.0	C	20.1
13. Northgate Boulevard / North Market Boulevard	D	Signalized	B	14.9	C	21.1
14. National Drive / North Market Boulevard	E	Signalized	C	26.0	C	24.0

**Table 4.10-4
Existing Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour		PM Peak Hour	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)
15. 16th Street / Elkhorn Boulevard	E	Signalized	C	30.7	C	27.7
16. Elkhorn Boulevard / SR 99 Southbound Ramps	D	Unsignalized	A	4.0	A	4.4
Southbound Left Turn			A	9.9	A	9.8
Southbound Right Turn			A	9.1	A	8.6
17. Elkhorn Boulevard / SR 99 Northbound Ramps	D	Signalized	B	16.5	A	4.6
18. Del Paso Road / I-5 Southbound Ramps	D	Signalized	A	4.2	A	4.4
19. Del Paso Road / I-5 Northbound Ramps	D	Signalized	B	14.0	C	21.7
20. Truxel Road / I-80 Westbound Ramps	D	Signalized	A	8.0	B	10.1
21. Truxel Road / I-80 Eastbound Ramps	D	Signalized	B	12.7	B	10.9
22. Northgate Boulevard / I-80 Westbound Ramps	D	Signalized	A	5.8	A	8.6
23. Northgate Boulevard / I-80 Eastbound Ramps	D	Signalized	A	7.4	A	4.5

Source: See Appendix H.

- Elkhorn Boulevard – Natomas Boulevard to East Levee Road
- Regency Park Circle – North of Club Center Drive
- Danbrook Drive – South of Club Center Drive

Freeway Operations

Table 4.10-6 summarizes the existing peak hour freeway mainline levels of service.

**Table 4.10-5
Existing Roadway Segment Conditions**

Roadway	Segment	Operational Class	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Elkhorn Boulevard	SR 99 to East Commerce Way	Arterial – Moderate Access Control	2	18,700	1.04	F
	East Commerce Way to Northborough Drive		2	17,300	0.96	E
	Northborough Drive to Natomas Boulevard		2	16,200	0.90	D
	Natomas Boulevard to Sageview Drive		2	19,000	1.06	F
	Sageview Drive to E. Levee Road		2	17,100	0.95	E
	E. Levee Road to Marysville Boulevard		2	17,500	0.97	E
Natomas Boulevard	North Bend Drive to Club Center Drive		4	26,700	0.74	C
	Club Center Drive to Elkhorn Boulevard		4	13,000	0.36	A
Del Paso Road	Truxel Road to Gateway Park Boulevard		6	21,300	0.39	A
	Gateway Park Boulevard to Black Rock Drive		6	22,400	0.41	A
	Black Rock Drive to National Drive	4	20,800	0.58	A	
	National Drive to Northgate Boulevard	4	20,700	0.58	A	

**Table 4.10-5
Existing Roadway Segment Conditions**

Roadway	Segment	Operational Class	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Northgate Boulevard	Del Paso Road to North Market Boulevard	Arterial – Moderate Access Control	4	23,500	0.65	B
	North Market Boulevard to I-80		6	36,000	0.67	B
Main Avenue	Northgate Boulevard to Norwood Avenue		4	19,700	0.55	A
Sageview Drive	Elkhorn Boulevard to Bridgecross Drive	Local Street	2	3,700	0.74	C
Bridgecross Drive	East of Honor Parkway	Minor Collector	2	2,800	0.32	A
Regency Park Circle	North of Club Center Drive	Local Street	2	5,300	1.06	F
Danbrook Drive	South of Club Center Drive		2	5,100	1.02	F
Sorento Road	North of Del Paso Road		2	340	0.07	A
Club Center Drive	Danbrook Drive to Danbrook Drive	Minor Collector	2	3,200	0.37	A

Source: See Appendix H.

**Table 4.10-6
Existing Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Volume	Density ¹	LOS
<i>AM Peak Hour</i>						
Eastbound I-80	I-5 to Truxel Road	3	1	5,262	20.8	C
	Truxel Road to Northgate Boulevard	3	1	4,810	18.8	C
	Northgate Boulevard to Norwood Avenue	3	0	4,820	28.0	D

**Table 4.10-6
Existing Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Volume	Density¹	LOS
Westbound I-80	I-5 to Truxel Road	3	1	5,480	21.7	C
	Truxel Road to Northgate Boulevard	3	1	5,062	19.9	C
	Northgate Boulevard to Norwood Avenue	3	0	5,539	35.1	E
Northbound I-5	Arena Boulevard to Del Paso Road	3	1	4,898	21.4	C
	Del Paso Road to SR 99	3	0	4,378	25.6	C
Southbound I-5	Arena Boulevard to Del Paso Road	3	1	5,212	25.9	C
	Del Paso Road to SR 99	4	0	4,001	17.0	B
Northbound SR 99	I-5 to Elkhorn Boulevard	2	0	1,169	9.3	A
	Elkhorn Boulevard to Elverta Road	2	0	904	7.2	A
Southbound SR 99	I-5 to Elkhorn Boulevard	2	0	3,305	29.0	D
	Elkhorn Boulevard to Elverta Road	2	0	2,266	18.8	C
<i>PM Peak Hour</i>						
Eastbound I-80	I-5 to Truxel Road	3	1	5,407	21.4	C
	Truxel Road to Northgate Boulevard	3	1	5,288	59.6	F
	Northgate Boulevard to Norwood Avenue	3	0	5,864	35.8	D
Westbound I-80	I-5 to Truxel Road	3	1	4,517	17.7	B
	Truxel Road to Northgate Boulevard	3	1	4,516	17.7	B
	Northgate Boulevard to Norwood Avenue	3	0	4,466	24.5	C
Northbound I-5	Arena Boulevard to Del Paso Road	3	1	6,286	27.4	D
	Del Paso Road to SR 99	3	0	4,776	30.9	D

**Table 4.10-6
Existing Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Volume	Density ¹	LOS
Southbound I-5	Arena Boulevard to Del Paso Road	3	1	4,197	17.9	B
	Del Paso Road to SR 99	4	0	3,662	18.0	B
Northbound SR 99	I-5 to Elkhorn Boulevard	2	0	3,128	40.5	E
	Elkhorn Boulevard to Elverta Road	2	0	2,187	20.7	C
Southbound SR 99	I-5 to Elkhorn Boulevard	2	0	1,530	12.2	B
	Elkhorn Boulevard to Elverta Road	2	0	1,457	11.6	B

Note:

¹ Density (passenger car equivalents per lane-mile) from PeMS data or calculation (if higher). Peak hour density may occur at a later time than peak hour volume.

Source: See Appendix H.

The study area freeway mainline segments operate at LOS E or better except for Eastbound I-80 from Truxel Road to Northgate Boulevard during the p.m. peak hour. This segment operated at LOS F due to the auxiliary lane drop at Northgate Boulevard, as well as the slight mainline uphill grade and the short distance and short acceleration lanes between consecutive on-ramps. This analysis is based upon the pre-reconstruction conditions of I-80.

Table 4.10-7 summarizes the existing peak hour freeway ramp queuing. At the current time, the maximum observed queues do not exceed the available storage.

**Table 4.10-7
Existing Peak Hour Freeway Ramp Termini Queuing**

Direction	Location	Available Storage Length (feet/lane)	Maximum Queue Length (feet/lane)	
			AM Peak Hour	PM Peak Hour
I-80 Eastbound	Truxel Road	810	254	217
	Northgate Boulevard	700	221	362
I-80 Westbound	Truxel Road	1,075	137	169
	Northgate Boulevard	680	64	217

**Table 4.10-7
Existing Peak Hour Freeway Ramp Termini Queuing**

Direction	Location	Available Storage Length (feet/lane)	Maximum Queue Length (feet/lane)	
			AM Peak Hour	PM Peak Hour
I-5 Northbound	Del Paso Road	690	232	264
I-5 Southbound	Del Paso Road	595	108	197
SR 99 Northbound	Elkhorn Boulevard	915	75	520
SR 99 Southbound	Elkhorn Boulevard	900	73	87

Source: See Appendix H.

4.10.4 Impacts and Mitigation Measures

Methods of Analysis

This section describes the analysis techniques, assumptions, and results used to identify potential impacts of the proposed project on the transportation and circulation system. This section describes the anticipated travel characteristics of the proposed project, and presents the change in the transportation system with the addition of the proposed project.

Project Description

Figure 4.10-6 illustrates the project roadway system. All of the roadways on the project site are assumed to be two-lane streets with varying cross-sections dependent upon their designations. The following are selected elements of the street system:

- National Drive extends north from Del Paso Road, curving easterly to a terminus at a roundabout.
- Club Center Drive extends east from North Natomas, then curves to the south to Del Paso Road.
- Street “G” extends northerly from Club Center Drive to Elkhorn Boulevard.
- Additional connections to North Natomas via street extensions at Mayfield Street, Aimwell Avenue, Cadman Court (neighborhood access), Faletto Avenue, Domino Avenue, and Sandmark Drive. No connection is assumed at Amazon Avenue.
- Connections to Sorento Road via Street “F” and Barros Drive. No additional access is assumed to the project from Sorento Road.

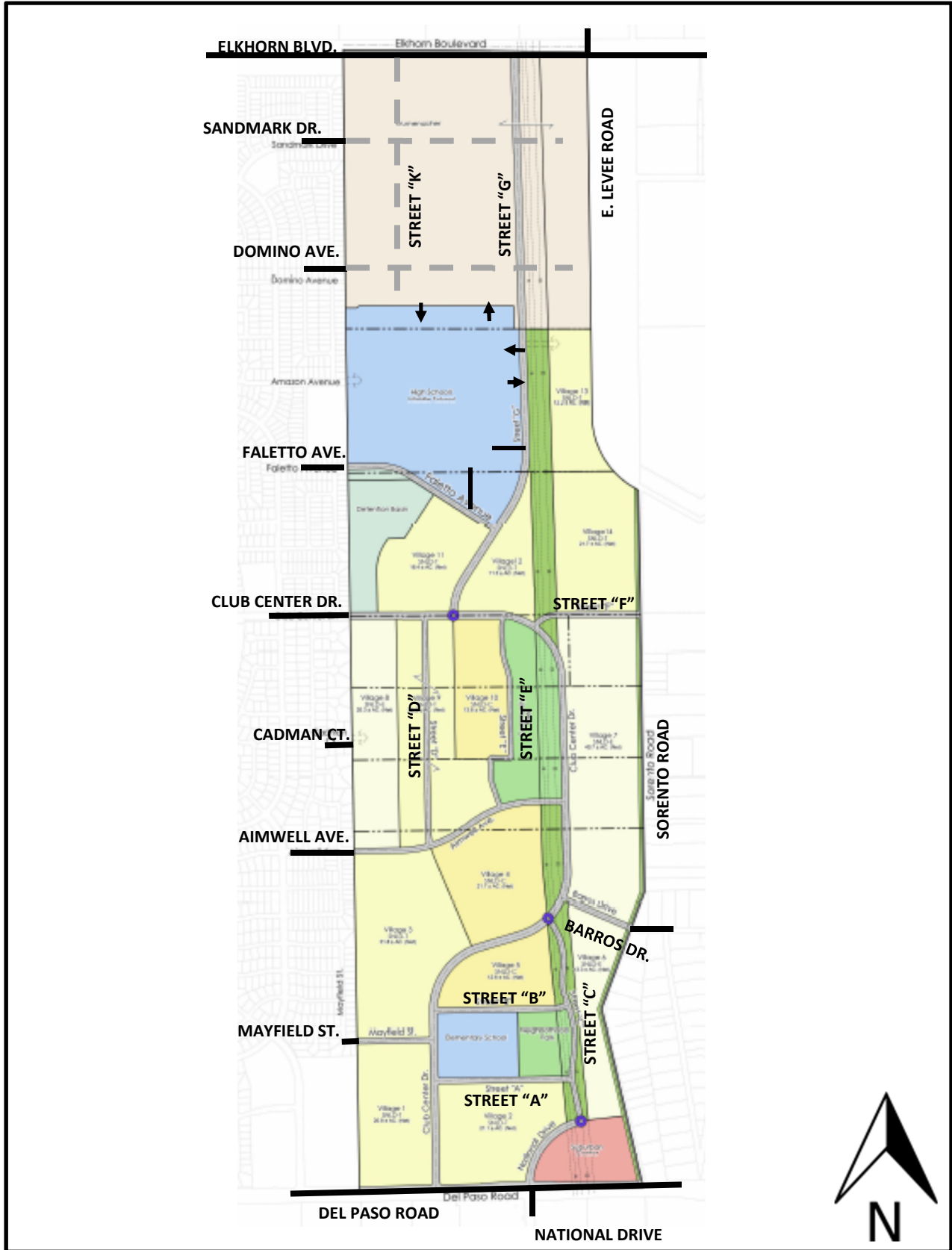


Figure 4.10-6
Site Circulation Plan



- As the proposed plan does not show circulation elements for the Krumenacher Property north the of the High School / Middle School site, a conceptual circulation plan was assumed, including a second connection to Elkhorn Boulevard (Street "K"). The plan also assumes the extension of Sandmark Drive and Domino Avenue to Street "G".

Table 4.10-8 summarizes the proposed development assumed for transportation analysis. Note that to provide a conservative analysis, the number of dwelling units was increased by 10 percent for Villages 1 through 14.

**Table 4.10-8
Summary of Project Travel Modeling Land Use Assumptions**

Land Use	Dwelling Units (Actual)	Dwelling Units (+10%)	Square Feet	Students
Elementary School				500
Middle School / High School				2,800
Suburban Center			101,277	
Village 1	124	136		
Village 2	126	138		
Village 3	190	209		
Village 4	162	178		
Village 5	94	103		
Village 6	59	64		
Village 7	183	201		
Village 8	91	100		
Village 9	157	172		
Village 10	102	112		
Village 11	98	107		
Village 12	67	73		
Village 13	73	80		
Village 14	130	143		
<i>Subtotal</i>	<i>1,656</i>	<i>1,816</i>	<i>101,277</i>	<i>3,300</i>
Krumenacher Property west of National Drive	652	652		
Krumenacher Property east of powerlines	192	192		
Total	2,500	2,660	101,277	3,300

Figure 4.10-7 presents the proposed bikeway plan of the project. The plan includes the following elements:

- A continuous Class I bikeway along the powerline from Del Paso Road to Elkhorn Boulevard.



Figure 4.10-7
Site Bikeway Plan

- On-street bikeways (Class II) along Elkhorn Boulevard, Del Paso Road, National Drive, Club Center Drive, and Street “A”, Street “B”, and Street “G”.
- Class III bikeways on the other streets.

Figure 4.10-8 illustrates the connections of the proposed project bikeway system to the regional (City and County) bikeway system.

Figure 4.10-9 illustrates the Natomas Education Complex Plan. Partial construction of the campus was completed before the recession. Completion of the project is assumed as part of the project. The Panhandle Annexation project assumes the extension of Faletto Avenue to Street “G” across the edge of the school property. This extension was not part of the original school plan.

The following are the key transportation elements of the school plan:

- Vehicular access to Street “G” at three locations:
 - A signalized main entry.
 - Two intersections serving a one-way roadway system serving East Lot.
- South lot access via Faletto Drive.
- A major pedestrian access point to the school is assumed along Street “G” in the center of the East Lot.
- Access to North Lot via the Krumenacher Property.
- No connection is assumed at Amazon Avenue.

Trip Generation

The project trip generation was estimated directly by SACOG’s SACSIM travel model. The trip generation is based directly on household travel information collected in the Sacramento region, and reflects the location, mode choice, and demographics associated with the area. For the new development in the Panhandle Annexation area, land use characteristics are assumed to be similar to nearby existing development, such as the area of North Natomas immediately to the west of the project site.

Tables 4.10-9 through 4.10-11 summarize mode choice for the person trips generated by the residential, school, and commercial elements of the project for the daily, a.m. peak hour, and p.m. peak hour.

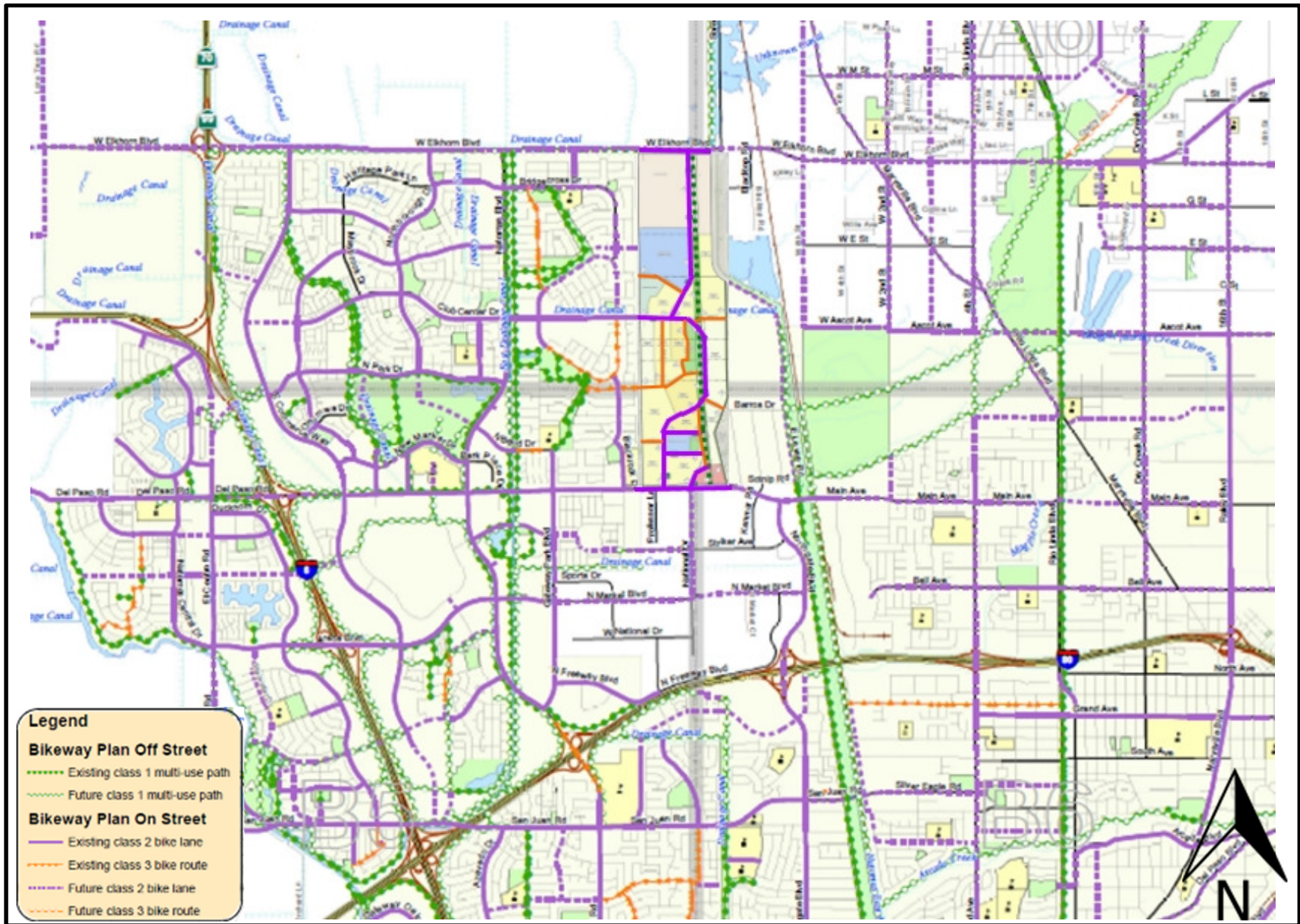


Figure 4.10-8
Regional Bikeways



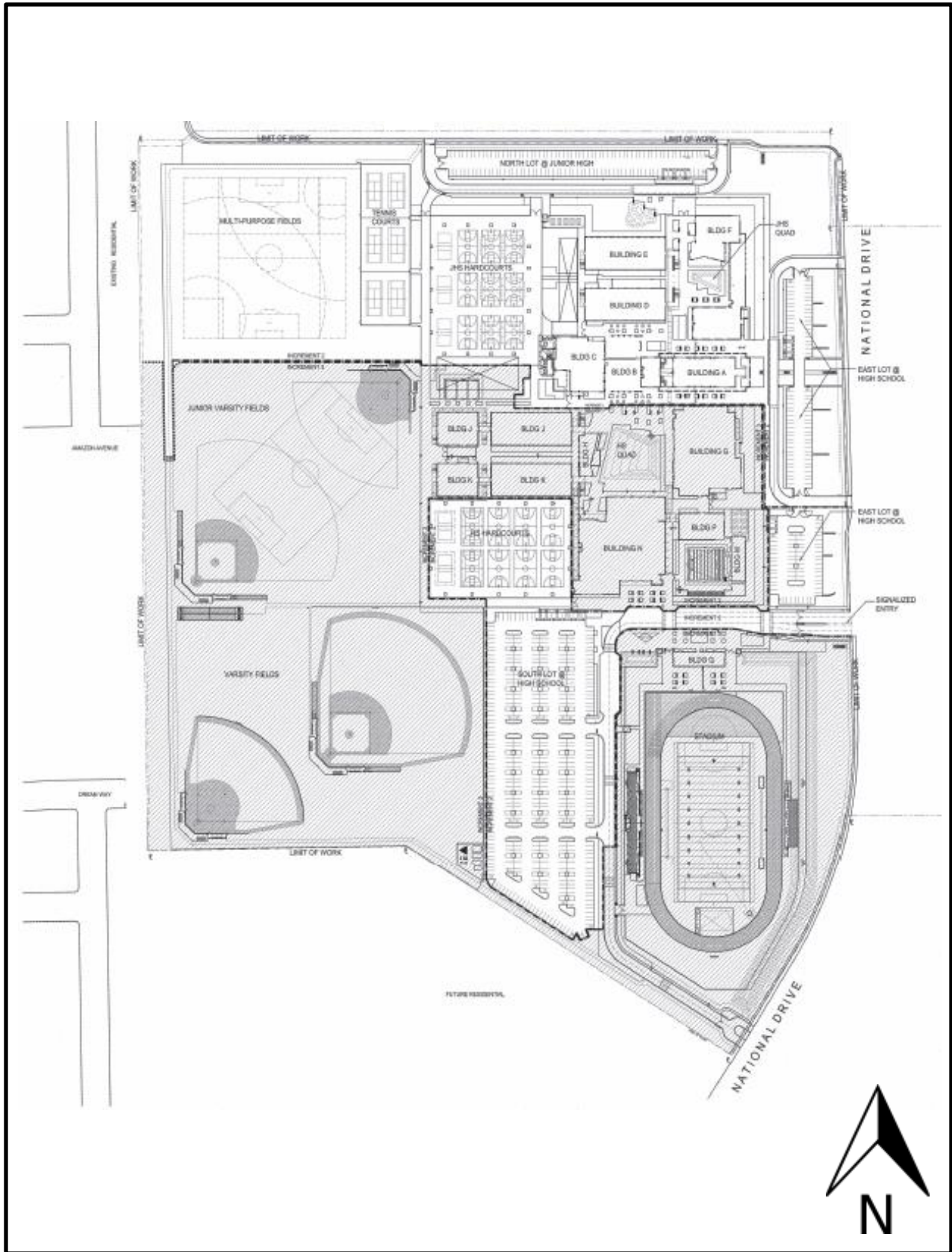


Figure 4.10-9
East Natomas Education Complex Site Plan



**Table 4.10-9
Percentage of Person Trips by Mode – Residential Development**

Mode	Daily	A.M. Peak Hour	P.M. Peak Hour
Automobile – Single Occupant	43.7%	46.3%	46.0%
Automobile – Two Occupants	27.6%	22.5%	27.1%
Automobile – Three or More Occupants	19.7%	17.3%	19.4%
Transit	0.3%	0.5%	0.3%
Bicycle	0.9%	1.2%	1.1%
Walk	6.3%	9.3%	5.0%
School Bus	1.4%	2.9%	1.1%

Source: See Appendix H.

**Table 4.10-10
Percentage of Person Trips by Mode – Schools**

Mode	Daily	A.M. Peak Hour	P.M. Peak Hour
Automobile – Single Occupant	16.9%	11.2%	18.3%
Automobile – Two Occupants	29.9%	27.1%	33.8%
Automobile – Three or More Occupants	31.4%	32.5%	30.5%
Transit	0.4%	0.4%	0.2%
Bicycle	1.7%	2.2%	1.3%
Walk	10.8%	14.1%	8.3%
School Bus	8.9%	12.4%	7.5%

Source: See Appendix H.

**Table 4.10-11
Percentage of Person Trips by Mode – Commercial Development**

Mode	Daily	A.M. Peak Hour	P.M. Peak Hour
Automobile – Single Occupant	55.2%	64.1%	57.1%
Automobile – Two Occupants	24.3%	20.6%	21.8%
Automobile – Three or More Occupants	12.5%	9.1%	12.5%
Transit	0.3%	0.4%	0.3%
Bicycle	0.7%	0.6%	0.6%
Walk	6.9%	5.2%	7.7%
School Bus	0.0%	0.0%	0.0%

Source: See Appendix H.

Table 4.10-12 summarizes vehicular trip generation of the project. The project is expected to generate 27,627 vehicle trips daily. Of these trips, 1,907 are anticipated to remain internal to the project. 25,720 external vehicle trips are anticipated daily.

**Table 4.10-12
Vehicular Trip Generation**

Land Use	Vehicle Trip-Ends						
	Daily	A.M. Peak Hour			P.M. Peak Hour		
		Entering	Exiting	Total	Entering	Exiting	Total
Total Trip-Ends							
Residential Development	16,855	232	950	1,182	849	401	1,251
Schools	6,373	407	142	549	167	334	501
Commercial Development	4,399	185	90	275	129	199	328
<i>Total</i>	27,627	824	1,182	2,006	1,145	934	2,080
Internal Trip-Ends							
Residential Development	-978	-17	-67	-84	-18	-11	-29
Schools	-615	-43	-15	-57	-6	-9	-15
Commercial Development	-314	-24	-3	-27	-4	-8	-12
<i>Total</i>	-1,907	-84	-85	-168	-28	-28	-56
External Trip-Ends							
Residential Development	15,877	215	883	1,098	831	390	1,222
Schools	5,758	364	127	492	161	325	486
Commercial Development	4,085	161	87	248	125	191	316
<i>Total</i>	25,720	740	1,097	1,838	1,117	906	2,024

Source: See Appendix H.

During the a.m. peak hour, the project is expected to generate 2,006 vehicle trips. Of these trips, 168 are anticipated to remain internal to the project. 1,838 external vehicle trips are anticipated during the a.m. peak hour.

During the p.m. peak hour, the project is expected to generate 2,080 vehicle trips. Of these trips, 56 are anticipated to remain internal to the project. 2,024 external vehicle trips are anticipated during the p.m. peak hour.

Table 4.10-13 summarizes vehicular trip generation of the project by residential village / development component.

**Table 4.10-13
Vehicular Trip Generation by Residential Village / Development Component**

Land Use	Total Vehicle Trip-Ends						
	Daily	A.M. Peak Hour			P.M. Peak Hour		
		Entering	Exiting	Total	Entering	Exiting	Total
Village 1	858	12	48	60	58	6	64
Village 2	871	12	49	61	59	6	65
Village 3	1,319	18	74	92	89	9	98
Village 4	1,124	15	63	78	75	8	83
Village 5	650	9	36	45	44	4	48
Village 6	404	6	23	28	27	3	30
Village 7	1,269	17	71	89	85	9	94
Village 8	631	9	35	44	42	4	47
Village 9	1,086	15	61	76	73	7	81
Village 10	707	10	40	49	47	5	52
Village 11	675	9	38	47	45	5	50
Village 12	461	6	26	32	31	3	34
Village 13	505	7	28	35	34	3	37
Village 14	903	12	51	63	61	6	67
Krumenacher Property 1 (West of National Drive)	4,202	58	237	295	61	249	310
Krumenacher Property 3 (East of Powerlines)	1,190	17	70	87	18	73	91
<i>Residential Development</i>	<i>16,855</i>	<i>232</i>	<i>950</i>	<i>1,182</i>	<i>849</i>	<i>401</i>	<i>1,251</i>
Elementary School	1,263	84	24	109	32	69	101
Middle School / High School	5,110	322	118	440	135	265	401
<i>Schools</i>	<i>6,373</i>	<i>407</i>	<i>142</i>	<i>549</i>	<i>167</i>	<i>334</i>	<i>501</i>
<i>Commercial Development</i>	<i>4,399</i>	<i>185</i>	<i>90</i>	<i>275</i>	<i>129</i>	<i>199</i>	<i>328</i>
Total	27,627	824	1,182	2,006	1,145	934	2,080

Source: See Appendix H.

Trip Distribution

Figure 4.10-10 illustrates project daily trip distribution, as predicted by the travel model.

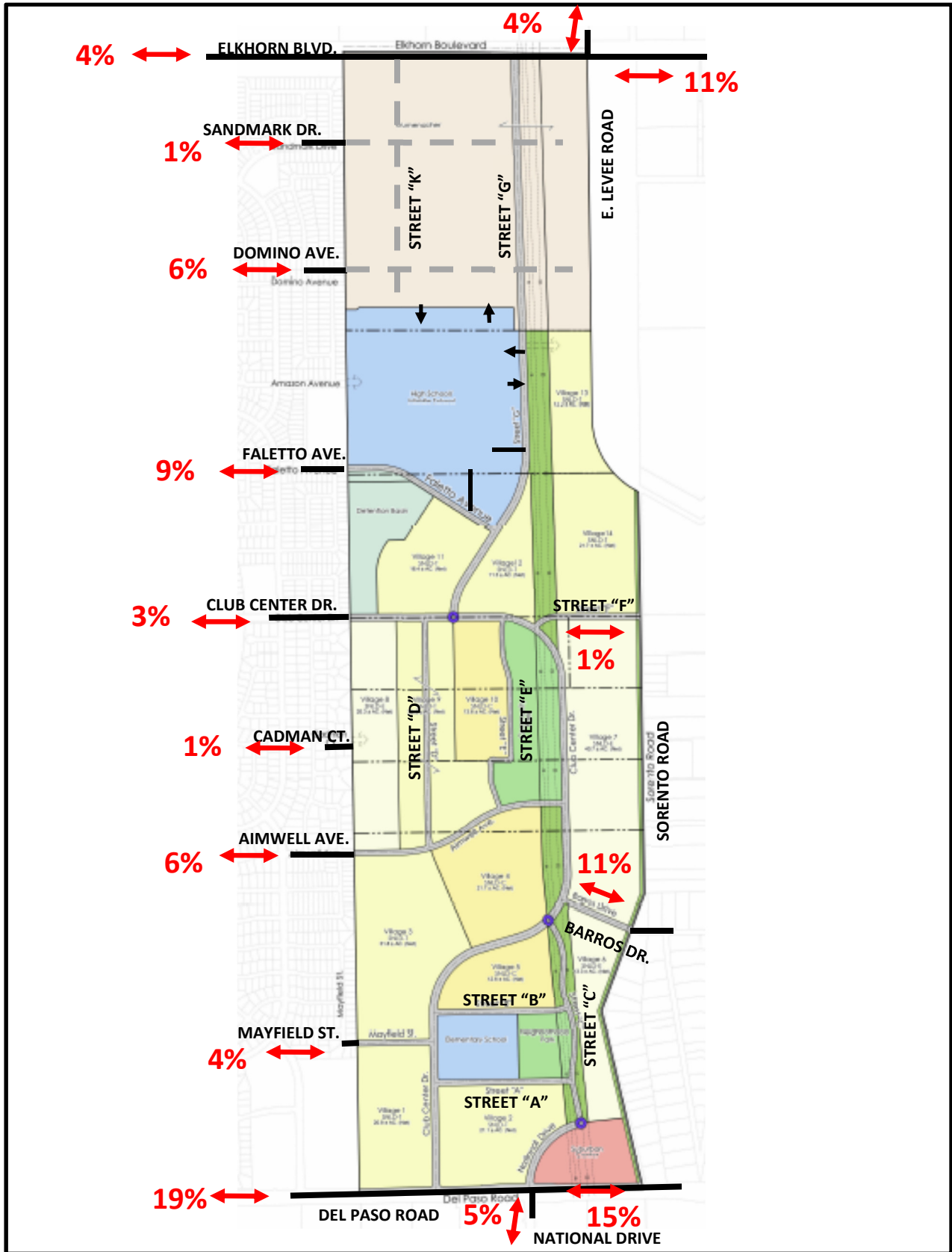


Figure 4.10-10
Daily Trip Distribution, Existing Plus Project



Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, thresholds of significance adopted by the governing jurisdictions in applicable general plans and previous environmental documents, and professional judgement, a significant impact would occur if the proposed project would:

Intersections – City of Sacramento

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the average vehicle delay by 5 seconds or more.

Note; General Plan Mobility Element Policy M 1.2.2 sets forth definitions for what is considered an acceptable LOS. As previously discussed, Policy M 1.2.2 applies to the study area roadway facilities as follows:

- LOS A-D is to be maintained at all times; provided, LOS E or F may be acceptable if improvements are made to the overall transportation system and/or non-vehicular transportation and transit are promoted as part of the project or a City-initiated project.

Intersections –Sacramento County

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the average vehicle delay by more than 5 seconds.

As all of the study area intersections within County jurisdiction are located with the Urban Service Boundary, LOS E applies.

Roadway Segments – City of Sacramento

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the volume-to-capacity ratio by 0.02 or more.

Note; General Plan Mobility Element Policy M 1.2.2 sets forth definitions for what is considered an acceptable LOS. As previously discussed, Policy M 1.2.2 applies to the study area roadway facilities as follows:

- LOS A-D is to be maintained during peak periods; provided, LOS E or F may be acceptable if improvements are made to the overall transportation system and/or non-vehicular transportation and transit are promoted as part of the project or a City-initiated project.

Roadway Segments –Sacramento County

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the volume-to-capacity ratio by more than 0.05.

As all of the study area roadway segments within County jurisdiction are located with the Urban Service Boundary, LOS E applies.

Transit

- Adversely affect public transit operations,
- Fail to adequately provide access to transit.

Bicycle Facilities

- Adversely affect existing or planned bicycle facilities,
- Fail to adequately provide for access by bicycle.

Pedestrian Circulation

- Adversely affect existing or planned pedestrian facilities,
- Fail to adequately provide for access by pedestrians.

Construction-Related Traffic Impacts

- Degrade an intersection or roadway to an unacceptable level,
- Cause inconveniences to motorists due to prolonged road closures, or
- Result in increased frequency of potential conflicts between vehicles, pedestrians, and bicyclists.

Freeway Facilities

Caltrans considers the following to be significant impacts:

- Off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway.
- Project traffic increases that cause any ramp's merge/diverge level of service to be worse than the freeway's level of service.
- Project traffic increases that cause the freeway level of service to deteriorate beyond level of service threshold defined in the Caltrans Route Concept Report for the facility.
- The expected ramp queue is greater than the storage capacity.

Existing Plus Project Traffic Conditions

Existing plus project conditions assume full completion of the project's on-site transportation network. Regarding Elkhorn Boulevard, along the project frontage, it is assumed that the project will construct the roadway to its ultimate cross-section from the centerline south. Regarding Del Paso Road, it is assumed that the roadway will be widened to a six-lane cross-section from Black Rock Drive to east of Sorento Road.

Intersections

Figure 4.10-11 illustrates the study area intersections.

Figure 4.10-12 illustrates AM peak hour and PM peak hour traffic volumes associated with the existing plus project scenario. The figure also illustrates the intersection geometry of the Existing Plus Project scenario. No changes to off-site intersections have been assumed, except for the intersections along Elkhorn Boulevard, Del Paso Road, and Sorento Road abutting the site.

Table 4.10-14 summarizes the results of the existing plus project peak hour intersection analysis.

Roadway Segments

Table 4.10-15 summarizes the results of the existing plus project roadway segment analysis.

Freeway Operations

Table 4.10-16 summarizes the existing plus project peak hour freeway mainline levels of service.

Table 4.10-17 summarizes the existing plus project peak hour freeway ramp queuing.

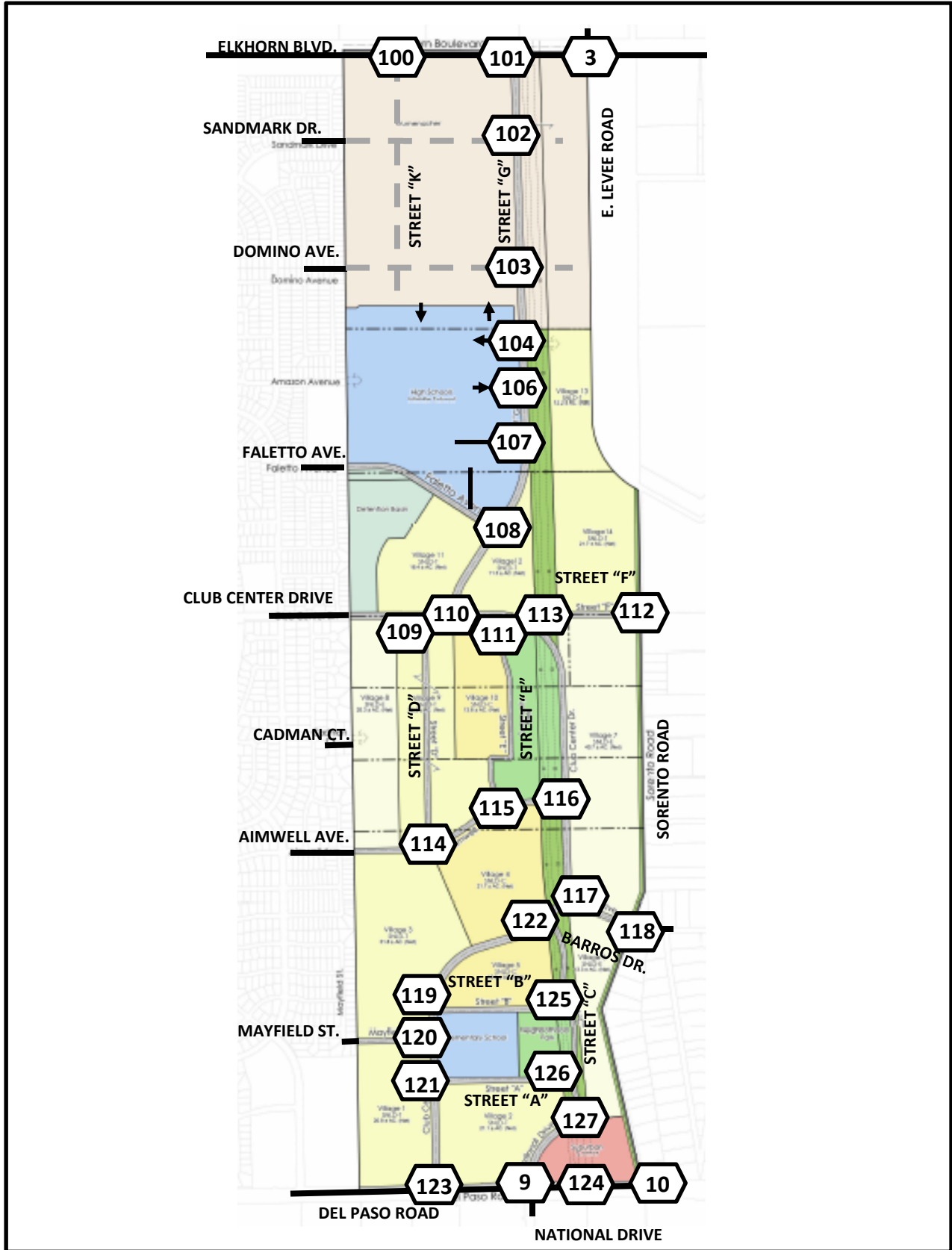
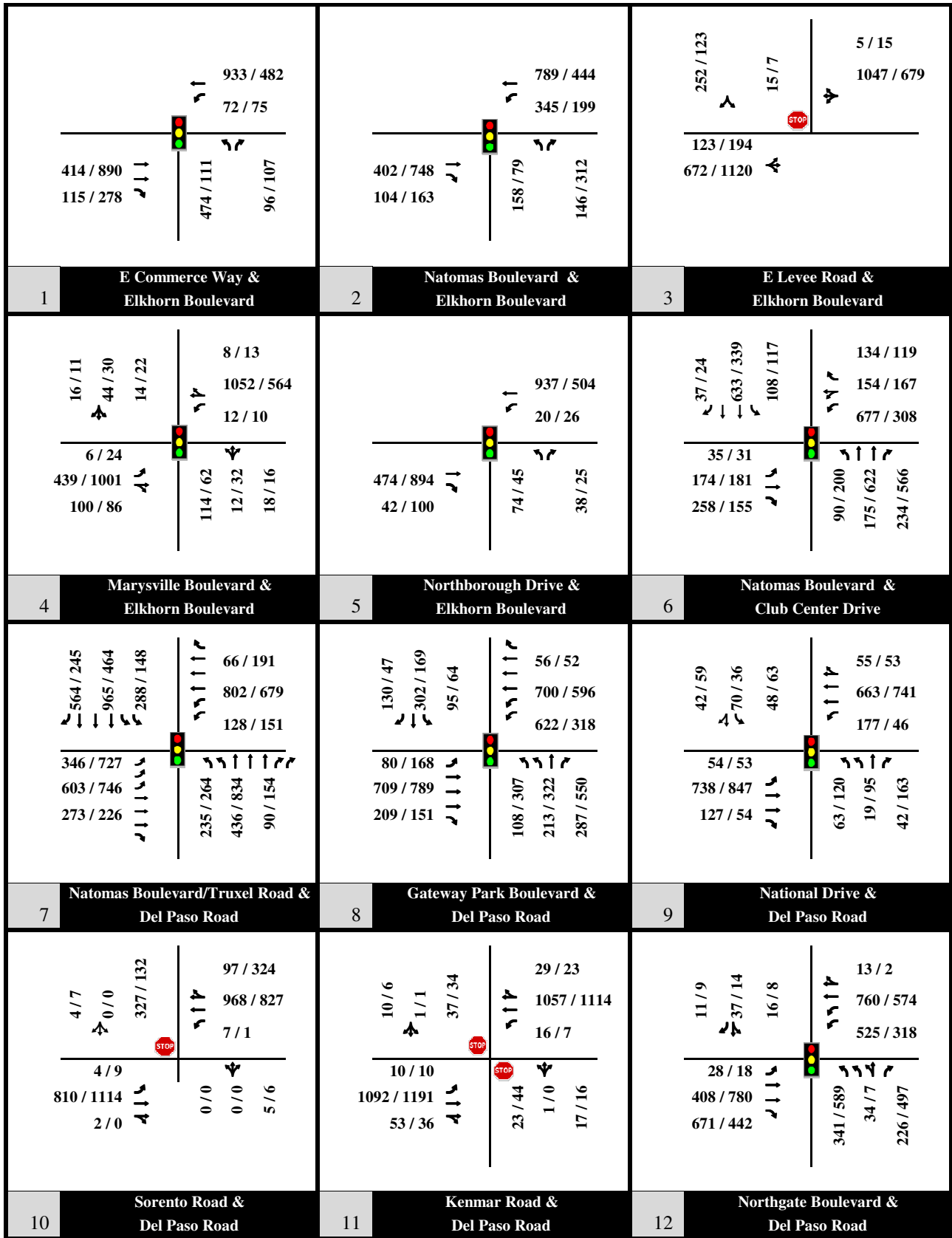


Figure 4.10-11
Site Study Area

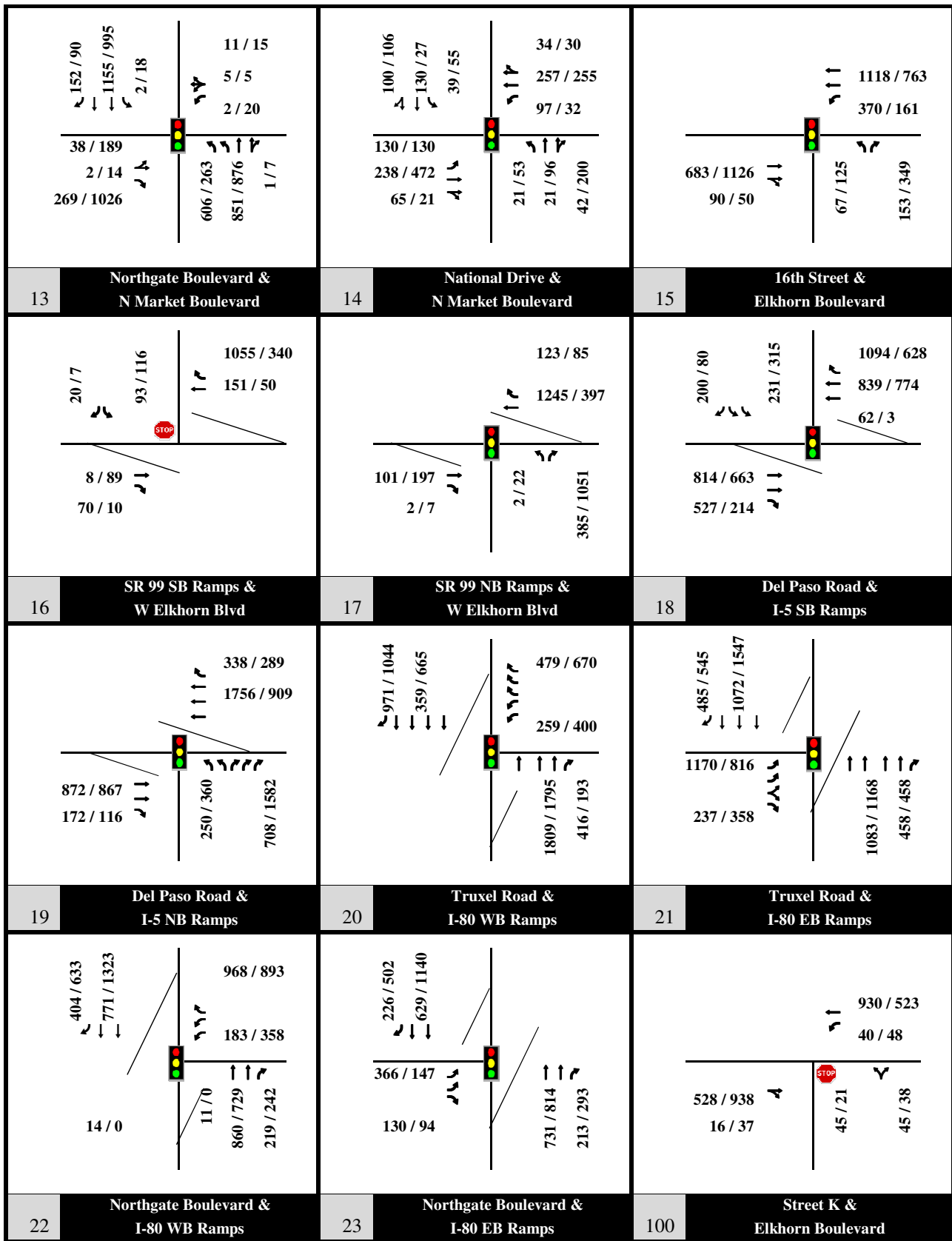




KEY

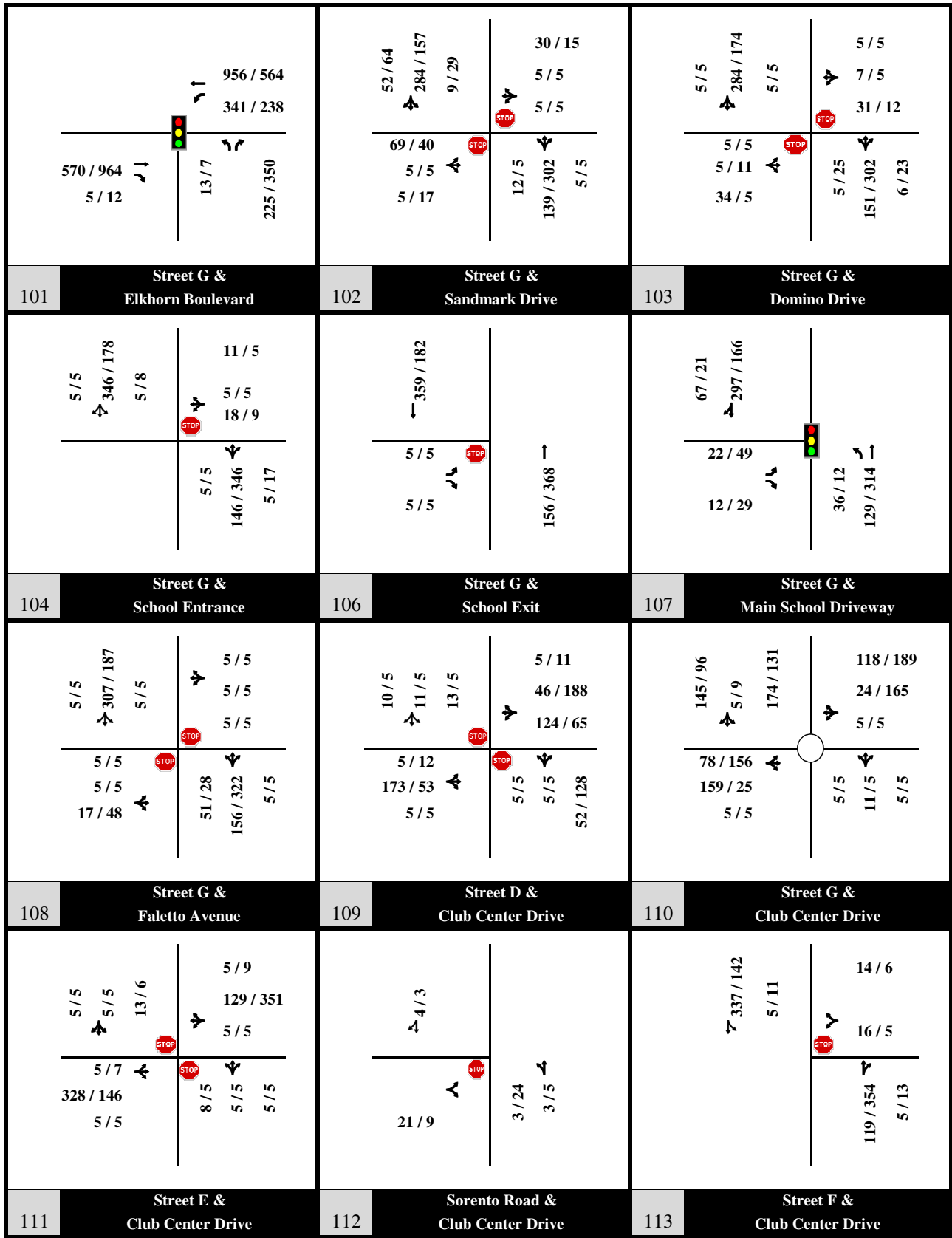
- 31 / 27 = AM / PM peak hour traffic volume
- ⬤ = Signalized intersection
- ↔ = Intersection approach lane
- ⊥ = Stop sign control
- N St. & E St. = North-south street / east-west street

Figure 4.10-12a
Existing Plus Project
Volumes and Geometry



KEY
 31 / 27 = AM / PM peak hour traffic volume
 = Signalized intersection
 = Intersection approach lane
 = Stop sign control
 N St. & E St. = North-south street / east-west street

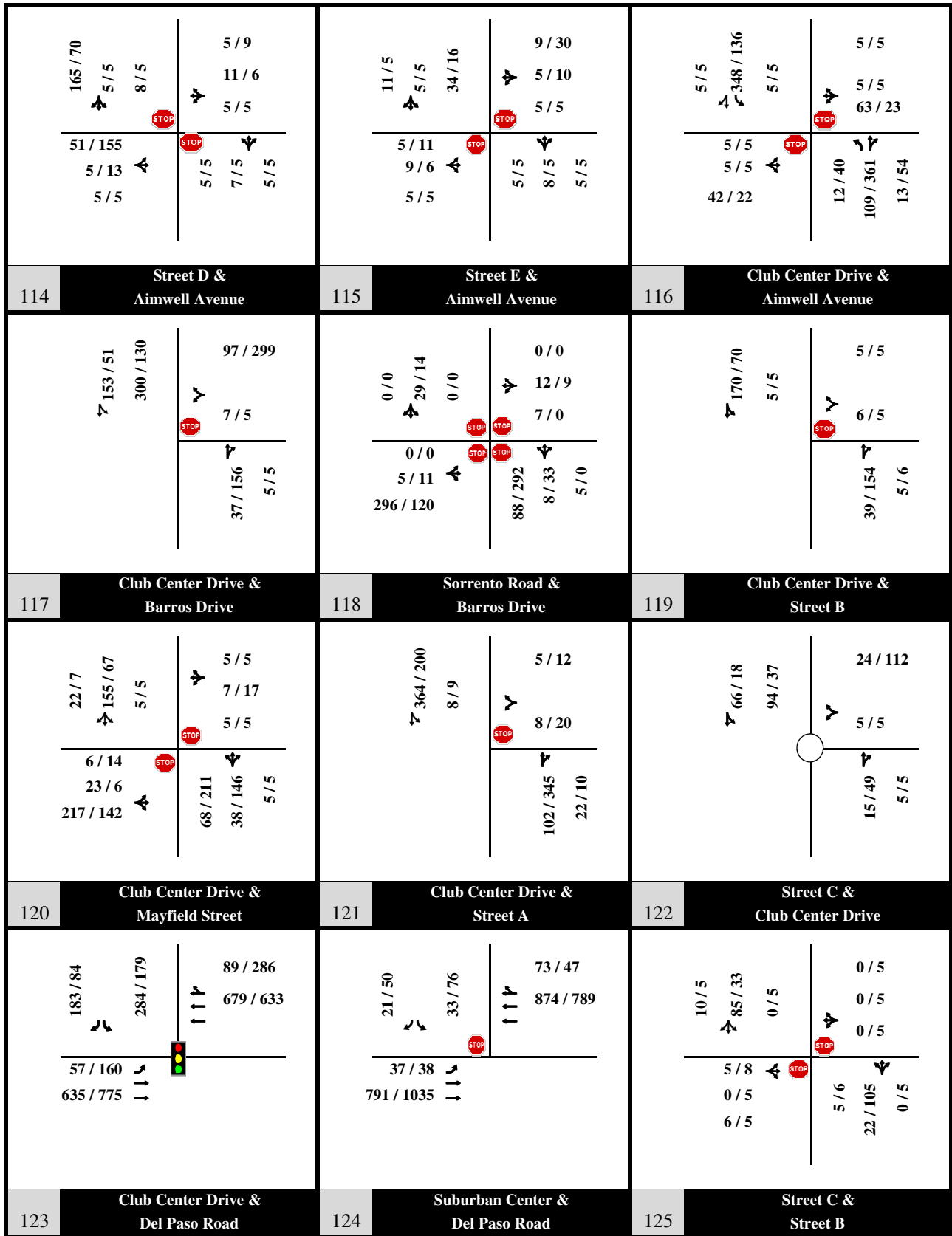
Figure 4.10-12b
Existing Plus Project
Volumes and Geometry



KEY

- 31 / 27 = AM / PM peak hour traffic volume
- ⬤ = Signalized intersection
- ↔ = Intersection approach lane
- ⊠ = Stop sign control
- N St. & E St. = North-south street / east-west street

Figure 4.10-12c
Existing Plus Project
Volumes and Geometry



KEY

31 / 27 = AM / PM peak hour traffic volume

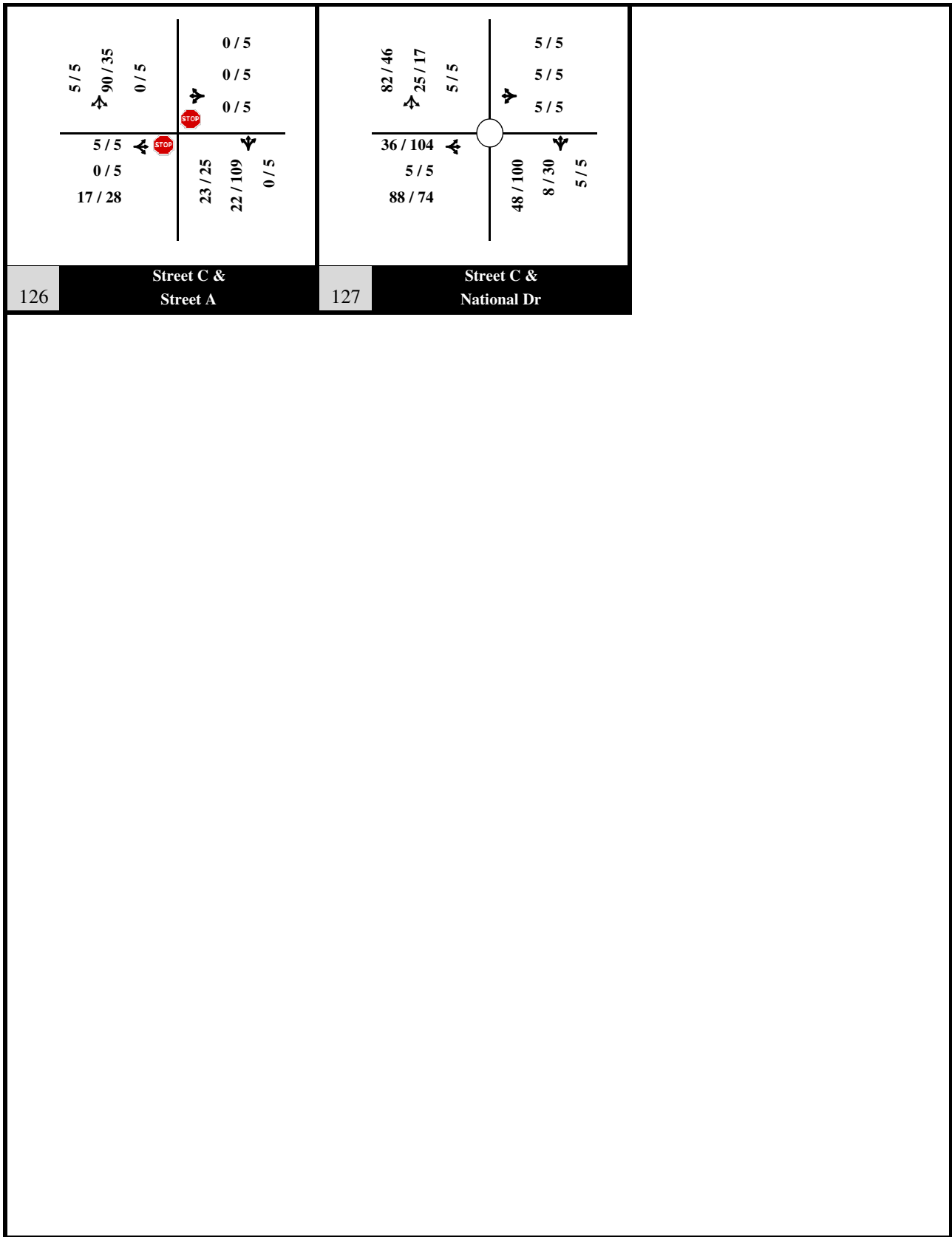
= Signalized intersection

= Intersection approach lane

= Stop sign control

N St. & E St. = North-south street / east-west street

Figure 4.10-12d
Existing Plus Project
Volumes and Geometry



KEY

- 31 / 27 = AM / PM peak hour traffic volume
- ⊕ = Signalized intersection
- ↕ = Intersection approach lane
- ⊠ = Stop sign control
- N St. & E St. = North-south street / east-west street

Figure 4.10-12e
Existing Plus Project
Volumes and Geometry

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
1. East Commerce Way / Elkhorn Boulevard	D	Signalized	C	23.7	C	25.3	A	8.8	A	9.1
2. Natomas Boulevard / Elkhorn Boulevard	D	Signalized	B	17.9	B	16.3	C	31.5	C	31.9
3. E. Levee Road/Elkhorn Boulevard	E / D	Unsignalized	A	7.3	D	29.0	A	1.6	A	4.2
Eastbound Left Turn			B	10.3	B	11.7	A	9.1	B	10.1
Southbound			F	68.3	F	223.9	D	26.7	F	53.5
4. Marysville Boulevard / Elkhorn Boulevard	E	Signalized	C	33.1	D	39.2	D	37.3	D	45.2
5. Northborough Drive / Elkhorn Boulevard	D	Signalized	B	19.2	B	19.0	B	18.6	C	23.1
6. Natomas Boulevard/Club Center Drive	D	Signalized	C	33.3	D	45.4	D	40.5	D	35.6
7. Natomas Boulevard / Truxel Road / Del Paso Road	D	Signalized	D	42.0	D	43.9	D	48.6	D	54.2
8. Gateway Park Boulevard / Del Paso Road	D	Signalized	D	38.0	D	44.4	D	39.0	D	54.2
9. National Drive / Del Paso Road	E / D	Signalized	C	33.7	D	37.5	B	13.8	C	25.7

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
10. Sorrento Road / Del Paso Road	D	Unsignalized	A	0.4	F	188.7	A	0.3	D	29.4
Northbound			B	11.3	B	11.1	B	12.0	B	12.7
Southbound			E	36.3	F	>300	C	20.8	F	>300
Eastbound Left Turn			A	9.9	B	10.6	A	9.7	B	11.1
Westbound Left Turn			A	9.6	A	9.5	B	10.2	B	10.8
11. Kenmar Road / Del Paso Road	E	Unsignalized	A	2.9	A	4.2	A	1.9	A	7.9
Northbound			D	27.8	F	78.8	C	18.3	F	215.0
Southbound			F	79.1	F	130.2	F	59.3	F	156.3
Eastbound Left Turn			B	10.2	B	10.7	A	9.9	B	11.0
Westbound Left Turn			A	9.9	B	11.1	B	10.1	B	11.5
12. Northgate Boulevard / Del Paso Road	E	Signalized	C	24.0	C	25.5	C	20.1	C	23.9
13. Northgate Boulevard / North Market Boulevard	D	Signalized	B	14.9	B	16.3	C	21.1	B	16.1
14. National Drive / North Market Boulevard	E	Signalized	C	26.0	C	25.1	C	24.0	C	24.4
15. 16th Street / Elkhorn Boulevard	E	Signalized	C	30.7	C	28.8	C	27.7	C	24.1
16. Elkhorn Boulevard / SR 99 Southbound Ramps	D	Unsignalized	A	4.0	A	4.1	A	4.4	A	4.6
Southbound Left Turn			A	9.9	A	9.9	A	9.8	A	9.9
Southbound Right Turn			A	9.1	A	9.1	A	8.6	A	8.6

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
17. Elkhorn Boulevard / SR 99 Northbound Ramps	D	Signalized	B	16.5	B	17.5	A	4.6	A	5.2
18. Del Paso Road / I-5 Southbound Ramps	D	Signalized	A	4.2	A	4.4	A	4.4	A	5.8
19. Del Paso Road / I-5 Northbound Ramps	D	Signalized	B	14.0	B	14.2	C	21.7	C	22.7
20. Truxel Road / I-80 Westbound Ramps	D	Signalized	A	8.0	B	11.6	B	10.1	B	12.3
21. Truxel Road / I-80 Eastbound Ramps	D	Signalized	B	12.7	B	11.4	B	10.9	B	10.0
22. Northgate Boulevard / I-80 Westbound Ramps	D	Signalized	A	5.8	A	5.8	A	8.6	A	8.9
23. Northgate Boulevard / I-80 Eastbound Ramps	D	Signalized	A	7.4	A	7.7	A	4.5	A	5.9
100. Street "K" / Elkhorn Blvd.	D	Unsignalized			A	2.3			A	1.5
Northbound					E	37.5			D	31.9
Westbound Left Turn					A	0.1			B	10.5
101. Street "G" / Elkhorn Blvd.	D	Signalized			B	19.2			D	47.3

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
102. Street "G" / Sandmark Drive	D	Unsignalized			A	2.8			A	2.2
Northbound Left Turn					A	8.0			A	7.7
Southbound Left Turn					A	7.5			A	7.9
Eastbound					B	14.5			B	13.7
Westbound					B	10.2			B	11.8
103. Street "G" / Domino Ave.	D	Unsignalized			A	2.0			A	1.3
Northbound Left Turn					A	7.8			A	7.6
Southbound Left Turn					A	7.5			A	7.9
Eastbound					B	10.7			B	12.8
Westbound					B	12.9			C	13.1
104. Street "G" / School Entrance	D	Unsignalized			A	0.8			A	0.6
Northbound Left Turn					A	8.0			A	7.6
Southbound Left Turn					A	7.5			A	8.0
Westbound					B	11.2			B	11.9
106. Street "G" / School Exit	D	Unsignalized			A	0.2			A	0.2
Eastbound Left Turn					B	12.0			B	12.3
Eastbound Right Turn					B	10.3			A	9.2
107. Street "G" / Main School Driveway	D	Signalized			A	2.6			A	3.8

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
108. Street "G" / Faletto Avenue	D	Unsignalized			A	1.7			A	1.7
Northbound Left Turn					A	8.0			A	7.7
Southbound Left Turn					A	7.5			A	7.9
Eastbound					B	11.8			B	10.5
Westbound					B	12.7			B	13.1
109. Street "D" / Club Center Drive	D	Unsignalized			A	4.5			A	4.2
Northbound					B	10.2			A	9.5
Southbound					B	12.6			B	11.9
Eastbound Left Turn					A	7.3			A	7.6
Westbound Left Turn					A	7.8			A	7.4
110. Street "G" / Club Center Drive	D	Roundabout			A	6.1			A	7.0
Northbound					A	5.2			A	4.6
Southbound					A	6.3			A	6.5
Eastbound Left Turn					A	6.6			A	5.6
Westbound Left Turn					A	4.9			A	8.1

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
111. Street "E" / Club Center Drive	D	Unsignalized			A	1.1			A	0.9
Northbound					B	12.1			B	11.9
Southbound					B	12.0			B	12.4
Eastbound Left Turn					A	7.5			A	8.0
Westbound Left Turn					A	7.9			A	7.5
112. Sorento Road / Street "F"	D	Unsignalized			A	6.4			A	6.1
Northbound Left Turn					A	7.2			A	7.3
Eastbound					A	8.4			A	8.4
113. Club Center Drive / Street "F"	D	Unsignalized			A	0.7			A	0.4
Southbound Left Turn					A	7.5			A	8.0
Westbound					B	10.5			B	11.2
114. Street "D" / Aimwell Avenue	D	Unsignalized			A	8.0			A	7.3
Northbound					A	9.9			B	11.1
Southbound					A	9.2			A	9.1
Eastbound Left Turn					A	7.3			A	7.5
Westbound Left Turn					A	7.2			A	7.3

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
115. Street "E" / Aimwell Avenue	D	Unsignalized			A	6.5			A	4.5
Northbound					A	9.0			A	9.0
Southbound					A	9.0			A	9.1
Eastbound Left Turn					A	7.3			A	7.3
Westbound Left Turn					A	7.3			A	7.2
116. Club Center Drive / Aimwell Avenue	D	Unsignalized			A	2.9			A	1.8
Northbound Left Turn					A	8.0			A	7.6
Southbound Left Turn					A	7.5			A	8.2
Eastbound					B	11.2			B	11.0
Westbound					B	14.6			B	14.8
117. Club Center Drive / Barros Drive	D	Unsignalized			A	5.6			A	6.9
Southbound Left Turn					A	7.8			A	7.8
Westbound					A	9.7			B	11.3
118. Sorento Road / Barros Drive	D	Unsignalized			A	8.3			A	9.6
Northbound					A	8.5			B	10.3
Southbound					A	7.9			A	7.7
Eastbound					A	8.3			A	8.0
Westbound					A	7.7			A	8.0

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
119. Club Center Drive / Street "B"	D	Unsignalized			A	0.6			A	0.5
Southbound Left Turn					A	7.3			A	7.5
Westbound					A	9.2			A	9.5
120. Club Center Drive / Mayfield Street	D	Unsignalized			A	6.4			A	6.1
Northbound Left Turn					A	7.7			A	7.7
Southbound Left Turn					A	7.3			A	7.5
Eastbound					B	11.3			B	10.8
Westbound					B	12.1			C	16.2
121. Street "A" / Club Center Drive	D	Unsignalized			A	0.4			A	0.7
Southbound Left Turn					A	7.5			A	8.0
Westbound					B	10.8			B	12.0
122. Club Center Drive / Street "C"	D	Roundabout			A	4.3			A	4.1
Northbound					A	3.7			A	3.8
Southbound					A	4.5			A	3.7
Westbound					A	3.5			A	4.4
123. Club Center Drive / Del Paso Road	D	Signalized			A	9.4			A	9.4

**Table 4.10-14
Existing Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
124. Suburban Center / Del Paso Road	D	Unsignalized			A	1.1			A	2.6
Southbound Left Turn					E	35.9			F	54.4
Southbound Right Turn					B	13.2			B	13.0
Eastbound Left Turn					B	14.5			B	13.4
125. Street "C" / Street "B"	D	Unsignalized			A	2.3			A	2.1
Northbound Left Turn					A	7.4			A	7.3
Southbound Left Turn					A	7.3			A	7.4
Eastbound					A	9.4			A	9.5
Westbound					A	9.3			A	9.6
126. Street "C" / Street "A"	D	Unsignalized			A	3.1			A	3.0
Northbound Left Turn					A	7.4			A	7.3
Southbound Left Turn					A	7.3			A	7.4
Eastbound					A	9.3			A	9.1
Westbound					A	9.5			A	9.9
127. Street "C" / National Drive	D	Roundabout			A	4.3			A	4.7
Northbound					A	3.9			A	4.9
Southbound					A	4.4			A	4.2
Eastbound					A	4.4			A	4.9
Westbound					A	3.6			A	4.2

**Table 4.10-15
Existing Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Existing				Existing Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Elkhorn Boulevard	SR 99 to East Commerce Way	Arterial – Moderate Access Control	2	18,700	1.04	F	2	19,600	1.09	F
	East Commerce Way to Northborough Drive		2	17,300	0.96	E	2	18,200	1.01	F
	Northborough Drive to Natomas Boulevard		2	16,200	0.90	D	2	16,800	0.93	E
	Natomas Boulevard to Sageview Drive		2	19,000	1.06	F	2	18,900	1.05	F
	Sageview Drive to E. Levee Road		2	17,100	0.95	E	2	22,000	1.22	F
	E. Levee Road to Marysville Boulevard		2	17,500	0.97	E	2	20,300	1.13	F
Natomas Boulevard	North Bend Drive to Club Center Drive		4	26,700	0.74	C	4	28,600	0.79	C
	Club Center Drive to Elkhorn Boulevard		4	13,000	0.36	A	4	12,300	0.34	A
Del Paso Road	Truxel Road to Gateway Park Boulevard		6	21,300	0.39	A	6	22,700	0.42	A
	Gateway Park Boulevard to Black Rock Drive		6	22,400	0.41	A	6	28,500	0.53	A

**Table 4.10-15
Existing Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Existing				Existing Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Del Paso Road	Black Rock Drive to National Drive	Arterial – Moderate Access Control	4	20,800	0.58	A	4	21,000	0.58	A
	National Drive to Northgate Boulevard		4	20,700	0.58	A	4	26,700	0.74	C
Northgate Boulevard	Del Paso Road to North Market Boulevard		4	23,500	0.65	B	4	27,400	0.76	C
	North Market Boulevard to I-80		6	36,000	0.67	B	6	39,700	0.74	C
Main Avenue	Northgate Boulevard to Norwood Avenue		4	19,700	0.55	A	4	20,900	0.58	A
Sageview Drive	Elkhorn Boulevard to Bridgecross Drive	Local Street	2	3,700	0.74	C	2	1,300	0.26	A
Bridgecross Drive	East of Honor Parkway	Minor Collector	2	2,800	0.32	A	2	2,600	0.30	A
Regency Park Circle	North of Club Center Drive	Local Street	2	5,300	1.06	F	2	6,100	1.22	F
Danbrook Drive	South of Club Center Drive		2	5,100	1.02	F	2	5,900	1.18	F
Sorento Road	North of Del Paso Road		2	340	0.07	A	2	5,200	1.04	F
National Drive	Del Paso Road to Street "C"	Major Collector					2	4,300	0.31	A

**Table 4.10-15
Existing Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Existing				Existing Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Club Center Drive	Danbrook Drive to Danbrook Drive	Minor Collector	2	3,200	0.37	A	2	4,600	0.53	A
	West of Street "D"	Major Collector					2	2,300	0.16	A
	Street "D" to Street "G"						2	4,600	0.33	A
	Street "G" to Street "E"						2	5,400	0.39	A
	Street "E" to Street "F"						2	5,400	0.39	A
	Street "F" to Aimwell Avenue						2	5,400	0.39	A
	Aimwell Avenue to Barros Drive						2	7,100	0.51	A
	Barros Drive to Street "C"						2	2,500	0.18	A
	Street "C" to Street "B"						2	3,000	0.21	A
	Street "B" to Mayfield Street						2	3,100	0.22	A
	Mayfield Street to Street "A"						2	6,400	0.46	A
Street "A" to Del Paso Road					2	6,500	0.46	A		
Street "A"	Club Center Drive to Street "C"	Minor Collector					2	600	0.07	A
Street "B"	Club Center Drive to Street "C"						2	500	0.06	A

**Table 4.10-15
Existing Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Existing				Existing Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Street "C"	Club Center Drive to Street "B"	Minor Collector					2	1,500	0.17	A
	Street "B" to Street "A"						2	1,600	0.18	A
	Street "A" to National Drive						2	2,100	0.245	A
Street "D"	Club Center Drive to Aimwell Avenue	Local Street					2	3,000	0.60	A
Street "E"	Club Center Drive to Aimwell Avenue						2	1,000	0.20	A
Street "F"	Club Center Drive to Sorento Road						2	500	0.10	A
Street "G"	Elkhorn Boulevard to Sandmark Drive	Major Collector					2	7,800	0.56	A
	Sandmark Drive to Domino Avenue						2	6,100	0.44	A
	Domino Avenue to Main School Entrance						2	6,900	0.49	A
	Main School Entrance to Faletto Avenue						2	6,300	0.45	A
	Faletto Avenue to Club Center Drive						2	7,000	0.50	A
Street "K"	South of Elkhorn Boulevard	Local Street					2	2,300	0.46	A

**Table 4.10-15
Existing Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Existing				Existing Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Aimwell Avenue	West of Street "D"	Local Street					2	3,000	0.60	A
	Street "D" to Street "E"						2	500	0.10	A
Aimwell Avenue	Street "E" to Club Center Drive						2	800	0.16	A
Barros Drive	Club Center Drive to Sorento Road						2	4,700	0.94	E
Cadman Court	East of Archcrest Way						2	500	0.10	A
Domino Avenue	East of Amnest Way						2	3,000	0.60	A
Faletto Avenue	West of School South Lot	Minor Collector					2	2,400	0.27	A
	School South Lot to Street "G"						2	1,000	0.11	A
Mayfield Street	West of Club Center Drive	Local Street					2	4,300	0.86	D
Sandmark Drive	East of Caddington Way						2	500	0.10	A

Source: See Appendix H.

**Table 4.10-16
Existing Plus Project Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Existing			Existing Plus Project		
				Volume	Density	LOS	Volume	Density	LOS
<i>AM Peak Hour</i>									
East-bound I-80	I-5 to Truxel Road	3	1	5,262	20.8	C	5,307	21.0	C
	Truxel Road to Northgate Boulevard	3	1	4,810	18.8	C	4,828	18.9	C
	Northgate Boulevard to Norwood Avenue	3	0	4,820	28.0	D	4,853	28.2	D
West-bound I-80	I-5 to Truxel Road	3	1	5,480	21.7	C	5,548	22.1	C
	Truxel Road to Northgate Boulevard	3	1	5,062	19.9	C	5,092	20.0	C
	Northgate Boulevard to Norwood Avenue	3	0	5,539	35.1	E	5,530	35.0	E
North-bound I-5	Arena Boulevard to Del Paso Road	3	1	4,898	21.4	C	4,903	21.4	C
	Del Paso Road to SR 99	3	0	4,378	25.6	C	4,450	26.1	D
South-bound I-5	Arena Boulevard to Del Paso Road	3	1	5,212	25.9	C	5,196	25.8	C
	Del Paso Road to SR 99	4	0	4,001	17.0	B	3,945	16.8	B

**Table 4.10-16
Existing Plus Project Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Existing			Existing Plus Project		
				Volume	Density	LOS	Volume	Density	LOS
North-bound SR 99	I-5 to Elkhorn Boulevard	2	0	1,169	9.3	A	1,170	9.3	A
	Elkhorn Boulevard to Elverta Road	2	0	904	7.2	A	923	7.4	A
South-bound SR 99	I-5 to Elkhorn Boulevard	2	0	3,305	29.0	D	3,295	28.9	D
	Elkhorn Boulevard to Elverta Road	2	0	2,266	18.8	C	2,198	18.6	C
<i>PM Peak Hour</i>									
East-bound I-80	I-5 to Truxel Road	3	1	5,407	21.4	C	5,472	21.7	C
	Truxel Road to Northgate Boulevard	3	1	5,288	59.6	F	5,304	59.7	F
	Northgate Boulevard to Norwood Avenue	3	0	5,864	35.8	D	5,845	35.6	E
West-bound I-80	I-5 to Truxel Road	3	1	4,517	17.7	B	4,604	18.0	C
	Truxel Road to Northgate Boulevard	3	1	4,516	17.7	B	4,535	17.7	B
	Northgate Boulevard to Norwood Avenue	3	0	4,466	24.5	C	4,515	24.8	C
North-bound I-5	Arena Boulevard to Del Paso Road	3	1	6,286	27.4	D	6,289	27.4	D

**Table 4.10-16
Existing Plus Project Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Existing			Existing Plus Project		
				Volume	Density	LOS	Volume	Density	LOS
	Del Paso Road to SR 99	3	0	4,776	30.9	D	4,743	30.7	D
South-bound I-5	Arena Boulevard to Del Paso Road	3	1	4,197	17.9	B	4,198	17.9	B
	Del Paso Road to SR 99	4	0	3,662	18.0	B	3,750	18.3	C
North-bound SR 99	I-5 to Elkhorn Boulevard	2	0	3,128	40.5	E	3,141	40.6	E
	Elkhorn Boulevard to Elverta Road	2	0	2,187	20.7	C	2,162	20.5	C
South-bound SR 99	I-5 to Elkhorn Boulevard	2	0	1,530	12.2	B	1,567	12.5	B
	Elkhorn Boulevard to Elverta Road	2	0	1,457	11.6	B	1,481	11.8	B

Source: See Appendix H.

**Table 4.10-17
Existing Plus Project Peak Hour Freeway Ramp Termini Queuing**

Direction	Location	Available Storage Length (feet/lane)	Maximum Queue Length (feet/lane)	
			Existing	Existing Plus Project
<i>AM Peak Hour</i>				
I-80 Eastbound	Truxel Road	810	254	257
	Northgate Boulevard	700	221	228
I-80 Westbound	Truxel Road	1,075	137	166
	Northgate Boulevard	680	64	70
I-5 Northbound	Del Paso Road	690	232	236
I-5 Southbound	Del Paso Road	595	108	115
SR 99 Northbound	Elkhorn Boulevard	915	75	75
SR 99 Southbound	Elkhorn Boulevard	900	73	73
<i>PM Peak Hour</i>				
I-80 Eastbound	Truxel Road	810	217	230
	Northgate Boulevard	700	362	362
I-80 Westbound	Truxel Road	1,075	169	176
	Northgate Boulevard	680	217	233
I-5 Northbound	Del Paso Road	690	264	409
I-5 Southbound	Del Paso Road	595	197	231
SR 99 Northbound	Elkhorn Boulevard	915	520	520
SR 99 Southbound	Elkhorn Boulevard	900	87	90

Source: See Appendix H.

Project Specific Impacts and Mitigation Measures

4.10-1: The proposed project could cause potentially significant impacts to study area intersections. Based on the analysis below the impact is *significant*.

As summarized in Table 4.10-14, the addition of project traffic would generally increase average delay at study area intersections. The project would increase traffic volumes at study area intersections and would cause significant impacts under the existing plus project scenario at the following intersections:

- (a) Sorento Road / Del Paso Road –Traffic from the project would result in a change from LOS A to LOS F conditions in the a.m. peak hour. This is considered a significant impact.

Mitigation Measures

- 4.10-1(a)** Sorento Road / Del Paso Road – Install a traffic signal. This intersection meets the peak hour traffic signal warrant during the a.m. peak hour. This mitigation measure would reduce the impact of the project to a less than significant level.

Table 4.10-18 summarizes existing plus project intersection conditions with mitigation.

- 4.10-2: The proposed project could cause potentially significant impacts to study area roadway segments. Based on the analysis below the impact is significant.**

As summarized in Table 4.10-15, the addition of project traffic would generally increase daily traffic volumes on study area roadway segments. The project would increase daily traffic volumes and would cause significant impacts under the existing plus project scenario at the following locations:

- (a) Elkhorn Boulevard – SR 99 to Marysville Boulevard. - Traffic from the project would result LOS E or F conditions. At five of the six roadway segments, the LOS changes from acceptable to unacceptable status, or the increase in volume-to-capacity ratio exceeds the acceptable threshold. This is considered a significant impact.
- (b) Regency Park Circle – North of Club Center Drive - Traffic from the project would result LOS F conditions with an increase in volume-to-capacity ratio of 0.02 or greater. This is considered a significant impact.
- (c) Danbrook Drive – South of Club Center Drive - Traffic from the project would result LOS F conditions with an increase in volume-to-capacity ratio of 0.02 or greater. This is considered a significant impact.
- (d) Sorento Road – North of Del Paso Road - Traffic from the project would result LOS F conditions. This is considered a significant impact.
- (e) Barros Drive – Sorento Road to Club Center Drive - Traffic volumes would result in LOS F conditions on this proposed roadway. This is considered a significant impact.

Mitigation Measures

- 4.10-2(a)** Elkhorn Boulevard – SR 99 to Marysville Boulevard – Widen to four lanes. This is consistent with General Plan policy. This mitigation measure would reduce the impact of the project to a less than significant level.

**Table 4.10-18
Existing Plus Project Intersection Operating Conditions Without and With Mitigation**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
Without Mitigation										
10. Sorento Road / Del Paso Road	D	Unsignalized	A	0.4	F	188.7	A	0.3	D	29.4
Northbound			B	11.3	B	11.1	B	12.0	B	12.7
Southbound			E	36.3	F	>300	C	20.8	F	>300
Eastbound Left Turn			A	9.9	B	10.6	A	9.7	B	11.1
Westbound Left Turn			A	9.6	A	9.5	B	10.2	B	10.8
With Mitigation										
10. Sorento Road / Del Paso Road	D	Signalized			B	16.9			A	10.0

- 4.10-2(b)** Regency Park Circle – North of Club Center Drive – A neighborhood traffic management plan shall be implemented to address the impacts of increased traffic volumes on this street. The plan shall be developed in accordance with City practices, including the involvement of the neighborhood. The plan should focus on travel speed and safe pedestrian crossings, and may include elements such as chokers, pedestrian islands, curb extensions, and speed humps. As the volume reduction associated with this plan is uncertain, this impact remains significant and unavoidable.
- 4.10-2(c)** Danbrook Drive – South of Club Center Drive – A neighborhood traffic management plan shall be implemented to address the impacts of increased traffic volumes on this street. The plan shall be developed in accordance with City practices, including the involvement of the neighborhood. The plan should focus on travel speed and safe pedestrian crossings, and may include elements such as chokers, pedestrian islands, curb extensions, and speed humps. As the volume reduction associated with this plan is uncertain, this impact remains significant and unavoidable.
- 4.10-2(d)** Sorento Road – North of Del Paso Road – A neighborhood traffic management plan shall be implemented to address the impacts of increased traffic volumes on this street. The plan shall be developed in accordance with City practices, including the involvement of the neighborhood. The plan should focus on travel speed and safe pedestrian crossings, and may include elements such as chokers, pedestrian islands, curb extensions, and speed humps. As the volume reduction associated with this plan is uncertain, this impact remains significant and unavoidable.
- 4.10-2(e)** Barros Drive – Sorento Road to Club Center Drive – Although daily volume levels for this scenario exceed the LOS thresholds, it should be noted that intersections along the roadway function at an acceptable LOS without the need for two through lanes in either direction. In accordance with General Plan policies to promote non-automotive modes of travel, no widening of Barros Drive is proposed. As no alternative mitigation measure in accordance with General Plan policy has been identified, this impact remains significant and unavoidable.

Table 4.10-19 summarizes existing plus project roadway segment conditions with mitigation.

- 4.10-3: The proposed project could cause potentially significant impacts to transit. Based on the analysis below and with implementation of mitigation, the impact is less than significant.**

**Table 4.10-19
Existing Plus Project Roadway Segment Conditions Without and With Mitigation**

Roadway	Segment	Operational Class	Existing				Existing Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Without Mitigation										
Elkhorn Boulevard	SR 99 to East Commerce Way	Arterial – Moderate Access Control	2	18,700	1.04	F	2	19,600	1.09	F
	East Commerce Way to Northborough Drive		2	17,300	0.96	E	2	18,200	1.01	F
	Northborough Drive to Natomas Boulevard		2	16,200	0.90	D	2	16,800	0.93	E
	Natomas Boulevard to Sageview Drive		2	19,000	1.06	F	2	18,900	1.05	F
	Sageview Drive to E. Levee Road		2	17,100	0.95	E	2	22,000	1.22	F
	E. Levee Road to Marysville Boulevard		2	17,500	0.97	E	2	20,300	1.13	F

**Table 4.10-19
Existing Plus Project Roadway Segment Conditions Without and With Mitigation**

Roadway	Segment	Operational Class	Existing				Existing Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
With Mitigation										
Elkhorn Boulevard	SR 99 to East Commerce Way	Arterial – Moderate Access Control					4	19,600	0.54	A
	East Commerce Way to Northborough Drive						4	18,200	0.51	A
	Northborough Drive to Natomas Boulevard						4	16,800	0.47	A
	Natomas Boulevard to Sageview Drive						4	18,900	0.53	A
	Sageview Drive to E. Levee Road						4	22,000	0.61	B
	E. Levee Road to Marysville Boulevard						4	20,300	0.56	A

The proposed project would not adversely affect public transit operations. Transit service near the project is limited, and the transit demand of the project is low due to the walking distance to transit. The project fails to provide adequate access to transit. Project impacts to transit are considered significant.

Mitigation Measure

4.10-3 The applicant shall coordinate with Regional Transit (or other transit operators) to plan, fund, and implement transit facilities and services to meet potential transit demand of the project. At a minimum, this includes peak period transit services throughout the development. Transit services shall be phased with the development of the project. This mitigation would reduce the impact of the project to a less than significant level.

4.10-4: **The proposed project could cause potentially significant impacts to pedestrian facilities. Based on the analysis below the impact is *less than significant*.**

The proposed project includes the construction of new pedestrian facilities along City streets per City standards. Sidewalks and off-street paths would provide pedestrian access throughout the project. The pedestrian ways connect to existing pedestrian facilities abutting the site. The project is not anticipated to adversely affect existing or planned pedestrian facilities. The impact would be **less than significant**.

Mitigation Measure

None required.

4.10-5: **The proposed project could cause potentially significant impacts to bicycle facilities. Based on the analysis below the impact is *less than significant*.**

Implementation of the proposed project would not remove any existing bicycle facilities or interfere with any bicycle facility that is planned by the City. The project is providing bikeways throughout the site in accordance with City standards, and includes a Class I bikeway throughout the powerline corridor. The bikeways connect to existing and planned adjacent bikeways. The impact would be **less than significant**.

Mitigation Measure

None required.

4.10-6: The proposed project could cause potentially significant impacts due to construction-related activities. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Construction may include disruptions to the transportation network near the project site, including the possibility of temporary lane closures, street closures, sidewalk closures, and bikeway closures. Pedestrian and bicycle access may be disrupted. Heavy vehicles, equipment and trucks would access the site and may need to be staged for construction. These activities could result in degraded roadway operating conditions. Therefore, the impacts are considered **significant**.

Mitigation Measure

Implementation of this mitigation measure would reduce this impact to **less than significant** by requiring preparation of a construction traffic plan that would ensure acceptable operating conditions on all roadways are maintained.

4.10-6 Prior to the beginning of construction, the applicant shall prepare a construction traffic plan to the satisfaction of the City's Traffic Engineer and subject to review by all affected agencies. The plan shall ensure that acceptable operating conditions on roadways are maintained. At a minimum, the plan shall include:

- Description of trucks including: number and size of trucks per day, expected arrival / departure times, truck circulation patterns.
- Description of staging area including: location, maximum number of trucks simultaneously permitted in staging area, use of traffic control personnel, specific signage.
- Description of street closures and/or bicycle and pedestrian facility closures including: duration, advance warning and posted signage, safe and efficient access routes for emergency vehicles, and use of manual traffic control.
- Description of access plan including: provisions for safe vehicular, pedestrian, and bicycle travel, minimum distance from any open trench, special signage, and private vehicle accesses.
- Provisions for parking for construction workers.

4.10-7: The proposed project could cause potentially significant impacts to study area freeway system. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

As summarized in Tables 4.10-16 and 4.10-17, the proposed project would add traffic to freeway segments and ramp junctions in the study area. Note that the analysis is based on existing plus

project conditions without consideration of the I-80 improvements (including HOV lanes) that were under construction as of the date of the Notice of Preparation. During the p.m. peak hour, traffic volumes would increase on eastbound I-80 from Truxel Road to Northgate Boulevard, a segment that is currently operating at LOS F. This is considered a significant impact.

Mitigation Measure

4.10-7 Caltrans has implemented freeway improvements in the area of impact, including HOV lanes and auxiliary lanes. These improvements have improved mainline traffic operations to better than existing conditions, with or without the project. With these improvements, the impact is considered less-than-significant.

Cumulative (2036) Impacts

Cumulative land use and transportation network characteristics are primarily based on SACOG's 2016 MTP/SCS, which projects land use to the year 2036. This dataset was primarily used for the cumulative analysis as it contains regional land use projections that are similar to the 2035 horizon year of the City's General Plan, as well as a funding assured transportation network. Compared to the City's assumptions in the General Plan, the SACOG 2036 land use projections are slightly greater in the North Natomas area, but lower in the planned Greenbriar area. For modelling purposes, the land use in the SACSIM model was increased in the Greenbriar area to match the assumptions of the City's 2035 General Plan analysis.

The 2036 transportation network includes several improved facilities in the study area. These include:

- Freeway System
 - HOV lanes on I-80 from the Sacramento River bridge to the Longview Drive
 - HOV lanes on I-5 from Downtown Sacramento to I-80
 - Reconstructed I-5 / I-80 interchange, including HOV lane connectors.
- Transit System
 - Light Rail Extension from Richards Boulevard to Sacramento International Airport
- Arterial Roadway System
 - Elkhorn Boulevard – Widen to 6 lanes from SR 99 to East City Limit (western edge of project site)
 - Elkhorn Boulevard – Widen to 4 lanes from East City Limit to 2nd Street (Rio Linda)

- 16th Street (Rio Linda) – Construct / Widen to 4 lanes from Ascot Avenue to Placer County Line.

Cumulative (Without Project) Traffic Conditions

Intersections

Figure 4.10-13 illustrates AM peak hour and PM peak hour traffic volumes associated with the cumulative scenario. The figure also illustrates the intersection geometry of the cumulative scenario. Table 4.10-20 summarizes the results of the cumulative peak hour intersection analysis.

Segments

Table 4.10-21 summarizes the results of the cumulative daily segment analysis.

Freeway Operations

Table 4.10-22 summarizes the cumulative plus project peak hour freeway mainline levels of service.

Table 4.10-23 summarizes the cumulative plus project peak hour freeway ramp queuing.

Cumulative Plus Project Traffic Conditions

Figure 4.10-14 illustrates the anticipated future distribution of project traffic.

Intersections

Figure 4.10-15 illustrates AM peak hour and PM peak hour traffic volumes associated with the cumulative plus project scenario. The figure also illustrates the intersection geometry of the Cumulative Plus Project scenario.

Table 4.10-20 summarizes the results of the peak hour intersection analysis.

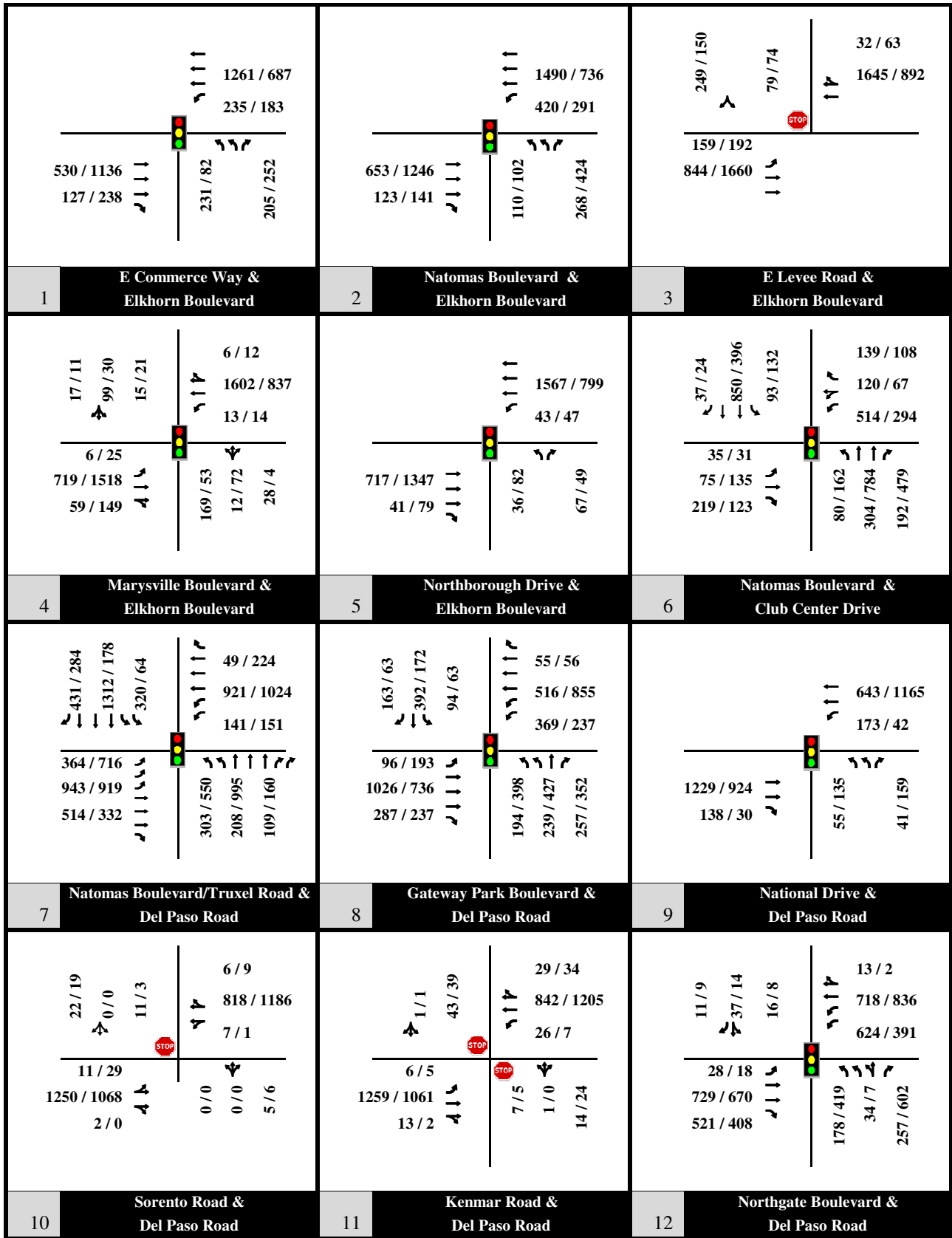
Roadway Segments

Table 4.10-21 summarizes the results of the cumulative plus project roadway segment analysis.

Freeway Operations

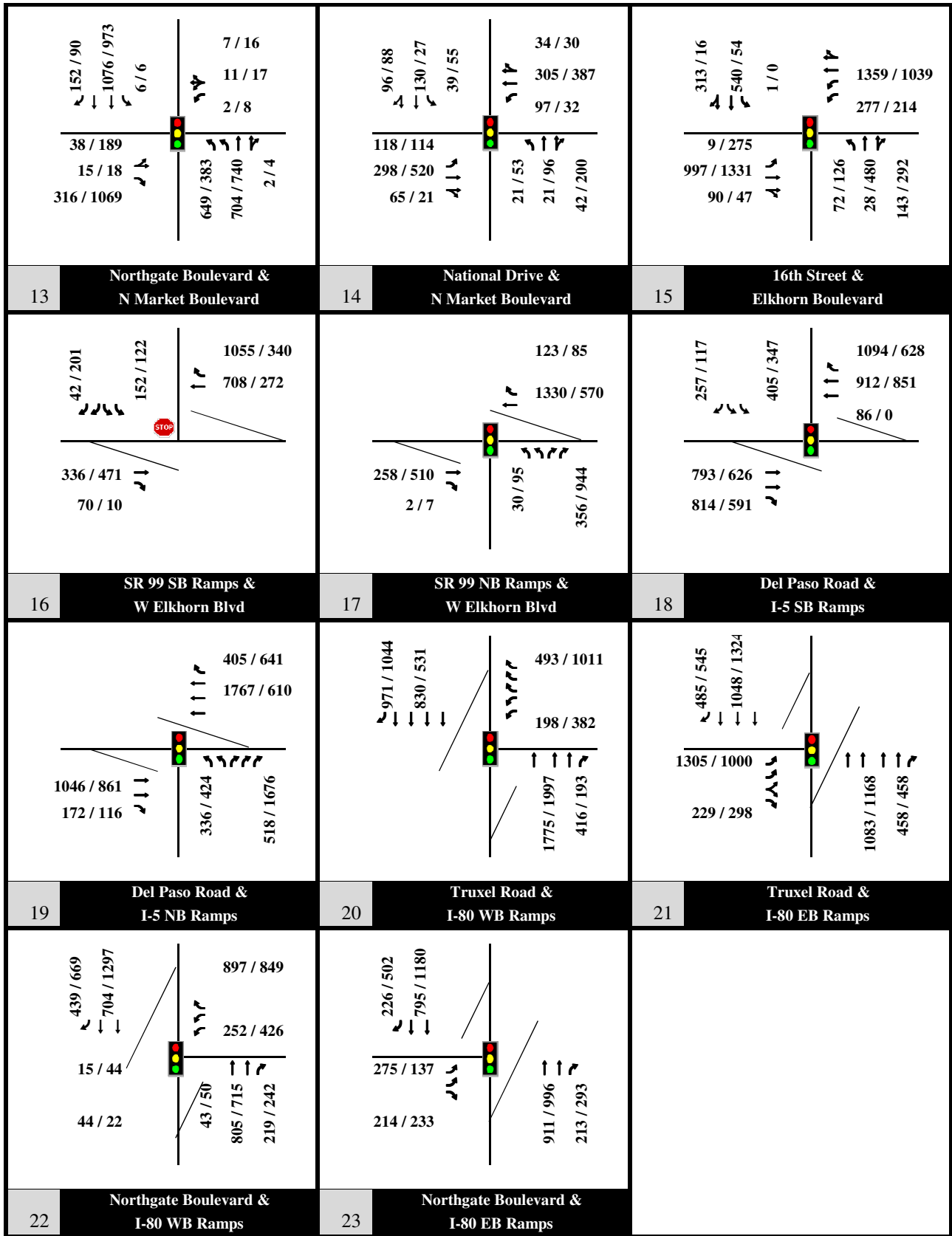
Table 4.10-22 summarizes the cumulative plus project peak hour freeway mainline levels of service.

Table 4.10-23 summarizes the cumulative plus project peak hour freeway ramp queuing.



KEY
 31 / 27 = AM / PM peak hour traffic volume
 = Signalized intersection
 = Intersection approach lane
 = Stop sign control
 N St. & E St. = North-south street / east-west street

Figure 4.10-13a
Cumulative (2036)
No Project
Volumes and Geometry



KEY

- 31 / 27 = AM / PM peak hour traffic volume
- ⬤ = Signalized intersection
- ↔ = Intersection approach lane
- ⊥ = Stop sign control
- N St. & E St. = North-south street / east-west street

Figure 4.10-13b
Cumulative (2036)
No Project
Volumes and Geometry

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
1. East Commerce Way / Elkhorn Boulevard	D	Signalized	B	11.7	B	10.6	B	12.7	B	12.7
2. Natomas Boulevard / Elkhorn Boulevard	D	Signalized	B	18.2	B	12.4	C	29.7	B	17.2
3. E. Levee Road/Elkhorn Boulevard	E / D	Unsignalized	F	>300	F	162.9	F	100.0	D	28.3
Eastbound Left Turn			C	21.3	D	33.0	B	11.9	C	15.8
Southbound			F	>300	F	>300	F	>300	F	>300
4. Marysville Boulevard / Elkhorn Boulevard	E	Signalized	C	34.0	C	27.4	C	28.0	C	26.1
5. Northborough Drive / Elkhorn Boulevard	D	Signalized	B	12.0	B	11.8	B	12.8	B	12.8
6. Natomas Boulevard/Club Center Drive	D	Signalized	D	37.1	D	39.8	D	46.8	D	45.5
7. Natomas Boulevard / Truxel Road / Del Paso Road	D	Signalized	D	46.8	D	46.3	D	51.9	D	51.3
8. Gateway Park Boulevard / Del Paso Road	D	Signalized	D	42.8	D	51.1	D	49.0	D	50.5
9. National Drive / Del Paso Road	E / D	Signalized	D	39.9	D	43.8	B	14.2	C	28.5

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
10. Sorento Road / Del Paso Road	D	Unsignalized	A	0.7	F	125.9	A	0.7	E	42.8
Northbound			B	13.5	C	15.0	B	12.4	F	141.8
Southbound			D	27.6	F	>300	D	25.1	F	>300
Eastbound Left Turn			A	9.6	C	15.3	B	11.5	B	14.0
Westbound Left Turn			B	11.6	C	17.5	B	10.6	B	12.3
11. Kenmar Road / Del Paso Road	E	Unsignalized	A	3.0	B	13.3	A	3.9	C	16.1
Northbound			E	44.4	F	>300	C	24.1	E	40.8
Southbound			F	122.7	F	>300	F	206.5	F	>300
Eastbound Left Turn			A	9.7	B	10.8	B	11.5	B	14.2
Westbound Left Turn			B	12.0	B	14.3	B	10.6	B	11.6
12. Northgate Boulevard / Del Paso Road	E	Signalized	C	22.9	C	27.9	C	22.0	C	31.4
13. Northgate Boulevard / North Market Boulevard	D	Signalized	B	18.7	C	20.8	B	15.8	B	18.7
14. National Drive / North Market Boulevard	E	Signalized	C	24.5	C	25.7	C	23.8	C	23.9
15. 16th Street / Elkhorn Boulevard	E	Signalized	E	57.6	E	66.5	D	44.8	D	51.7
16. Elkhorn Boulevard / SR 99 Southbound Ramps	D	Signalized	A	3.9	A	3.9	A	4.1	A	4.2
17. Elkhorn Boulevard / SR 99 Northbound Ramps	D	Signalized	A	9.7	A	9.5	B	11.5	A	9.6

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
18. Del Paso Road / I-5 Southbound Ramps	D	Signalized	A	6.0	A	6.2	A	5.7	A	5.7
19. Del Paso Road / I-5 Northbound Ramps	D	Signalized	A	6.1	B	17.2	A	5.1	C	25.0
20. Truxel Road / I-80 Westbound Ramps	D	Signalized	A	7.7	B	11.0	B	15.9	B	19.4
21. Truxel Road / I-80 Eastbound Ramps	D	Signalized	B	12.1	B	12.3	B	10.4	B	10.6
22. Northgate Boulevard / I-80 Westbound Ramps	D	Signalized	A	6.5	B	19.0	A	9.4	C	29.6
23. Northgate Boulevard / I-80 Eastbound Ramps	D	Signalized	A	6.6	A	9.2	A	8.4	A	9.5
100. Street "K" / Elkhorn Blvd.	D	Unsignalized			A	2.8			B	11.6
Northbound					F	65.9			F	139.2
Westbound Left Turn					B	10.5			B	13.5
101. Street "G" / Elkhorn Blvd.	D	Signalized			C	24.2			D	39.1
102. Street "G" / Sandmark Drive	D	Unsignalized			A	2.4			A	1.5
Northbound Left Turn					A	8.3			A	8.0
Southbound Left Turn					A	7.7			A	8.4
Eastbound					C	19.1			C	20.1
Westbound					B	11.7			B	14.8

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
103. Street "G" / Domino Ave.	D	Unsignalized			A	1.7			A	1.1
Northbound Left Turn					A	8.3			A	8.0
Southbound Left Turn					A	7.7			A	8.4
Eastbound					B	12.6			B	14.8
Westbound					C	16.8			C	17.4
104. Street "G" / School Entrance	D	Unsignalized			A	0.8			A	4.0
Northbound Left Turn					A	8.5			A	7.9
Southbound Left Turn					A	7.7			A	8.6
Westbound					B	13.7			C	15.2
106. Street "G" / School Exit	D	Unsignalized			A	0.2			A	0.2
Eastbound Left Turn					B	14.9			C	16.4
Eastbound Right Turn					B	11.6			B	10.0
107. Street "G" / Main School Driveway	D	Signalized			A	2.3			A	3.4
108. Street "G" / Faletto Avenue	D	Unsignalized			A	1.5			A	1.3
Northbound Left Turn					A	8.5			A	8.0
Southbound Left Turn					A	7.7			A	8.4
Eastbound					B	14.2			B	12.2
Westbound					C	16.0			C	17.4

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
109. Street "D" / Club Center Drive	D	Unsignalized			A	5.5			A	4.8
Northbound					B	10.1			A	9.5
Southbound					B	12.9			B	12.2
Eastbound Left Turn					A	7.3			A	7.6
Westbound Left Turn					A	7.8			A	7.5
110. Street "G" / Club Center Drive	D	Roundabout			A	8.1			A	9.0
Northbound					A	6.4			A	4.8
Southbound					A	8.7			A	7.8
Eastbound Left Turn					A	8.8			A	5.9
Westbound Left Turn					A	5.5			B	11.0
111. Street "E" / Club Center Drive	D	Unsignalized			A	0.9			A	0.7
Northbound					B	13.7			B	14.4
Southbound					B	13.9			C	15.4
Eastbound Left Turn					A	7.6			A	8.5
Westbound Left Turn					A	8.3			A	7.7
112. Sorento Road / Street "F"	D	Unsignalized			A	7.8			A	6.9
Northbound Left Turn					A	7.2			A	7.4
Eastbound					A	8.6			A	8.4

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
113. Club Center Drive / Street "F"	D	Unsignalized			A	1.1			A	1.4
Southbound Left Turn					A	7.6			A	8.3
Westbound					B	11.7			B	12.2
114. Street "D" / Aimwell Avenue	D	Unsignalized			A	8.1			A	7.5
Northbound					B	10.5			B	11.0
Southbound					A	9.4			A	9.1
Eastbound Left Turn					A	7.4			A	7.5
Westbound Left Turn					A	7.2			A	7.3
115. Street "E" / Aimwell Avenue	D	Unsignalized			A	6.5			A	4.8
Northbound					A	8.9			A	9.0
Southbound					A	9.0			A	9.1
Eastbound Left Turn					A	7.3			A	7.3
Westbound Left Turn					A	7.3			A	7.2
116. Club Center Drive / Aimwell Avenue	D	Unsignalized			A	2.8			A	1.5
Northbound Left Turn					A	8.3			A	7.7
Southbound Left Turn					A	7.5			A	8.4
Eastbound					B	12.2			B	12.1
Westbound					C	17.2			C	17.6

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
117. Club Center Drive / Barros Drive	D	Unsignalized			A	4.5			A	5.6
Southbound Left Turn					A	7.8			A	8.3
Westbound					A	9.6			B	12.7
118. Sorento Road / Barros Drive	D	Unsignalized			A	8.4			A	9.7
Northbound					A	8.7			B	10.6
Southbound					A	8.2			A	7.8
Eastbound					A	8.4			A	8.2
Westbound					A	7.9			A	7.9
119. Club Center Drive / Street "B"	D	Unsignalized			A	0.7			A	0.6
Southbound Left Turn					A	7.3			A	7.5
Westbound					A	9.2			A	9.4
120. Club Center Drive / Mayfield Street	D	Unsignalized			A	6.8			A	6.4
Northbound Left Turn					A	7.7			A	7.8
Southbound Left Turn					A	7.3			A	7.5
Eastbound					B	11.2			B	10.5
Westbound					B	12.5			C	17.6
121. Street "A" / Club Center Drive	D	Unsignalized			A	0.5			A	0.9
Southbound Left Turn					A	7.5			A	8.1
Westbound					B	11.2			B	13.0

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
122. Club Center Drive / Street "C"	D	Roundabout			A	5.4			A	5.2
Northbound					A	4.4			A	3.8
Southbound					A	5.7			A	3.9
Westbound					A	3.6			A	5.8
123. Club Center Drive / Del Paso Road	D	Signalized			A	9.9			B	10.2
124. Suburban Center / Del Paso Road	D	Unsignalized			A	2.4			A	9.5
Southbound Left Turn					F	78.5			F	274.8
Southbound Right Turn					B	13.5			C	16.8
Eastbound Left Turn					C	15.3			C	19.4
125. Street "C" / Street "B"	D	Unsignalized			A	1.2			A	1.1
Northbound Left Turn					A	7.7			A	7.4
Southbound Left Turn					A	7.3			A	7.8
Eastbound					B	10.4			B	10.7
Westbound					B	10.2			B	10.9
126. Street "C" / Street "A"	D	Unsignalized			A	1.8			A	1.7
Northbound Left Turn					A	7.8			A	7.4
Southbound Left Turn					A	7.3			A	7.8
Eastbound					B	10.4			A	9.7
Westbound					B	10.5			B	11.3

**Table 4.10-20
Cumulative Plus Project Intersection Operating Conditions**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
127. Street "C" / National Drive	D	Roundabout			A	5.3			A	6.2
Northbound					A	4.2			A	6.1
Southbound					A	6.1			A	4.7
Eastbound					A	4.7			A	6.7
Westbound					A	3.8			A	5.1

**Table 4.10-21
Cumulative Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Cumulative				Cumulative Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Elkhorn Boulevard	SR 99 to East Commerce Way	Arterial – Moderate Access Control	6	21,800	0.40	A	6	22,700	0.42	A
	East Commerce Way to Northborough Drive		6	27,100	0.50	A	6	27,500	0.51	A
	Northborough Drive to Natomas Boulevard		6	26,000	0.48	A	6	26,400	0.49	A
	Natomas Boulevard to Sageview Drive		6	30,000	0.56	A	6	28,300	0.52	A
	Sageview Drive to E. Levee Road		4	28,900	0.80	D	4	35,400	0.98	E
	E. Levee Road to Marysville Boulevard		4	28,500	0.79	C	4	32,400	0.90	D
Natomas Boulevard	North Bend Drive to Club Center Drive		4	28,400	0.79	C	4	29,200	0.81	D
	Club Center Drive to Elkhorn Boulevard		4	15,300	0.43	A	4	13,400	0.37	A
Del Paso Road	Truxel Road to Gateway Park Boulevard		6	28,900	0.54	A	6	30,300	0.56	A
	Gateway Park Boulevard to Black Rock Drive	6	28,500	0.53	A	6	35,100	0.65	B	

**Table 4.10-21
Cumulative Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Cumulative				Cumulative Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Del Paso Road	Black Rock Drive to National Drive	Arterial – Moderate Access Control	4	27,900	0.78	C	4	26,900	0.75	C
	National Drive to Northgate Boulevard		4	28,000	0.78	C	4	35,300	0.98	E
Northgate Boulevard	Del Paso Road to North Market Boulevard		4	24,500	0.68	B	4	29,400	0.82	D
	North Market Boulevard to I-80		6	37,600	0.70	B	6	42,400	0.79	C
Main Avenue	Northgate Boulevard to Norwood Avenue		4	27,400	0.76	C	4	28,000	0.78	C
Sageview Drive	Elkhorn Boulevard to Bridgecross Drive	Local Street	2	5,400	1.08	F	2	2,100	0.42	A
Bridgecross Drive	East of Honor Parkway	Minor Collector	2	2,500	0.29	A	2	2,300	0.26	A
Regency Park Circle	North of Club Center Drive	Local Street	2	5,300	1.06	F	2	6,600	1.32	F
Danbrook Drive	South of Club Center Drive		2	6,300	1.26	F	2	7,200	1.44	F
Sorento Road	North of Del Paso Road		2	800	0.16	A	2	5,700	1.14	F
National Drive	Del Paso Road to Street "C"	Major Collector					2	6,300	0.45	A

**Table 4.10-21
Cumulative Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Cumulative				Cumulative Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Club Center Drive	Danbrook Drive to Danbrook Drive	Minor Collector	2	3,200	0.37	A	2	4,300	0.49	A
	West of Street "D"	Major Collector					2	2,400	0.17	A
	Street "D" to Street "G"						2	5,700	0.41	A
	Street "G" to Street "E"						2	7,200	0.51	A
	Street "E" to Street "F"						2	7,300	0.52	A
	Street "F" to Aimwell Avenue						2	6,600	0.47	A
	Aimwell Avenue to Barros Drive						2	8,400	0.60	A
	Barros Drive to Street "C"						2	3,600	0.26	A
	Street "C" to Street "B"						2	2,700	0.19	A
	Street "B" to Mayfield Street						2	2,800	0.20	A
	Mayfield Street to Street "A"						2	7,300	0.52	A
Street "A" to Del Paso Road					2	9,200	0.66	B		
Street "A"	Club Center Drive to Street "C"	Minor Collector					2	800	0.09	A
Street "B"	Club Center Drive to Street "C"						2	500	0.06	A

**Table 4.10-21
Cumulative Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Cumulative				Cumulative Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Street "C"	Club Center Drive to Street "B"	Minor Collector					2	3,000	0.34	A
	Street "B" to Street "A"						2	3,000	0.34	A
	Street "A" to National Drive						2	3,600	0.41	A
Street "D"	Club Center Drive to Aimwell Avenue	Local Street					2	3,900	0.78	C
Street "E"	Club Center Drive to Aimwell Avenue						2	1,000	0.20	A
Street "F"	Club Center Drive to Sorento Road						2	800	0.16	A
Street "G"	Elkhorn Boulevard to Sandmark Drive	Major Collector					2	11,000	0.79	C
	Sandmark Drive to Domino Avenue						2	9,200	0.66	B
	Domino Avenue to Main School Entrance						2	10,200	0.73	C
	Main School Entrance to Faletto Avenue						2	9,600	0.69	B
	Faletto Avenue to Club Center Drive						2	10,400	0.74	C
Street "K"	South of Elkhorn Boulevard	Local Street					2	3,000	0.60	A

**Table 4.10-21
Cumulative Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Cumulative				Cumulative Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Aimwell Avenue	West of Street "D"	Local Street					2	3,900	0.78	C
	Street "D" to Street "E"						2	500	0.10	A
Aimwell Avenue	Street "E" to Club Center Drive						2	800	0.16	A
Barros Drive	Club Center Drive to Sorento Road						2	4,900	0.98	E
Cadman Court	East of Archcrest Way						2	500	0.10	A
Domino Avenue	East of Amnest Way						2	3,600	0.72	C
Faletto Avenue	West of School South Lot	Minor Collector					2	2,400	0.27	A
	School South Lot to Street "G"						2	1,100	0.13	A
Mayfield Street	West of Club Center Drive	Local Street					2	5,200	1.04	F
Sandmark Drive	East of Caddington Way						2	500	0.10	A

**Table 4.10-22
Cumulative Plus Project Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Mixed-Flow Lanes					
				Cumulative			Cumulative Plus Project		
				Volume	Density	LOS	Volume	Density	LOS
<i>AM Peak Hour</i>									
East-bound I-80	I-5 to Truxel Road	3	1	5,689	22.7	C	5,690	22.7	C
	Truxel Road to Northgate Boulevard	3	1	5,495	21.8	C	5,495	21.8	C
	Northgate Boulevard to Norwood Avenue	3	0	5,599	34.6	D	5,643	35.0	E
West-bound I-80	I-5 to Truxel Road	3	1	5,231	20.6	C	5,350	21.2	C
	Truxel Road to Northgate Boulevard	3	1	4,687	18.3	C	4,7695	18.7	C
	Northgate Boulevard to Norwood Avenue	3	0	5,180	31.9	D	5,260	32.6	D
North-bound I-5	Arena Boulevard to Del Paso Road	3	1	5,761	25.3	C	5,732	25.2	C
	Del Paso Road to SR 99	3	0	5,465	34.2	D	5,482	34.4	D
South-bound I-5	Arena Boulevard to Del Paso Road	3	1	6,939	35.1	E	6,877	34.7	D
South-bound I-5	Del Paso Road to SR 99	4	0	5,608	23.8	C	5,555	23.6	C

**Table 4.10-22
Cumulative Plus Project Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Mixed-Flow Lanes					
				Cumulative			Cumulative Plus Project		
				Volume	Density	LOS	Volume	Density	LOS
North-bound SR 99	I-5 to Elkhorn Boulevard	2	0	1,665	13.2	B	1,693	13.5	B
	Elkhorn Boulevard to Elverta Road	2	0	1,602	12.8	B	1,632	13.0	B
South-bound SR 99	I-5 to Elkhorn Boulevard	2	0	4,307	45.7	F	4,276	45.0	F
	Elkhorn Boulevard to Elverta Road	2	0	3,693	34.5	D	3,683	34.4	D
<i>PM Peak Hour</i>									
East-bound I-80	I-5 to Truxel Road	3	1	5,216	20.6	C	5,346	21.1	C
	Truxel Road to Northgate Boulevard	3	1	5,003	19.6	C	5,075	20.0	C
	Northgate Boulevard to Norwood Avenue	3	0	5,696	34.0	D	5,736	34.4	D
West-bound I-80	I-5 to Truxel Road	3	1	4,434	17.3	B	4,490	17.5	B
	Truxel Road to Northgate Boulevard	3	1	4,620	18.1	C	4,646	18.2	C
West-bound I-80	Northgate Boulevard to Norwood Avenue	3	0	4,736	26.4	D	4,798	26.8	D

**Table 4.10-22
Cumulative Plus Project Peak Hour Freeway Mainline Level of Service**

Direction	Location	Through Lanes	Aux. Lanes	Mixed-Flow Lanes					
				Cumulative			Cumulative Plus Project		
				Volume	Density	LOS	Volume	Density	LOS
North-bound I-5	Arena Boulevard to Del Paso Road	3	1	7,796	37.6	E	7,737	37.1	E
	Del Paso Road to SR 99	3	0	6,450	48.5	F	6,377	47.4	F
South-bound I-5	Arena Boulevard to Del Paso Road	3	1	5,469	23.3	C	5,475	23.3	C
	Del Paso Road to SR 99	4	0	5,025	23.5	C	5,045	23.6	C
North-bound SR 99	I-5 to Elkhorn Boulevard	2	0	4,383	46.8	F	4,317	45.2	F
	Elkhorn Boulevard to Elverta Road	2	0	3,527	34.4	D	3,534	34.5	D
South-bound SR 99	I-5 to Elkhorn Boulevard	2	0	2,181	17.3	B	2,175	17.3	B
	Elkhorn Boulevard to Elverta Road	2	0	2,287	18.2	C	2,285	18.2	C

Source: See Appendix H.

Table 4.10-23
Cumulative Plus Project Peak Hour Freeway Ramp Termini Queuing

Direction	Location	Available Storage Length (feet/lane)	Maximum Queue Length (feet/lane)	
			Cumulative	Cumulative Plus Project
<i>AM Peak Hour</i>				
I-80 Eastbound	Truxel Road	810	283	289
	Northgate Boulevard	700	221	239
I-80 Westbound	Truxel Road	1,075	148	150
	Northgate Boulevard	680	74	343
I-5 Northbound	Del Paso Road	690	232	271
I-5 Southbound	Del Paso Road	595	147	152
SR 99 Northbound	Elkhorn Boulevard	915	89	90
SR 99 Southbound	Elkhorn Boulevard	900	81	82
<i>PM Peak Hour</i>				
I-80 Eastbound	Truxel Road	810	217	217
	Northgate Boulevard	700	416	416
I-80 Westbound	Truxel Road	1,075	281	341
	Northgate Boulevard	680	228	641
I-5 Northbound	Del Paso Road	690	264	575
I-5 Southbound	Del Paso Road	595	218	224
SR 99 Northbound	Elkhorn Boulevard	915	624	624
SR 99 Southbound	Elkhorn Boulevard	900	88	89

Source: See Appendix H.

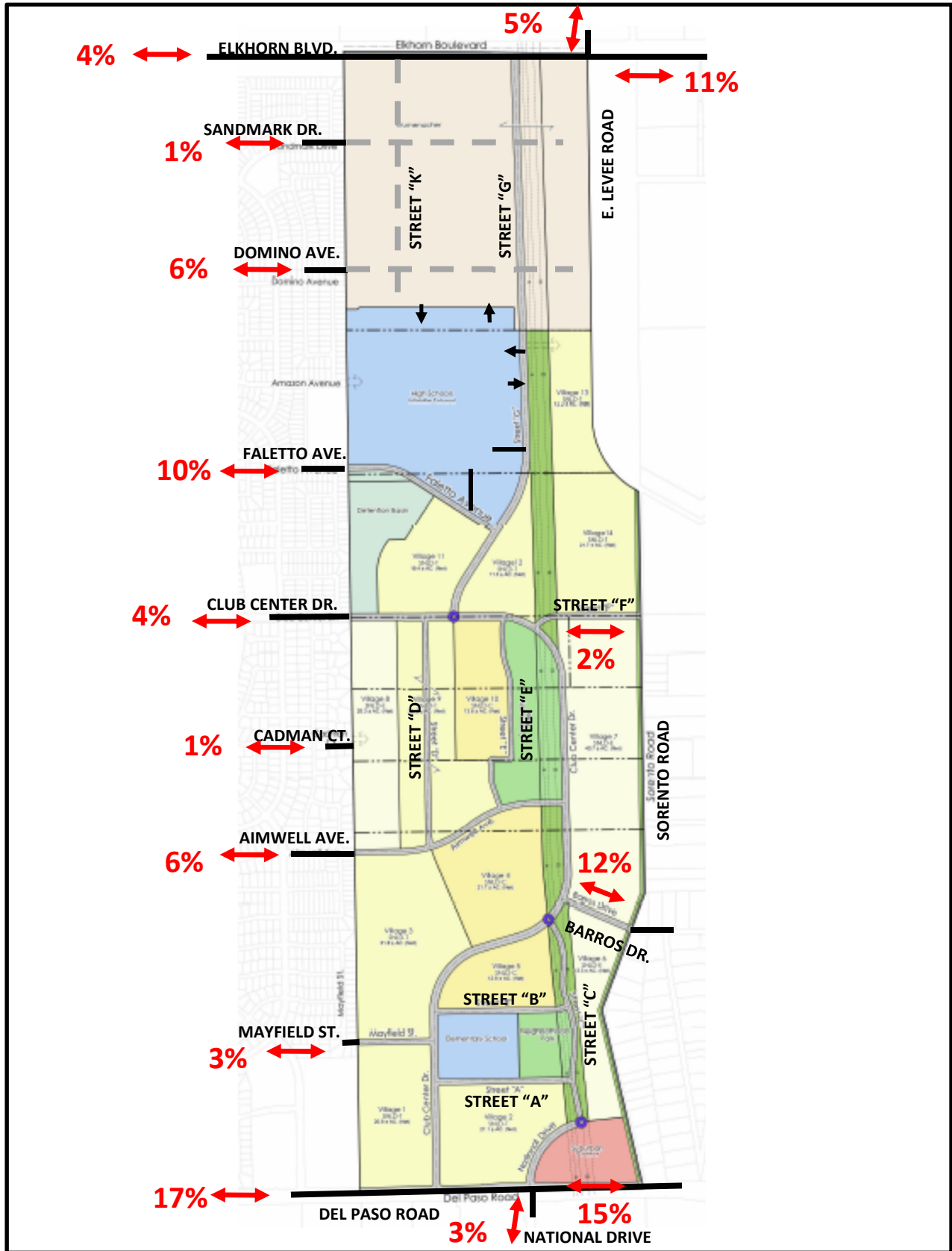
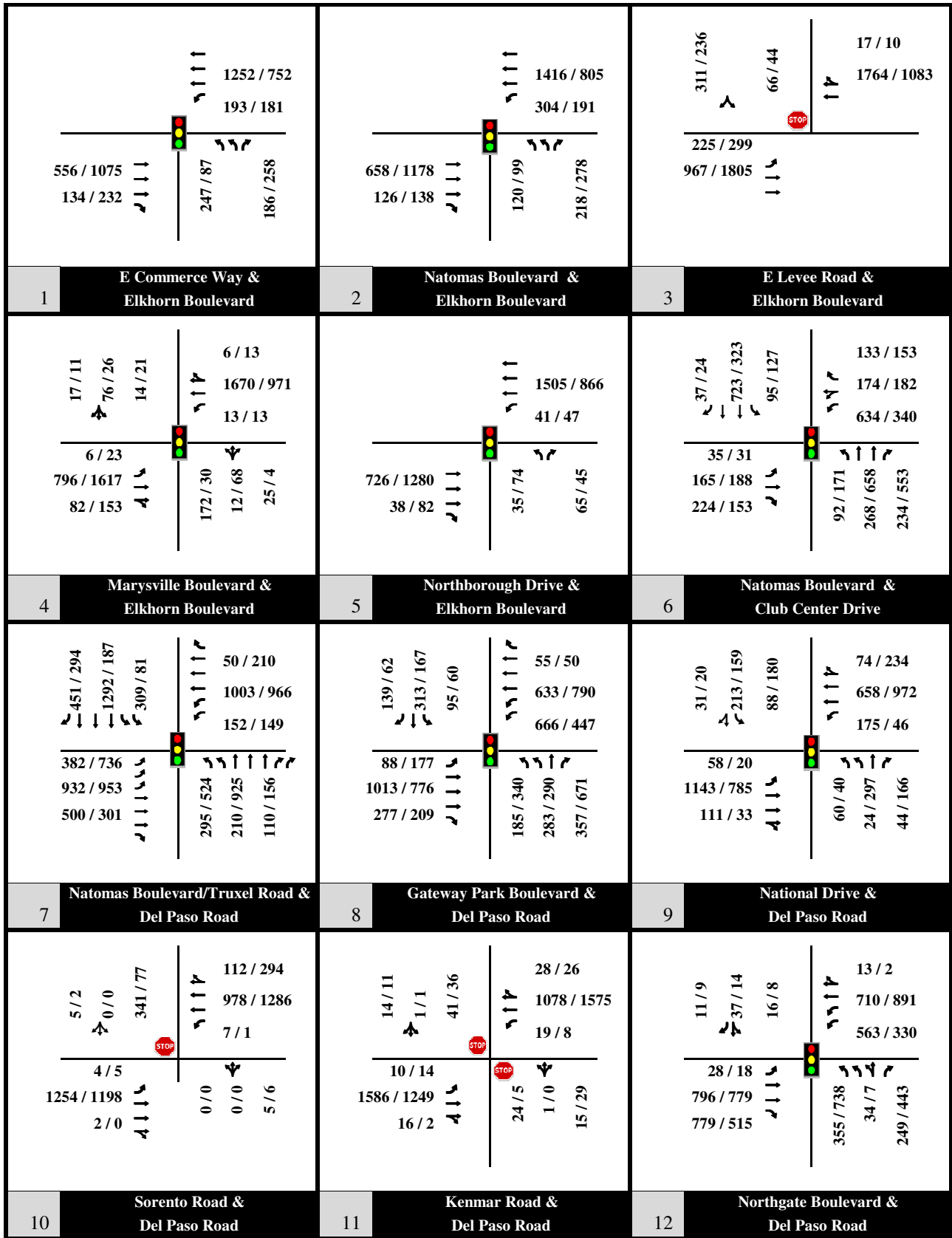


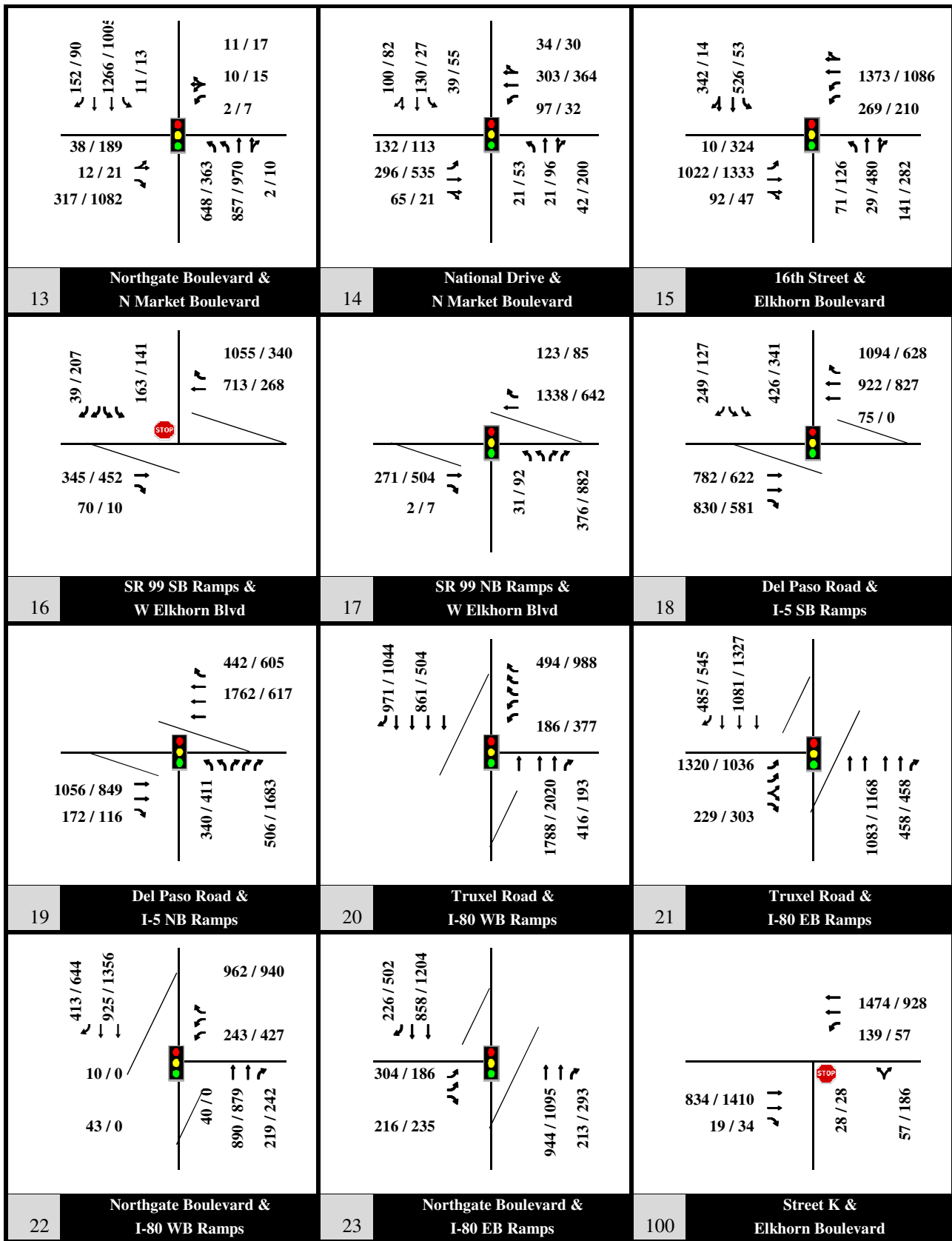
Figure 4.10-14
Daily Trip Distribution, Cumulative (2036) Plus Project





KEY
 31 / 27 = AM / PM peak hour traffic volume
 = Signalized intersection
 = Intersection approach lane
 = Stop sign control
 N St. & E St. = North-south street / east-west street

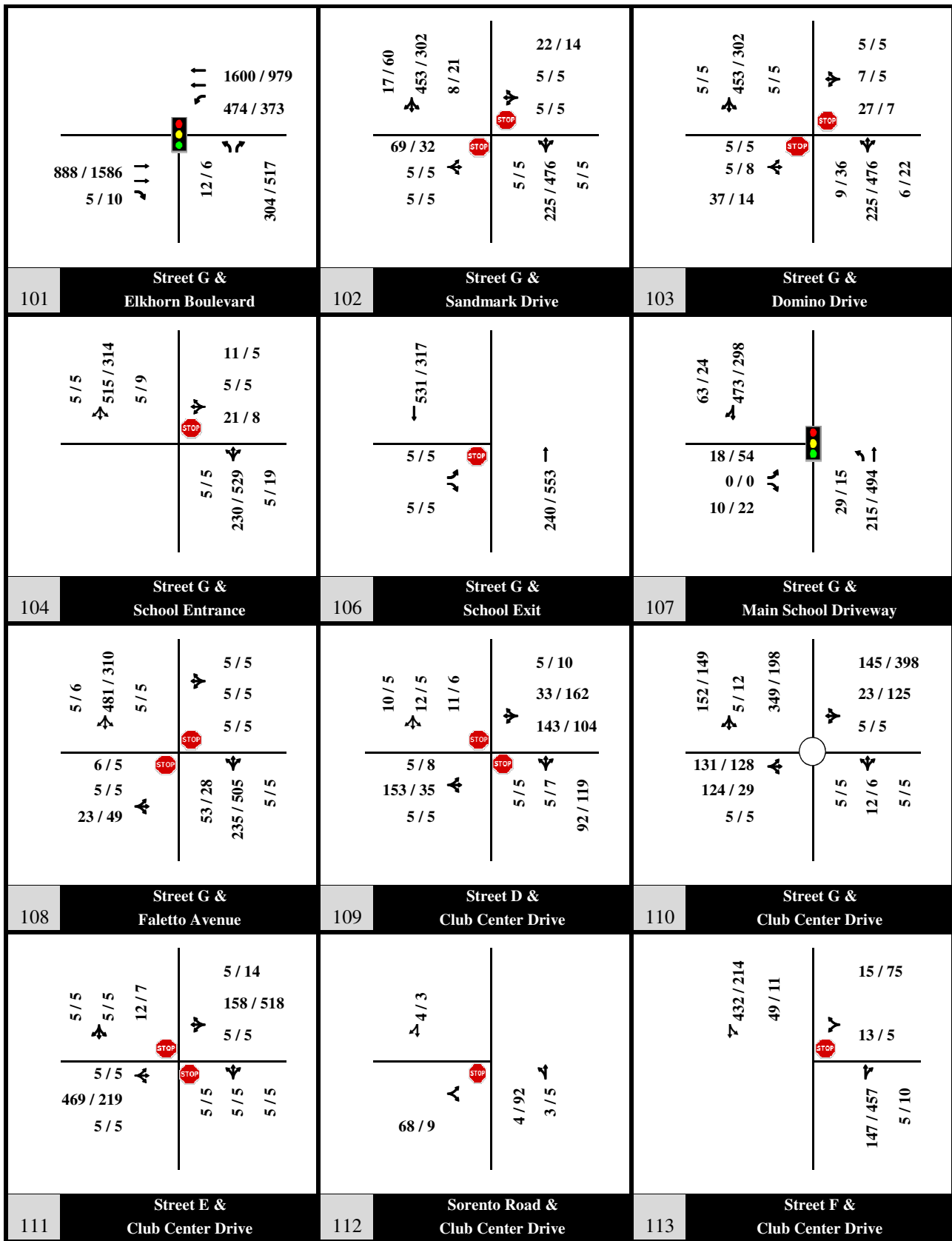
Figure 4.10-15a
Cumulative (2036) Plus
Project
Volumes and Geometry



KEY

- 31 / 27 = AM / PM peak hour traffic volume
- 🚦 = Signalized intersection
- ↔ = Intersection approach lane
- 🛑 = Stop sign control
- N St. & E St. = North-south street / east-west street

Figure 4.10-15b
Cumulative (2036) Plus
Project
Volumes and Geometry

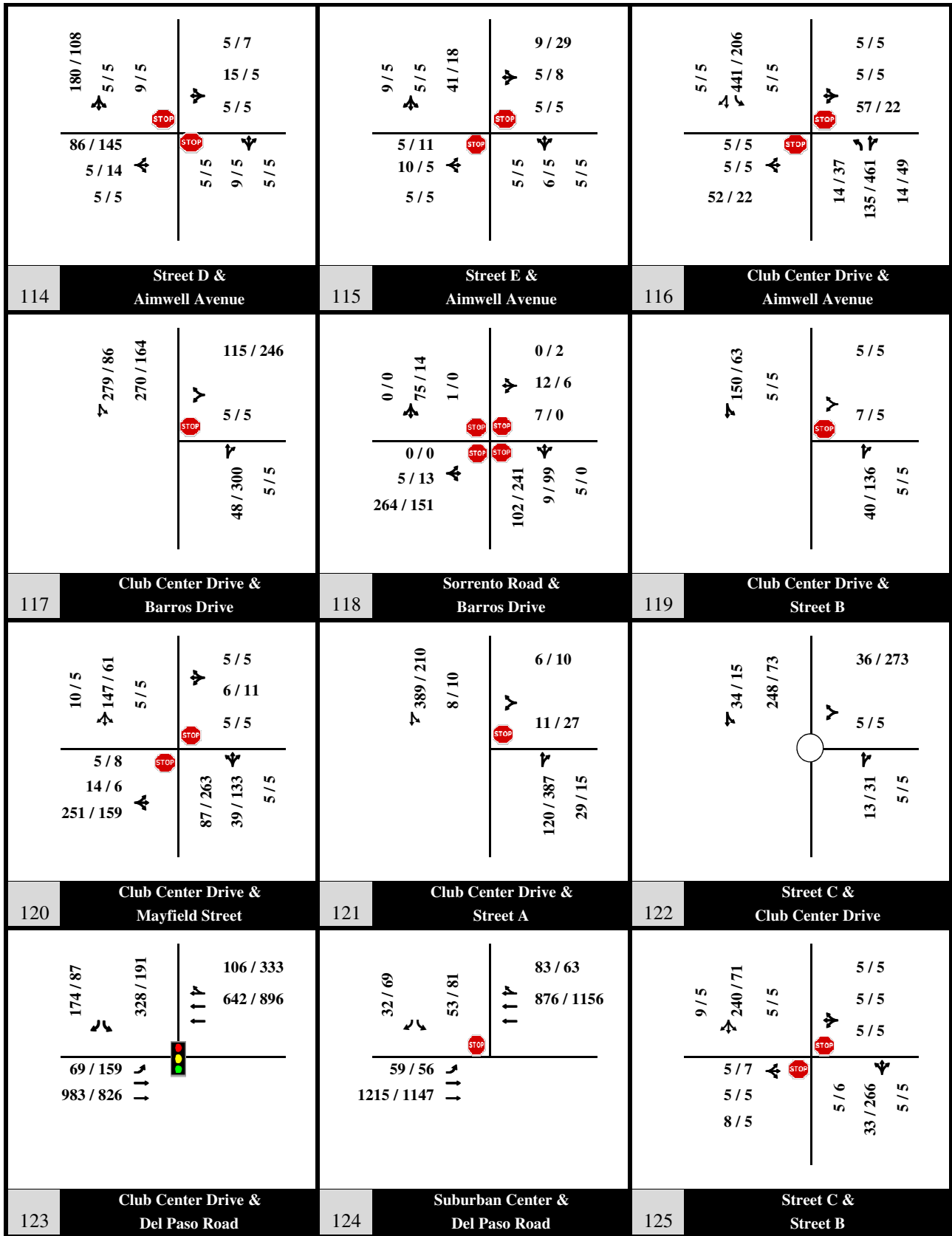


KEY

- 31 / 27 = AM / PM peak hour traffic volume
- ⬤ = Signalized intersection
- ↔ = Intersection approach lane
- ⊥ = Stop sign control

N St. & E St. = North-south street / east-west street

Figure 4.10-15c
Cumulative (2036) Plus
Project
Volumes and Geometry



KEY

31 / 27 = AM / PM peak hour traffic volume

= Signalized intersection

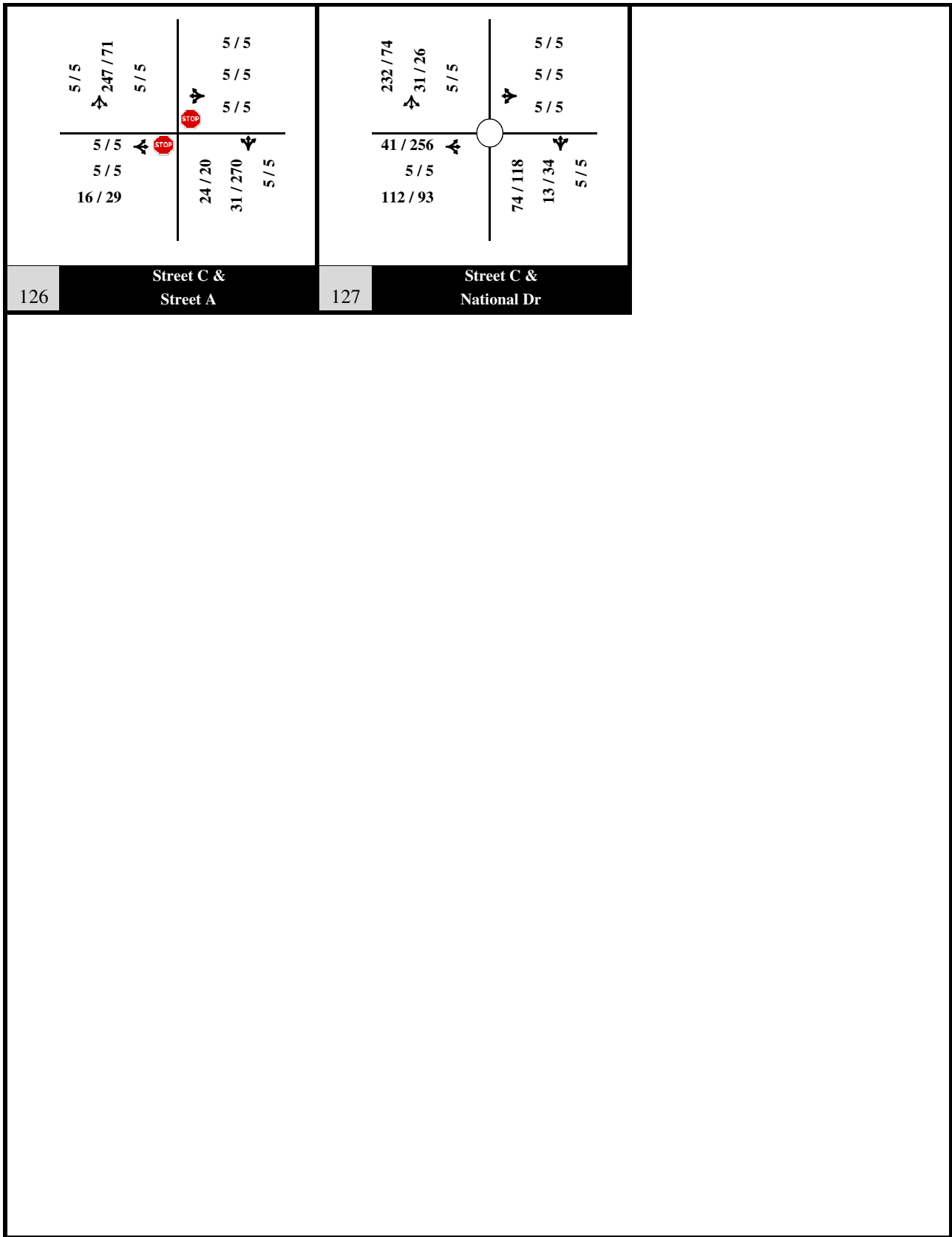
= Intersection approach lane

= Stop sign control

N St. & E St. = North-south street / east-west street



Figure 4.10-15d
Cumulative (2036) Plus
Project
Volumes and Geometry



KEY

- 31 / 27 = AM / PM peak hour traffic volume
- = Signalized intersection
- = Intersection approach lane
- = Stop sign control
- N St. & E St. = North-south street / east-west street

Figure 4.10-15e
Cumulative (2036) Plus
Project
Volumes and Geometry

4.10-8: The proposed project could cause potentially significant impacts to study area intersections under the cumulative plus project scenario. Based on the analysis below the impact is *significant*.

As summarized in Table 4.10-20, the addition of project traffic would generally increase average delay at study area intersections. The project would increase traffic volumes at study area intersections and would cause significant impacts under the cumulative plus project scenario at the following intersections:

- (a) Sorento Road / Del Paso Road –Traffic from the project would result in a change from LOS A to LOS E or F conditions in the peak hours. This is considered a significant impact.

Mitigation Measures

- 4.10-8(a)** Sorento Road / Del Paso Road – Refer to mitigation measure 4.10-1(a), install a traffic signal. This mitigation measure would reduce the impact of the project to a less than significant level.

Table 4.10-24 summarizes existing plus project intersection conditions with mitigation.

4.10-9: The proposed project could cause potentially significant impacts to study area roadway segments. Based on the analysis below the impact is *significant*.

As summarized in Table 4.10-21, the addition of project traffic would generally increase daily traffic volumes on study area roadway segments. The project would increase daily traffic volumes and would cause significant impacts under the cumulative plus project scenario at the following locations:

- (a) Elkhorn Boulevard – Sageview Drive to East Levee Road - Traffic from the project would result in LOS E conditions. This is considered a significant impact.
- (b) Regency Park Circle – North of Club Center Drive - Traffic from the project would result LOS F conditions with an increase in volume-to-capacity ratio of 0.02 or greater. This is considered a significant impact.
- (c) Danbrook Drive – South of Club Center Drive - Traffic from the project would result LOS F conditions with an increase in volume-to-capacity ratio of 0.02 or greater. This is considered a significant impact.
- (d) Sorento Road – North of Del Paso Road - Traffic from the project would result LOS F conditions. This is considered a significant impact.

**Table 4.10-24
Cumulative Plus Project Intersection Operating Conditions Without and With Mitigation**

Intersection	LOS Criteria	Traffic Control	AM Peak Hour				PM Peak Hour			
			Cumulative		Cumulative Plus Project		Cumulative		Cumulative Plus Project	
			LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)
Without Mitigation										
10. Sorento Road / Del Paso Road	D	Unsignalized	A	0.7	F	125.9	A	0.7	E	42.8
Northbound			B	13.5	C	15.0	B	12.4	F	141.8
Southbound			D	27.6	F	>300	D	25.1	F	>300
Eastbound Left Turn			A	9.6	C	15.3	B	11.5	B	14.0
Westbound Left Turn			B	11.6	C	17.5	B	10.6	B	12.3
With Mitigation										
10. Sorento Road / Del Paso Road	D	Signalized			B	11.3			A	7.9

- (e) Barros Drive – Sorento Road to Club Center Drive - Traffic volumes would result in LOS F conditions on this proposed roadway. This is considered a significant impact.
- (f) Mayfield Street – West of Club Center Drive - Traffic volumes would result in LOS F conditions on this proposed roadway. This is considered a significant impact.

Mitigation Measures

- 4.10-9(a)** Elkhorn Boulevard – Sageview Drive to East Levee Road – Widen to six lanes. This is consistent with the Sacramento County General Plan policy. This mitigation measure would reduce the impact of the project to a less than significant level.
- 4.10-9(b)** Regency Park Circle – North of Club Center Drive – Refer to Mitigation Measure 4.10-2(b). A neighborhood traffic management plan shall be implemented to address the impacts of increased traffic volumes on this street. The plan shall be developed in accordance with City practices, including the involvement of the neighborhood. The plan should focus on travel speed and safe pedestrian crossings, and may include elements such as chokers, pedestrian islands, curb extensions, and speed humps. As the volume reduction associated with this plan is uncertain, this impact remains significant and unavoidable.
- 4.10-9(c)** Danbrook Drive – South of Club Center Drive – Refer to Mitigation Measure 4.10-2(c). A neighborhood traffic management plan shall be implemented to address the impacts of increased traffic volumes on this street. The plan shall be developed in accordance with City practices, including the involvement of the neighborhood. The plan should focus on travel speed and safe pedestrian crossings, and may include elements such as chokers, pedestrian islands, curb extensions, and speed humps. As the volume reduction associated with this plan is uncertain, this impact remains significant and unavoidable.
- 4.10-9(d)** Sorento Road – North of Del Paso Road – Refer to Mitigation Measure 4.10-2(d). A neighborhood traffic management plan shall be implemented to address the impacts of increased traffic volumes on this street. The plan shall be developed in accordance with City practices, including the involvement of the neighborhood. The plan should focus on travel speed and safe pedestrian crossings, and may include elements such as chokers, pedestrian islands, curb extensions, and speed humps. As the volume reduction associated with this plan is uncertain, this impact remains significant and unavoidable.
- 4.10-9(e)** Barros Drive – Sorento Road to Club Center Drive –Although daily volume levels for this scenario exceed the LOS thresholds, it should be noted that intersections along the roadway function at an acceptable LOS without the need for two through

lanes in either direction. In accordance with General Plan policies to promote non-automotive modes of travel, no widening of Barros Drive is proposed. As no alternative mitigation measure in accordance with General Plan policy has been identified, this impact remains significant and unavoidable.

- 4.10-9(j)** Mayfield Street – West of Club Center Drive - Although daily volume levels for this scenario exceed the LOS thresholds, it should be noted that intersections along the roadway function at an acceptable LOS without the need for two through lanes in either direction. In accordance with General Plan policies to promote non-automotive modes of travel, no widening of Mayfield Street is proposed. As no alternative mitigation measure in accordance with General Plan policy has been identified, this impact remains significant and unavoidable.

Table 4.10-25 summarizes cumulative plus project roadway segment conditions with mitigation.

- 4.10-10: The proposed project could cause potentially significant impacts to transit. Based on the analysis below and with implementation of mitigation, the impact is less than significant.**

The proposed project would not adversely affect public transit operations. Transit service near the project is limited, and the transit demand of the project is low due to the walking distance to transit. The project fails to provide adequate access to transit. Project impacts to transit are considered significant.

Mitigation Measure

- 4.10-10** Refer to Mitigation Measure 4.10-3. The applicant shall coordinate with Regional Transit (or other transit operators) to plan, fund, and implement transit facilities and services to meet potential transit demand of the project. At a minimum, this includes peak period transit services throughout the development. Transit services shall be phased with the development of the project. This mitigation would reduce the impact of the project to a less than significant level.

- 4.10-11: The proposed project could cause potentially significant impacts to pedestrian facilities. Based on the analysis below the impact is *less than significant*.**

The proposed project includes the construction of new pedestrian facilities along City streets per City standards. Sidewalks and off-street paths would provide pedestrian access throughout the project. The pedestrian ways connect to existing pedestrian facilities abutting the site. The project is not anticipated to adversely affect existing or planned pedestrian facilities. The impact would be **less than significant**.

**Table 4.10-25
Cumulative Plus Project Roadway Segment Conditions Without and With Mitigation**

Roadway	Segment	Operational Class	Cumulative				Cumulative Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Without Mitigation										
Elkhorn Boulevard	Sageview Drive to E. Levee Road	Arterial – Moderate Access Control	4	28,900	0.80	D	4	35,400	0.98	E
With Mitigation										
Elkhorn Boulevard	Sageview Drive to E. Levee Road	Arterial – Moderate Access Control					6	35,400	0.66	B

Mitigation Measure

None required.

4.10-12: The proposed project could cause potentially significant impacts to bicycle facilities. Based on the analysis below the impact is *less than significant*.

Implementation of the proposed project would not remove any existing bicycle facilities or interfere with any bicycle facility that is planned by the City. The project is providing bikeways throughout the site in accordance with City standards, and includes a Class I bikeway throughout the powerline corridor. The project is providing buffered bike lanes along National Drive. The bikeways connect to existing and planned adjacent bikeways. The impact would be **less than significant**.

Mitigation Measure

None required.

4.10-13: The proposed project could cause potentially significant impacts to study area freeway system. Based on the analysis below the impact is *less than significant*.

As summarized in Tables 4.10-20 and 4.10-21, the proposed project would add traffic to freeway segments and ramp junctions in the study area. Assuming the implementation of the planned freeway system improvements, including HOV lanes, the project does not add traffic to a freeway mainline segment operating at LOS F, nor add to ramp terminus queuing beyond the available storage area. This is considered a less than significant impact.

Mitigation Measure

None required.

4.10.5 Non-CEQA Effects

In recognition of the City's relevant General Plan policies (listed above), additional information and recommendations are presented below. This information and analysis is not required under CEQA, but is provided at the request of the lead agency.

Vehicle Miles Traveled (VMT)

Travel forecasting for the project transportation analysis was conducted with the use of SACOG's SACSIM travel model.

SACSIM is a complete travel demand model that SACOG uses for planning in the Sacramento region. The demand for personal travel within the region is modeled by DaySim, an activity-based demand model. DaySim incorporates a variety of model features, including

- The ability to model each person in the Sacramento region separately through the use of a population synthesizer that creates a synthetic population representing each person and household in the region;
- The ability to model the complete daily activity pattern for each individual, including the number and sequencing of activities defined by seven purposes;
- A series of logit destination, mode, and time-of-day choice models at the tour and trip levels to simulate the choices for each individual;
- Estimation of the start and end times of all activities and trips to the half-hour level of resolution; and
- Parcel-level spatial resolution for home and activity locations.

Other components of SACSIM are used to model, at an aggregate level, the remaining components of regional travel - including travel into, out of, and through the region (external travel); truck travel; and travel to and from Sacramento International Airport.¹

All travel into, out of, and within the project area is estimated by the model. The model predicts the number of trips, trip purposes, origins and destinations of trips, time of day of the trips, travel mode (walk, bike, transit, automobile), and travel path. Project-specific factors that are considered in the model include:

- Demographics of the households (income levels, household size, number of workers, auto ownership, etc.) – assumed to be similar to adjacent North Natomas neighborhoods.
- Characteristics of the schools (number of students, typical number of employees).
- Characteristics of the commercial center (number of employees by type) – assumed to be retail oriented.
- Roadway network – connections to existing roadway system, number of lanes, free-flow travel speeds.
- Pedestrian network.
- Bicycle network, on-street and off-street.

¹ “Dynamic, Integrated Model System: Sacramento-Area Application, Volume 1: Summary Report”, Strategic Highway Research Program, Transportation Research Board, Washington, D.C, 2014.

- Development patterns (grid connectivity).

The SACSIM regional travel model was utilized to estimate regional VMT with and without the project. The estimated change in daily VMT is the result of the project. The change in VMT is a result of many factors, including:

- Travel characteristics associated with the project land use:
 - Person trip generation
 - Mode choice (motor vehicle [SOV, HOV], transit, walk, bike)
 - Trip origins and destinations (trip length)
- Redistribution of regional trips associated with new land use (residences, schools, commercial development)
- Network effects:
 - Availability of new roadways associated with the project
 - Change in roadway travel speeds associated with changes in traffic volumes.

As shown in Table 4.10-26, the project is estimated to increase daily VMT by 142,246.

**Table 4.10-26
Estimated Project VMT**

Roadway Type	Regional Daily Vehicle Miles Travelled		
	Existing	Existing Plus Project	Difference
Freeways and Rural Roads	33,632,214	33,682,030	49,816
Urban Streets	24,622,056	24,714,487	92,430
Total	58,254,270	58,396,516	142,246

Project Circulation Recommendations

Quantitative analysis of traffic operations on the project site, consisting of intersection and street segment operations, were described earlier in this report. The project circulation plan (street network) was reviewed for conformity with general transportation engineering principles. It should be noted that at this stage of planning, the project plans do not detail specific locations for local residential streets and driveways. Similarly, no plan for the commercial center is available.

Based upon the review, the following items are recommended:

- 1) Intersection spacing of the streets shown on the plan appears to be adequate to meet City design guidelines and general engineering principles. As individual villages are designed,

care should be given to provide an access design with proper intersection and driveway spacing, as well as allowing convenient pedestrian and bicycle circulation in multiple directions. Pedestrian and bicycle travel through and between villages should be encouraged.

- 2) The access plan for the high school / middle school complex was assumed as a given for purposes of analysis. The only assumed change is the extension of Faletto Avenue across the southern edge of the school site. The following recommendations are made:
 - a) Reduce the number of access points to National Drive. In particular, the area of the East Lot includes a one-way entrance driveway, a one-way exit driveway, and a pedestrian walk to Street "G". The access plan should consider how access will be provided to Village 13 and 14 opposite the school, with emphasis on aligning pedestrian and vehicular access.
 - b) In accordance with the school plan, a traffic signal has been assumed at the main school entrance (intersection 107). Pedestrian access should be oriented to this location to provide safe crossing of Street "G" with pedestrian traffic signal control.
 - c) Provide pedestrian and bicycle access to North Natomas via Amazon Avenue.
- 3) In accordance with General Plan Policy M 4.1.6, roundabouts are planned at three locations. It is expected that they will operate efficiently and safely. It is suggested that another roundabout be considered on Street "G" north of the school site as the Krumenacher property is developed, potentially at intersection 103 (Domino Avenue).
- 4) The Class 1 (off-street) bikeway along the powerline crosses the commercial center, terminating at a mid-block location along Del Paso Road. It is recommended that this bikeway follow National Drive between Del Paso Road and intersection 127. Thus, bicyclists are oriented to a signalized crossing of Del Paso Road, with access to National Drive to the south.

Cumulative (Post-2036) Analysis

In addition to the analysis of Cumulative (2036) conditions described previously, a limited analysis of post-2036 conditions was also undertaken. This analysis was undertaken to evaluate the cumulative impact of many development projects generally located to the north of Elkhorn Boulevard, in Sacramento, Placer, and Sutter Counties. This development is beyond the year 2036 land use projections included in the SACOG 2016 MTP/SCS database.

In addition to the 2036 land use, Table 4.10-27 summarizes additional development projects in this area. Some of the projects are partially or fully entitled, while others are proposals at this time. The post-2036 scenario includes almost 50,000 additional households, and almost 61,000

additional jobs. The Regional University also assumes an increase of about 3,300 students to 6,000 in the post-2036 scenario.

Table 4.10-27
Cumulative (Post-2036) Major Growth District Land Use Estimates

County, District	Cumulative (2036)		Cumulative (Post-2036)	
	Households	Employment	Households	Employment
Sacramento, North Precinct	32	435	20,477	24,512
Placer, Placer Vineyards	4,581	1,499	14,132	11,135
Placer, Regional University	1,594	381	4,387	1,348
Placer, Sierra Vista	6,000	3,500	8,357	4,512
Sutter, Sutter Pointe	2,848	2,995	17,500	28,254
<i>Total – Major Growth Districts</i>	<i>15,055</i>	<i>8,810</i>	<i>64,853</i>	<i>69,761</i>

The post-2036 scenario also includes many transportation improvements to accommodate the major growth districts. These improvements include:

- Placer Parkway - SR 65 to SR 99 (six lanes)
- SR 99 – I-5 to Sankey Road (six lanes)
- Riego Road in Sutter County (six to eight lanes)
- Baseline Road – Sutter County to Watt Avenue (six lanes)
- Watt Avenue – Elverta Road to Baseline Road (six lanes)
- Elverta Road – SR 99 to Rio Linda Boulevard (four lanes)
- Walerga Road – North Loop Boulevard to Baseline Road (four lanes)
- Fiddyment Road – Baseline Road to Pleasant Grove Boulevard (six lanes)
- Lone Tree Road – Meister Way to Elverta Road (four lanes)

Table 4.10-28 summarizes the cumulative (post-2036) plus project daily traffic volumes and LOS on several selected roadways in the study area.

**Table 4.10-28
Cumulative Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Cumulative (2036) Plus Project				Cumulative (Post-2036) Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Elkhorn Boulevard	SR 99 to East Commerce Way	Arterial – Moderate Access Control	6	22,700	0.42	A	6	49,300	0.91	E
	East Commerce Way to Northborough Drive		6	27,500	0.51	A	6	57,200	1.06	F
	Northborough Drive to Natomas Boulevard		6	26,400	0.49	A	6	42,600	0.79	C
	Natomas Boulevard to Sageview Drive		6	28,300	0.52	A	6	41,100	0.76	C
	Sageview Drive to E. Levee Road		4	35,400	0.98	E	6	48,000	0.89	D
	E. Levee Road to Marysville Boulevard		4	32,400	0.90	D	4	39,200	1.09	F
Natomas Boulevard	North Bend Drive to Club Center Drive		4	29,200	0.81	D	4	31,900	0.89	D
	Club Center Drive to Elkhorn Boulevard		4	13,400	0.37	A	4	16,600	0.46	A
Del Paso Road	Truxel Road to Gateway Park Boulevard	6	30,300	0.56	A	6	31,900	0.59	A	
	Gateway Park Boulevard to Black Rock Drive	6	35,100	0.65	B	6	36,600	0.68	B	

**Table 4.10-28
Cumulative Plus Project Roadway Segment Conditions**

Roadway	Segment	Operational Class	Cumulative (2036) Plus Project				Cumulative (Post-2036) Plus Project			
			Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Del Paso Road	Black Rock Drive to National Drive	Arterial – Moderate Access Control	4	26,900	0.75	C	4	36,900	1.03	F
	National Drive to Northgate Boulevard		4	35,300	0.98	E	4	40,500	1.13	F
Northgate Boulevard	Del Paso Road to North Market Boulevard		4	29,400	0.82	D	4	32,000	0.89	D
	North Market Boulevard to I-80		6	42,400	0.79	C	6	47,000	1.31	F
Main Avenue	Northgate Boulevard to Norwood Avenue		4	28,000	0.78	C	4	32,200	0.89	D
Club Center Drive	Danbrook Drive to Danbrook Drive	Minor Collector	2	4,300	0.49	A	2	3,600	0.41	A
	Street “A” to Del Paso Road	Major Collector	2	9,200	0.66	B	2	8,400	0.60	A
National Drive	Del Paso Road to Street “C”		2	6,300	0.45	A	2	5,700	0.41	A
Street “G”	Elkhorn Boulevard to Sandmark Drive		2	11,000	0.79	C	2	11,000	0.79	C

Phasing Analysis

A phasing analysis was conducted to determine the relationship between development on the project site and necessary roadway connections, improvements, and mitigation measures. The phasing analysis is based upon the addition of phased project traffic to existing conditions.

For analysis purposes, it was necessary to assume a phasing pattern for the project. Development is assumed to begin on the south end of the project adjacent to Del Paso Road, and then proceed northerly. Table 4.10-29 summarizes the assumed project phasing.

**Table 4.10-29
Assumed Project Phasing**

Phase	Development Component	Number of Units	Daily Vehicle Trip-Ends	Percentage of Total Daily Vehicle Trip-Ends
1	Villages 1 through 14	1,816 dwelling units	11,463	41%
	Elementary School	500 students	1,263	5%
	Commercial Development	101,277 square feet	4,399	16%
	<i>Subtotal</i>		<i>17,125</i>	<i>62%</i>
	Middle School / High School	2,800 students	5,110	18%
	Krumenacher Property	844 dwelling units	5,392	20%
	Total		27,627	100%

With the development of Phase 1, it was assumed that Street "G" would be constructed northerly from Club Center Drive to Village 14, but would not be extended northerly to Elkhorn Boulevard. Street connections to the west to North Natomas and to the east to Sorento Road would occur as adjacent project components are developed.

The phasing of necessary roadway connections, improvements, and mitigation measures is based upon ensuring that traffic conditions with phased development are no worse than anticipated with full development of the project. Table 4.10-30 summarizes the results of the analysis.

**Table 4.10-30
Phased Transportation Improvements**

Transportation Element	When Required
Extension of Street "G" to Elkhorn Boulevard	Opening of High School and / or Middle School and / or Development on K-Property
Widening – Elkhorn Boulevard – Northborough Drive to East Levee Road – 4 lanes	Extension of Street "G" to Elkhorn Boulevard
Widening – Elkhorn Boulevard – East Levee Road to Marysville Boulevard – 4 lanes	Extension of Street "G" to Elkhorn Boulevard and 20% of total daily vehicle trip-ends
Widening – Elkhorn Boulevard – East Commerce Way to Northborough Drive – 4 lanes	Extension of Street "G" to Elkhorn Boulevard and 40% of total daily vehicle trip-ends
Widening – Elkhorn Boulevard – SR 99 to East Commerce Way – 4 lanes	Extension of Street "G" to Elkhorn Boulevard and 55% of total daily vehicle trip-ends
Neighborhood Traffic Management Plan – Regency Park Circle north of Club Center Drive	Project Connection to Club Center Drive
Neighborhood Traffic Management Plan – Danbrook Drive south of Club Center Drive	Project Connection to Club Center Drive and / or Aimwell Avenue
Neighborhood Traffic Management Plan – Sorento Road north of Del Paso Road	Any project connection to Sorento Road
Traffic Signal – Elkhorn Boulevard / Street "G"	Extension of Street "G" to Elkhorn Boulevard
Traffic Signal Modifications – Del Paso Road / National Drive	Opening of National Drive at Del Paso Road
Traffic Signal – Del Paso Road / Club Center Drive	Opening of Club Center Drive at Del Paso Road
Traffic Signal – Main School Driveway	Opening of High School and / or Middle School
Traffic Signal – Del Paso Road / Sorento Road	Any project connection to Sorento Road and 40% of total daily vehicle trip-ends

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Appendix I

**Sanitary Sewer Study Level Three for
Natomas Panhandle,
Revised Preliminary Water Study
Evaluation for the
Panhandle Development, and Water
Supply Assessment Checklist**

**Sanitary Sewer Study Level Three
for Natomas Panhandle**

SANITARY SEWER STUDY

LEVEL THREE

FOR

NATOMAS PANHANDLE

CITY OF SACRAMENTO, CA

AUGUST 11, 2016

PREPARED FOR:

Sacramento Area Sewer District
10060 Goethe Road
Sacramento, CA 95827

PREPARED BY:

MACKAY & SOMPS CIVIL ENGINEERS, INC.
1551 EUREKA ROAD SUITE 100
ROSEVILLE, CA 95661

PROJECT DEVELOPERS

Panhandle Owner's Group
c/o The Hodgson Company
2514 Chinatown Alley
Sacramento, CA 95816



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EXHIBITS INDEX

EXHIBIT A: LOCATION MAP (INCORPORATED IN TEXT)

EXHIBIT B: SEWER SHED MAP INDEX (INCORPORATED IN TEXT)

THE FOLLOWING EXHIBITS ARE INSERTED AT THE REAR OF THIS REPORT

EXHIBIT C: LAND USE LAYOUT AND SUMMARY

EXHIBIT D: AERIAL PHOTO WITH POINTS OF CONNECTION

EXHIBIT E: PROJECT SEWER SHED BOUNDARY

EXHIBIT F: SASD RURAL RESIDENTIAL AREA CONNECTION ANALYSIS MEMORANDUM

THE FOLLOWING EXHIBITS ARE FOLDED AT THE REAR OF THIS REPORT

EXHIBIT G-1: NATOMAS PANHANDLE SEWER INFRASTRUCTURE PLAN: AT POCs 1, 2, 3, 5

EXHIBIT G-2: NATOMAS PANHANDLE SEWER INFRASTRUCTURE PLAN: AT POC 5

EXHIBIT G-3: NATOMAS PANHANDLE SEWER INFRASTRUCTURE PLAN: AT POC 5, 6

EXHIBIT G-4: NATOMAS PANHANDLE SEWER INFRASTRUCTURE PLAN: AT POCs 5, 6

EXHIBIT H: NORTHPOINTE PARK PHASE 2 SEWER STUDY (WOOD RODGERS 2001)

EXHIBIT J: NORTHPOINTE PARK REVISED SEWER STUDY (SPINK CORPORATION, 1998)

ABBREVIATIONS

ADWF	Average Dry Weather Flow
CFS	Cubic Feet per Second
d/D	Depth of flow/diameter of pipe
ESD	Equivalent Single Family Dwelling Units
FPS	Feet per Second
GPD	Gallons per Day
MGD	Million Gallons per Day
MSL	Mean Sea Level
NAPOTS	Not Part Of This Study
NEMDC	Natomas East Main Drainage Canal
PF	Peaking Factor
PUE	Public Utility Easement
PDWF	Peak Dry Weather Flow
PWWF	Peak Wet Weather Flow
PUD	Planned Unit Development
I/I	Inflow & Infiltration
SASD	Sacramento Area Sewer District
SSCP2010	Sewer System Capacity Plan- 2010 Update
WAPA	Western Area Power Authority
VVE	Valley View Estates

EXECUTIVE SUMMARY

The purpose of this sewer study is to demonstrate to the Sacramento Area Sewer District (SASD) that the downstream sewer network has adequate capacity to provide sanitary sewer service to the Natomas Panhandle development, hereafter referred to as the "Project", through a gravity network of pipelines. This sewer study will be used as the basis for preparing improvement plans for the proposed project as well as to support the EIR documentation and setting the groundwork for the projects sanitary sewer construction financing.

Based on the July 2013 SASD Standards and Specifications Minimum Sewer Study Requirements, the detail in this study supports a Level Three design analysis and is the basis for the future Project improvement plans.

The proposed Project is located within the North Natomas Community Plan area. The Project is a mixed-use community plan that consists of approximately 466 acres within the NN Natomas Trunk Shed. The project applicant is currently processing an entitlement application for a General Plan Amendment, Community Plan Amendment, pre-zoning, Planned Unit Development, development agreements, and annexation to the City of Sacramento. Included in the entitlement is an additional 122.7-acre parcel referred to as the Krumenacher parcel.

The primary emphasis of this study is to support the current entitlement application of the following properties:

- Beachfields LLC
- Peter Tasso Cononelos
- Ernest G. Brothers Revocable Trust
- Moontide LLC
- J Rise Richter Trust
- Twin Rivers Unified School District

This study does not serve the Krumenacher property located long the project's north boundary next to Elkhorn Boulevard. However, it is referenced herein to show consistency with the overall master plan.

The Project is bound by the Krumenacher parcel to the to the north, Del Paso Road to the south, Sorento Road and the Natomas East Main Drainage Canal (NEMDC) to the east, and the Sacramento city limits to the west. Dimensionally, the site is approximately one-half mile wide east to west by one and half miles long north to south.

The Project will develop a total of 3,331 equivalent single-family dwelling units (ESD) and will generate a total Peak Wet Weather Flow (PWWF) of approximately 2.24 million gallons per day (MGD), project only. For complete flow results both on-site and off-site refer to the Design Results and Summary section of this study.

The NN Natomas Trunk Shed will serve the Project including the Krumenacher parcel as well as the off-site 262 acre shed east of Sorento Road known as Valley View Estates. The Upper Northwest Interceptor is the ultimate receptor of all project flows.

Six gravity sewer stubs are provided at the west Project boundary, however only 5 will be extended into the Project. All sewer shed areas within the Project limits can be served by gravity sewers. A sewer lift station is projected to serve a portion of the off-site shed area east of Sorento Road.

In conclusion, the Natomas Panhandle has no identified on or off-site constraints. The Project sewer system can be constructed subject to approval of improvement plans by SASD.

- The existing collector and trunk sewer pipelines stubbed at the Panhandle west boundary have available capacity to serve the proposed Project and the upstream shed east of Sorento Road.
- A sewer lift station will be required to serve a portion of the upstream shed east of Sorento Road
- No downstream improvements are necessary.
- No interim on-site facilities (i.e. temporary on-site pump station) are required.
- This study does not request any exceptions to SASD policy
- The Upper Northwest Interceptor section 2 is the ultimate receptor of all Project flows

PANHANDLE SEWER STUDY

LEVEL THREE

I. INTRODUCTION AND BACKGROUND

I.1 PURPOSE OF STUDY

The purpose of this sewer study is to demonstrate to the SASD that the downstream sewer network has adequate capacity to provide sanitary sewer service to the Project. Based on the July 2013 SASD Standards and Specifications the detail in this study supports a Level Three design analysis. Additionally, this study will focus on the following components which are summarized as follows:

- To ensure technical compliance with the SASD Sewer System Capacity Plan-2010 Update (SSCP2010)
- To support EIR documentation and establish a finance plan for the Project
- To demonstrate the ability to gravity serve the Project
- To confirm the capacity of existing trunk sewers that will serve the Project
- To establish sewer sheds and size the backbone and internal trunk and collector sewer systems, locate and size pump / lift stations, establish depth of pipes and verify cover. The study focus is on topography within the Project and upstream sewer sheds, phasing & timing, trunk and collector sewers and their capacity, Project street layout, shed shifts, special manhole details, defining capacity reservation, and exceptions to policy needed for approval.
- The upstream sewer shed is identified as a 262-acre rural subdivision known as Valley View Estates. The lot sizes are as small as 0.45 acre with single-family residences on individual septic systems. Consistent with SASD standards, this study sizes trunk and collector systems within the Project to serve this upstream shed based on a future tributary density of 6 ESDs per acre.

Refer to the following Exhibits for a Project Overview:

- Exhibit A: Vicinity Map
- Exhibit B: Sewer Shed Map
- Exhibit C: Project land use layout and summary
- Exhibit D: Aerial photo with points of connection

I.2 LEVEL OF STUDY AND BACKGROUND

This study identifies Points of Connection (POCs), calculates sewer flows, and designs the internal collector and trunk sewer system to serve the Project based on:

- SASD Sewer System Capacity Plan- 2010 Update
- Section 201, SASD Standards and Specifications, July 2013
- Record and field verified sanitary sewer invert elevations
- Previously prepared Sewer Master Plan documents for Northpointe Park by The Spink Corporation, revised April 6, 1998 for the area south of Club Center Drive to Del Paso Road, and by Wood-Rodgers, February 2001, for the area north of and including Club Center Drive to Elkhorn Boulevard
- The proposed Project land use map with acreages and densities
- Upstream tributary areas; Valley View Estates east of Sorento Road
- Projected sewer line locations, street centerline grades, and sewer invert elevations throughout the Project
- Project phasing and timing

Based on SASD minimum requirements for a Level III analysis, this study provides information to establish the Project internal collector and backbone trunk sewer system, and forms the basis for improvement plans. Sewer shed areas, total ESDs, flow rates, pipeline slopes, inverts, and rim elevations have been calculated to provide Level III detail.

The pipe capacities at each Project POC, are compared to flows calculated for the Project including upstream shed areas. If Project ESDs at any POC exceed the ESDs calculated in any previous study or the SASD SSCP2010, this study will evaluate the POC and downstream collector / trunk capacity based on the following:

- If Project ESDs at a POC is less than previous studies, no downstream study is required. Capacity at and downstream of the POC is adequate.
- If Project ESDs at one or more POC is greater than previous studies, review of downstream capacity is required. Study/review of a downstream trunk system is limited to systems east of Natomas Boulevard based on record information.

The sanitary sewer trunk lines to serve the Project are identified as follows:

- The NN Natomas Trunk Shed will serve the Project including the Krumenacher parcel and offsite shed area east of Sorento known as Valley View Estates
- The Upper Northwest Interceptor section 2 is the ultimate receptor of all Project flows

I.3 PROJECT LOCATION

The Project is approximately one half mile wide east to west and one and a half miles long north to south. Project boundaries are described as:

- North: Krumenacher parcel's (NAPOTS), south property line
- South: Del Paso Road and industrial / commercial development,
- East: Sorento Road / rural residential, and the NEMDEC Canal
- West: City of Sacramento limits and the Northpointe Planned Community

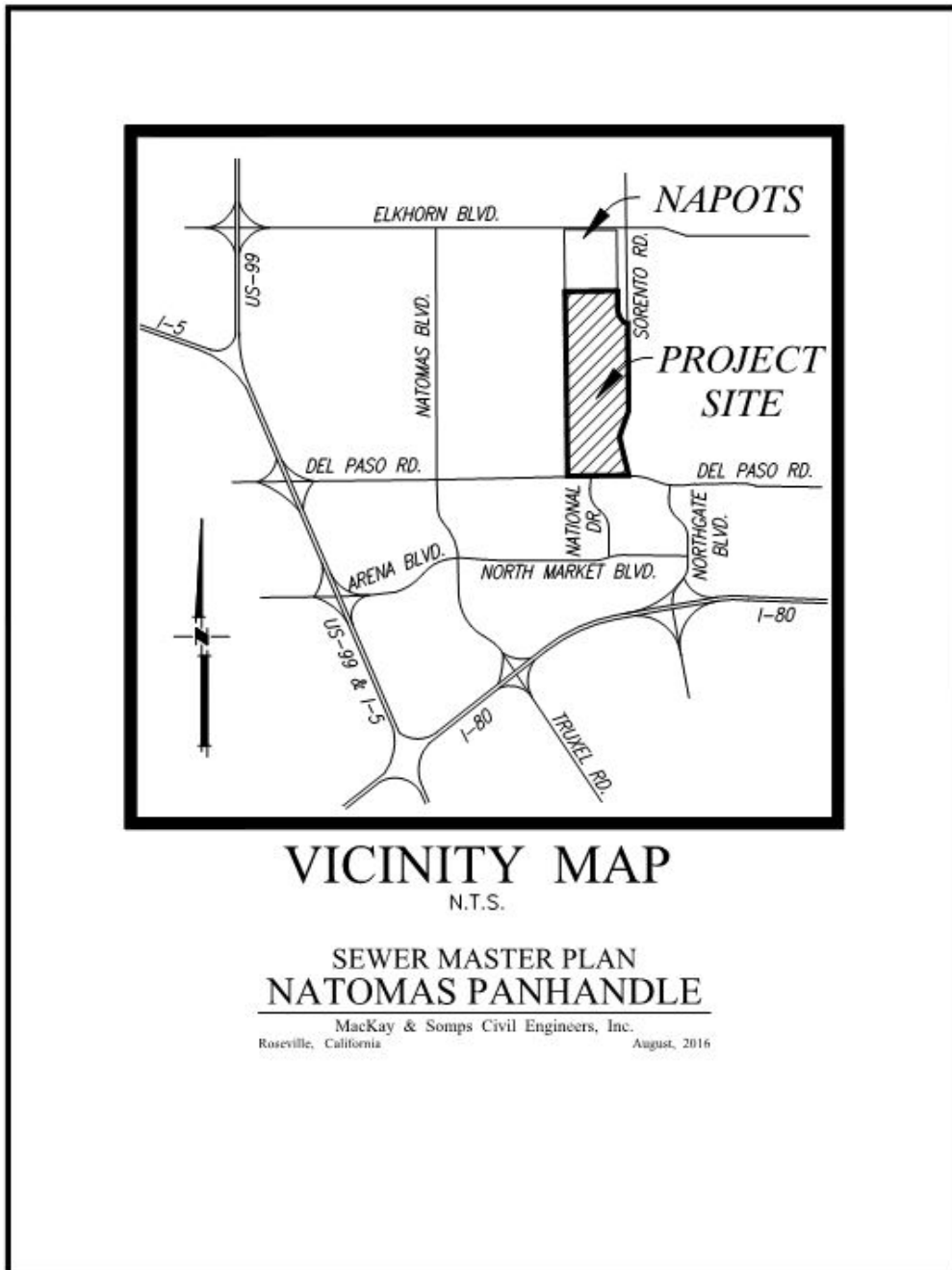


EXHIBIT A

The approximate 466 acre Project consists of previously farmed, but currently vacant land, including one home site. The surrounding upstream off-site land uses east of Sorento Road are comprised of a rural residential subdivision known as Valley View Estates that includes approximately 170 parcels on 262 acres. The other offsite shed is approximately 122-acre parcel referred to as the Krumenacher Property which lies north of the Project. Total acreage for this study is at approximately 850 acres.

Per the SASD Sewer System Capacity Plan- 2010 Update:

I.4 TOPOGRAPHY AND SITE SPECIFIC DESIGN CONSIDERATIONS

ON-SITE TOPOGRAPHY

- The Project site is described as flat to gently rolling terrain with elevations from 12 to 35 feet MSL. The Project is generally very flat with slopes less than one half percent draining east to west. After development, the site will be very flat with nearly all street grades set at one half percent, and an overall positive gradient east to west toward the detention basins located at Club Center Drive and the west Project boundary.

OFF-SITE TOPOGRAPHY

- Topography north and south of the Project is not relevant to the study as these areas are not tributary to the Project sewer shed boundary.
- East of Sorento Road and the Project is the 262 acre Valley View Estates shed area that ranges in elevation from 20 to 34 above MSL. Topography in Valley View Estates is similar to the Project with the majority of the site at less than one half percent grade. The remainder of the site is gently rolling terrain with slopes up to four percent. Approximately 47 acres or 18 percent of Valley View Estates will sewer southwest to the Del Paso Road collector at Sorento Road. The remainder of Valley View Estates will sewer northwest to a 15-inch trunk sewer also stubbed at Sorento Road.
- Due to the very flat topography of the upstream shed east of Sorento Road, a sewer lift station is projected to be required in the vicinity of Sorento Road approximately 400 feet north of Barros Road. The lift station will serve an estimated 133.3 acre sub-shed east of Sorento. Based on 6 ESDs per acre, the lift station would serve 800 ESDs and have a peak wet weather capacity of 0.638 mgd, or 443 gallons per minute.

- Calculation for Off-site Pump Station by Others

Item	Formula	Flow	Unit
ADWF	800 ESD x 310 gal/day =	248,000	gal / day
PF (peaking factor)	3.5 – (1.8 x ADWF ^{0.05}) =	1.82	
PDWF	ADWF x PF	451,360	gal / day
I / I + groundwater	133.3 acre x 1400 gal/day	186,620	gal / day
PWWF	PDWF + I / I + GWI	637,980	gal / day
Pump Station Size	PWWF / 1440 = gal/min	443	gal / min

SITE SPECIFIC DESIGN CONSIDERATIONS

- Six gravity sewer stubs are provided at the west Project boundary as follows:

POC No.	Location	Size (in)	Depth (ft.)
1	Sandmark Drive	10	14.7
2	Domino Avenue	10	17.8
*	Amazon Avenue	8	8.9
3	Faletto Avenue	8	14.5
4	Club Center Drive	10	7.6
5	Aimwell Avenue	21	15.8
*	Mayfield Street	8	10.3
6	Del Paso Road	15	18.9

Sewer stubs at POCs 1, 2, 3, 5, and 6 will be utilized.

- At POC 4 the 10-inch sewer stub at Club Center Drive is 7.6 feet deep and cannot be used to serve any portion of the Project; therefore, it will not be extended into the Project.
- * There are no existing sewer stubs at Amazon Avenue and Mayfield Street. The size and depth of sewer shown in the table above is the information for the existing sewer at its point nearest the Project boundary. Utilizing these sewer lines would require cutting into the existing street and connecting into existing manholes. In addition, the Project does not have street alignments that match with these existing roads to extend the sewer lines.
- The 10-inch sewer stubs at POCs 1 and 2 will be extended east at the time the Krumenacher property develops. For purposes of this study, schematic lines are used to show that gravity sewer can be used to sewer sheds 1 and 2.
- At POC 3 the existing roadway, Faletto Avenue, will not be extended into the Project. This 8-inch sewer connection will be extended east at a time this area develops, and the south portion of the Twin Rivers Unified School District property will be the only portion of the Project served by POC 3. For purposes of this study, a schematic line is used to show that gravity sewer can be used to sewer shed 3. Extension of this 8-inch sewer into the Twin Rivers parcel

could be a public or private line dependent on agreement between the Twin Rivers Unified School District and SASD.

Except for manholes at the Faletto Avenue collector sewer POC 3, all sewer manholes will be located in street areas.

- At POC 5, the 21-inch trunk sewer stubbed at Aimwell Avenue will be extended east through the Project to Sorento Road to serve possible development in the upstream shed. Since there is no direct west to east arterial road to locate the trunk sewer, the pipeline must wind its way through residential streets along much of the west to east route.

This study selected the most direct route that also minimized potential conflicts with other utilities. Where the trunk sewer alignment is along fronting residential units, a parallel collector sewer will provide service to the dwellings. The collector sewer will tie into the trunk sewer at a downstream manhole.

At one location along this route, the trunk sewer will cross the open space, WAPA corridor. A permanent dual use sewer maintenance and emergency vehicle access road will be constructed over the pipeline route. There will be no manholes proposed in the open space corridor.

At another location, an 8" sewer line will cross the open space, WAPA corridor. An access road is not proposed for this location, and there will be no manholes proposed in the open space corridor.

- At POC 6, the 15-inch trunk sewer stubbed at Del Paso Road will be extended east through the Project to Sorento Road. As the pipe line extends east, it is gradually downsized to provide an 8-inch sewer stub at Sorento Road to serve possible development in the upstream shed.
- The Project is unique, as several alley home parcels will have single-family residences fronting National Drive, a four-lane arterial road with median. Service laterals from fronting dwellings will connect to a collector sewer in National Drive. At one location, the collector sewer will be parallel to the trunk sewer in National Drive.

I.5 LAND USE AND ZONING

ON-SITE

- The current land use for the Project site is agriculture. The proposed land use is mixed use including single family, condominium and multi-family residential, commercial, live-work units, schools, parks, drainage detention, open space corridors and arterial and local roadways.

OFF-SITE

- The current land use for the tributary sewer shed east of Sorento Road is rural residential. Currently, no known active development projects are proposed east of Sorento Road. For purposes of this study, a future land use density of 6 ESD per acre was used to size a tributary flow.

II. DESIGN

II.1 DESIGN GENERAL

- Downstream Capacity Assumption: the NN Natomas Trunk sewer facility was adequately sized to serve the Project and upstream tributary sewer shed basins.
- Upstream land use ESD density for flow calculations: future upstream development in the Valley View Estates shed east of Sorento Road is sized for 6 ESD per gross acre, per Section 201 of the SASD Standards and Specifications.

II.2 DESIGN APPROACH AND CRITERIA

Design Task One: Compile record data

The design approach for the Project Sewer Study began with the compilation of known data and resources, previously prepared studies, and the layout and land use summary with densities for the proposed Natomas Panhandle Project including the following:

- SASD Sewer System Capacity Plan- 2010 Update (SSCP2010)
- SASD Standards and Specifications, July 24, 2013
- Previously prepared Sewer Master Plan documents for the adjacent Northpointe Park by The Spink Corporation, April 1998, for the area south of Club Center Drive to Del Paso Road, and by Wood-Rodgers, February 2001, for the area north of and including Club Center Drive to Elkhorn Boulevard
- Record sanitary sewer drawings for adjacent development in Northpointe Park and for Del Paso Road upstream and downstream of the Project
- The best available topography information for the upstream sewer shed east of Sorento Road, known as Valley View Estates
- Tentative map and Land Use Summary for the Natomas Panhandle

Design Task Two: Identify points of connection and capacity

- Using the SASD SSCP2010 study and the Sewer Studies for the adjacent Northpointe Park by Spink and Wood Rodgers, identify the Project sewer points of connection and the available capacity at each POC.
- Using the Sewer Studies for Northpointe Park by Spink and Wood Rodgers, review the downstream collector and trunk line capacities to determine additional available capacity. The incremental capacity information is required if the Project land use densities and resultant ESDs at a specific POC exceed the ESDs designed with the previously prepared Master Plans.

Design Task Three: Obtain criteria to calculate ESDs and design flows

This study uses design criteria from the following:

- SASD Standards and Specifications, July 24, 2013
- SASD Sewer System Capacity Plan- 2010 Update (SSCP2010)

Tables that follow are a summary of ESD data, formulas used to calculate average dry weather and peak wet weather flows, and design / capacity criteria to size pipelines.

TABLE 1**LAND USES AND ESDs**

Land Use	Abbrev.	County Land Use Designations	ESDs / acre
Low Density Residential	LDR	RD-4 to 7	6 minimum or actual lot count
Medium Low Density Res.	MLDR	RD-10	10
Medium Density Residential	MDR	RD-20	15
Public/Quasi-public/Schools	PQP	PQP	6
Recreation/ Parks	RR	RR	6
Open Space/ Detention Basin	OS	O	6

Source: SASD Standards and Specifications, Section 201

TABLE 2**DESIGN FLOW FACTORS**

Item	Value
ESD Flow Factor ~ PDWF ~ Single Family Res.	310 GPD per ESD
ESD Flow Factor ~ PDWF ~ Apartments	$0.75 \times 310 = 232$ GPD/ESD
Elementary School (K-8)	> of 0.025 mgd or 6 ESD/ac
Upper Elementary School (6-8 or 7-9)	> of 0.060 mgd or 6 ESD/ac
High School (9-12 or 10-12)	> of 0.080 mgd or 6 ESD/ac
Commercial	6 ESD / ac
Inflow and Infiltration	1,400 GPD / acre

Source: SASD Standards and Specifications, Section 201

TABLE 3

DESIGN FLOW FORMULAS

Collector and Trunk Sewers	Formula or Value
ESDs	Number of equivalent residential dwelling units
ADWF =	$(\text{ESDs} \times 310) \div 1,000,000$
Inflow and Infiltration (I/I)	1400 x ac of sewer shed area
Collector PF =	$3.5 - (1.8 \times \text{ADWF}^{0.05})$, Minimum is 1.2
Trunk PF =	$3.3 - (1.8 \times \text{ADWF}^{0.04})$, Minimum is 1.2 (see note)
PDWF (MGD) =	ADWF x PF
PWWF (MGD) =	PDWF + I/I

Source:

- **SASD Standards and Specifications, Section 201**

Note: The trunk peaking factor will be used when pipe diameter is 12” or greater

TABLE 4

Hydraulic Design Criteria

Collector Sewer...pipe diameter less than 12”	Value
Manning “n”	0.013
Minimum Velocity at PWWF	2.0 fps
Maximum Velocity	8.0 fps
Maximum d/D ~ diameter < or = 12” with service connections	0.7
Maximum d/D ~diameter = or > 12” without service connections	1.0
Trunk Sewer...pipe diameter 12” and greater	Value
Manning “n”	0.013
12” Trunk Minimum Velocity at PWWF	2.0 fps
15” Trunk Minimum Velocity at PWWF	2.04 fps
18” Trunk Minimum Velocity at PWWF	2.06 fps
21” Trunk Minimum Velocity at PWWF	2.19 fps

Source:

- **SASD Standards and Specifications, Section 203**

TABLE 5**Pipe Slopes & Velocities**

Collector Pipe Diameter	Min. Slope	Min. Velocity ~ fps at 0.5 and 1.0 full
8"	0.0035	2.00
10"	0.0025	2.00
12"	0.0020	2.00
Trunk Pipe Diameter	Min. Slope	Min. Velocity ~ fps at 0.5 and 1.0 full
12"	0.0020	2.00
15"	0.0015	2.04
18"	0.0012	2.06
21"	0.0011	2.19

Source:

- **SASD Standards and Specifications, Section 203**

TABLE 6**Manhole Elevation Criteria**

Pipe Condition	Minimum Flow line criteria
Same pipe diameter in / out	0.05 foot invert drop
Direction change 20 degree or greater	0.10 foot invert drop
Pipes in /out are not the same size	Match crowns
Collector ties into a trunk sewer	Collector invert match trunk crown

Source: SASD Standards and Specifications, Section 203

Design Task Four: Calculate ESDs and Peak Flows Using SASD Standards and Specification

- Prepare a Project preliminary grading study to establish street centerline grades. This study will generally follow the “lay of the land” draining east to west.
- Concurrent with setting preliminary street grades, establish sanitary sewer trunk and collector sewer invert elevations from the five identified POCs upstream to serve the sewer shed basins identified in the SASD Sewer System Capacity Plan- 2010 Update. Minimum cover on sewer main lines to be 4.0 feet.
- In undeveloped areas within the Project, i.e. open space, detention, parks, and off-site tributary areas lacking a definitive road network, use a typical schematic slope of 0.0060 for projection of 8-inch sewer pipes to verify serviceability of these areas.
- For the upstream off-site area east of Sorento Road, which requires a trunk line sewer stub, a schematic network of service lines in the area north of Barros Road and east of Sorento Road was designed. South of Barros Road, the existing roadway network was used for the projection of an 8-inch sewer system. Reference Exhibits G-1, G-2, G-3, and G-4 for the Project collector and trunk sewer system.
- From the Project Tentative Map, identify land uses and densities, and calculate the Project ESDs plus the ESDs from any upstream shed. Consistent with SASD Standards and Specifications, parks, open space, and arterial roads will be assigned an ESD count of 6 ESDs per acre.
- From the ESD counts, calculate PWWFs to compare the design flow to the available capacity at each POC. From this point, it may be an iterative process of pipeline routing and sub-shed modification to match Project design flows to the available capacity at each POC.
- Adjust Project pipeline routing and sub-basin boundaries, and recalculate flows to match Project design flows to capacities at each POC.

III: DESIGN RESULTS AND SUMMARY

III.1 RECAP OF SASD STUDY REQUIREMENTS AND STUDY RESULTS

At the beginning of this study, a description of SASD Minimum Sewer Study Requirements for a Level Three report included:

- Ensure technical compliance with the SASD Sewer System Capacity Plan-2010 Update
- Demonstrate the ability to gravity serve the Project
- Confirm the capacity of existing trunk sewers that will serve the Project
- Establish sewer sheds and design the backbone and internal trunk and collector sewer systems, locate and design pump / lift stations, establish depth of pipes and verify cover of pipes meets City standards. The study focus is on topography within the Project and upstream sewer sheds, phasing & timing, trunk and collector sewers and their capacities, Project street layout, special manhole details, defining capacity reservation, and exceptions to policy needed for approval.

This study achieves the SASD requirements and has:

- Identified the Project sanitary sewer POCs, and available capacity at each POC.
- Identified upstream tributary sewer shed areas and sized the Project sewer systems to accept future development based on current SASD design criteria.
- Calculated wastewater flows using proposed Project land uses / areas / ESD unit counts and upstream shed areas based on the City of Sacramento and SASD design criteria.
- Confirmed that calculated Project flows do not exceed POC capacity.
- Used the Project layout, design sewer pipeline routes and grades to confirm that minimum pipe cover is available on all Project collector and trunk sewer systems. If a sewer pump station is required, size and locate the pump station.

Results of this study are shown in a series of Tables and Exhibits to this study as follows:

- **Table 8:** Natomas Panhandle Sanitary Sewer Calculations

This table summarizes areas, ESDs, pipeline sizes, and flows at each node. Reference Exhibits G-1 through G-4 for the proposed collector and trunk sewer systems.

- **Exhibit E:** Proposed Natomas Panhandle Sewer Shed Boundaries

- **Exhibits G-1 through G-4:** Master Sewer Plan with pipe sizes, lengths, slopes and rim elevations.

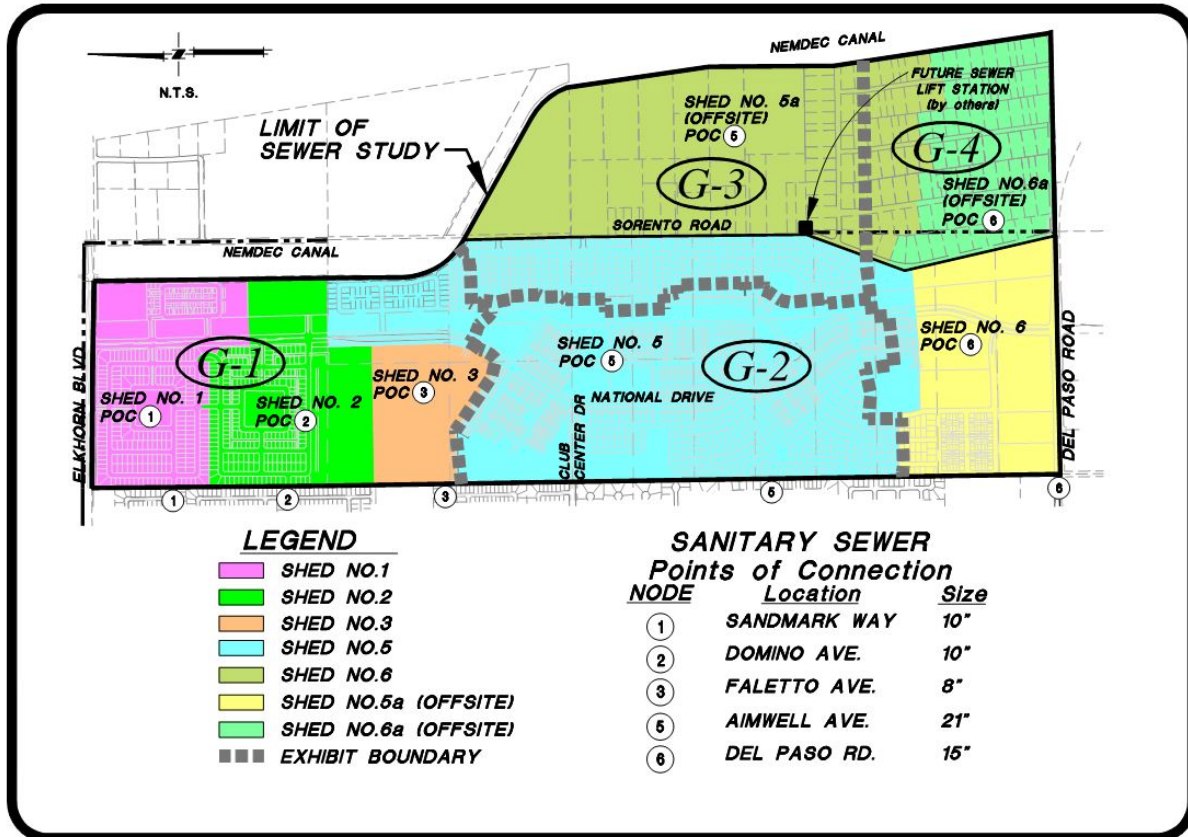


Exhibit B Sewer Shed Map

- **Exhibit H:** Northpointe Park Phase 2 Sewer Study (Wood Rodgers, 2001)
- **Exhibit J:** Northpointe Park Revised Sewer Study (Spink, 1998)

Exhibits H and J are the record master sewer plan information used to identify POCs, assumed PWWF flows from the Project, and available capacity at each POC for the Project and the upstream offsite shed.

III.2 SUMMARY OF TRUNK SEWER ROUTES AND FLOWS

ON-SITE SERVICE AREAS

Project wastewater flows including upstream shed areas were calculated, pipelines were sized and flows were compared to available capacity at the five POCs at the west Project boundary. Results of this part of the study are:

- Table 8: Project wastewater flows at each node in the system are summarized.
- Exhibits G-1 through G-4: the proposed sanitary sewer collector trunk system

Based on the flow rate calculations in Table 8, the actual ESD count and tributary acreage from the Project at each POC vary from the previous Northpointe Park studies by Wood Rodgers and Spink. To ensure that downstream capacity is available, each POC was reviewed for the critical downstream segment. A summary of each POC is as follows:

POC 1 = Wood Rodgers Node 17 at Sandmark Way. Reference Exhibit H. The Wood Rodgers Northpointe Park Phase 2 Sewer Study. The critical downstream segment in this 10-inch collector is at Wood Rodgers Node 20. The ESD capacity at POC 1 is confirmed as follows:

Critical Node 20 in Wood Rodgers (WR) Study	WR at Node 20 = A	WR at POC 1 = Node 17 = B	Panhandle at Node 17 = C	Rev. ESD & Acre at WR Node 20 = A - B + C = D
ESDs	590	474	415	531
Acres	98.3	79.0	69.1	88.4

Revised collector flow at Node 20 based on 531 ESDs and 88.4 acres = 0.429 mgd < 0.58 mgd (10-inch capacity at d/D=0.7). Capacity at POC 1 is available.

POC 2 = Wood Rodgers Node 10 at Domino Ave. Reference Exhibit H. The critical downstream segment in this 10-inch collector is at Wood Rodgers Node 12. The ESD capacity at POC 2 is confirmed as follows:

Critical Node 12 in Wood Rodgers (WR) Study	WR at Node 12 = A	WR at POC 2 = Node 10 = B	Panhandle at Node 10 = C	Rev. ESD & Acre at WR Node 12 = A - B + C = D
ESDs	558	498	477	537
Acres	93.0	83.0	79.5	89.5

Revised collector flow at Node 12 based on 537 ESDs and 89.5 acres = 0.434 mgd < 0.58 mgd (10-inch capacity at d/D=0.7). Capacity at POC 2 is available.

POC 3 = Wood Rodgers Node 1 at Dream Way. Reference Exhibit H. The critical downstream segment in this 8-inch collector is at Wood Rodgers Node 3. The ESD capacity at POC 3 is confirmed as follows:

Critical Node 3 in Wood Rodgers (WR) Study	WR at Node 3 = A	WR at POC 3 = Node 1 = B	Panhandle at Node 1 = C	Rev. ESD & Acre at WR Node 3 = A - B + C = D
ESDs	334	294	218	258
Acres	55.7	49.0	36.4	43.1

Revised collector flow at Node 3 based on 258 ESDs and 43.1 acres = 0.213 mgd < 0.38 mgd (8-inch capacity at d/D=0.7). Capacity at POC 3 is available.

Downstream of POCs 1, 2, and 3:

At Wood Rodgers Node 28. Reference Exhibit H. The critical downstream segment in this 18-inch trunk is at Node 28. The ESD capacity at Wood Rodgers Node 28 is confirmed as follows:

Critical Node 28 in Wood Rodgers (WR) Study	WR at Node 28 = A	WR at POC Nodes 1+10+17 = B	Panhandle at POC Nodes 1+10+17 = C	Rev. ESD & Acre at WR Node 28 = A - B + C = D
ESDs	3249	1266	1110	3093
Acres	498.7	211	185	472.7

Revised NN Natomas Trunk flow at Wood Rodgers Node 28 based on 3093 ESDs and 472.7 acres = 2.295 mgd < 2.35 mgd (18-inch capacity at d/D=1.0). Capacity in the downstream 18-inch NN Natomas Trunk is available.

POC 5 at Aimwell. Reference Exhibit J. The POC is Spink Node 418, and the critical downstream segment in this trunk sewer is at Node 416. The ESD capacity at POC 418 is confirmed as follows:

Critical Node 416 in Spink Study	Spink at Node 416 = A	Spink at POC 5 = Node 418 = B	Panhandle at Node 418 = C	Rev. ESD & Acre at Node 416 = A - B + C = D
ESDs	3528	3304	3434	3658
Acres	499	472	521.7	548.7

Revised trunk flow at Node 5 based on 3658 ESDs and 548.7 acres = 2.683 mgd < 3.40 mgd (21-inch capacity at d/D=1.0). Capacity at POC 5 is available.

POC 6 at Del Paso Road. Reference Exhibit J. The POC is Spink Node 423, and the critical downstream segment in this 15-inch trunk is at Node 419. The ESD capacity at POC 6 is confirmed as follows:

Critical Node 419 on Spink Study	Spink at Node 419 = A	Spink at POC Node 423 = B	Panhandle at Node 416 = C	Rev. ESD & Acre at Node 419 = A - B + C = D
ESDs	1482	966	1242	1758
Acres	205.3	138	140.8	208.1

Revised trunk flow at Node 6 based on 1758 ESDs and 208.1 acres = 1.247 mgd < 1.60 mgd (15-inch capacity at d/D=1.0). Capacity is available.

Based on the above summaries of Project flows at POCs 1, 2, 3, 5, and 6, capacity is available at all POCs.

COMBINED PROJECT AND UPSTREAM SERVICE AREAS

Table 7 summarizes the resultant flows from Table 8 at each POC at the west Project boundary and also compares these flows to the assumed flows from downstream record master sewer plans. Flows in Table 7 include the off-site tributary area east of Sorento Road.

TABLE 7
PROJECT FLOWS SUMMARY
AT Each Point of Connection

Street Location Panhandle POC	SASD SSCP2010 Load MH	Panhandle POC/NODE	POC PIPE DIA (in)	PROJECT DEMAND			Assumed PWWF at Node	
				ESD	AREA (ac)	PWWF (mgd)		
Sandmark Way (POC 1)	201075016	1-0	10	415	69	1.88 ⁽¹⁾	0.34	0.37
Domino Ave (POC 2)	201092001	2-0	10	477	79	1.86 ⁽¹⁾	0.39	0.39
Faletto Ave (POC 3)	201081004	3-0	8	218	36	1.93 ⁽¹⁾	0.18	0.23
Totals NN Natomas Trunk Sheds 1, 2 & 3				1110	184		0.91	
Aimwell Ave (POC 5)	NNJ070	5-0	21	3436	525	1.50 ⁽²⁾	2.32	2.31
Del Paso Rd (POC 6)	225106018	6-0	15	1250	142	1.57 ⁽²⁾	0.81	0.98
Totals NN Natomas Trunk Sheds 5 & 6				4686	667		3.13	

(1) Used collector peaking factor PF

(2) Used trunk peaking factor PF

OVERALL PROJECT FLOWS SUMMARY
BY PROJECT AND UPSTREAM SHED

Area	Acres	ESDs	PF	PWWF (mgd)
Sheds 1,2,3,5,6 (The Project & Krumenacher Property)	589	4223	1.48	2.97
Sheds 5a & 6a (east of Sorento)	262	1573	1.55	1.16
Totals	851	5796		4.13

III.3 SUB-SURFACE CONDITIONS / SPECIAL MANHOLE DETAILS

- Sub-surface conditions affecting construction:

Groundwater may be present in deep pipeline trenches dependent on the time of year that construction occurs. Local irrigation and municipal pumping from wells, and RD 1000 drainage canal water levels affect local groundwater depth.

Wallace-Kuhl & Associates prepared six Geotechnical Engineering Reports between June 2003 and November 2005 that covered all parcels within the

Project boundary except the 69-acre Grant High School District property. From the collective reports, a total of 49 test holes were bored. Forty six (46) of the holes ranged from 7 to 15 foot deep with twelve holes (12) drilled to 15 feet. No groundwater was found in any of these 46 holes. Three test holes varied from 20 to 24.5 feet deep, and only the deepest hole encountered groundwater at 23 feet below ground surface.

Based on Plate No. 2 included in the report by Wallace-Kuhl for the Brothers North Property, the 24.5-foot deep boring, No. D1, was drilled on March 18, 2005, just north of the extension of Club Center Drive near the middle of the Project. Plotting the general location of test hole D1 on a topographic map, the natural ground contour elevation is approximately plus 20 MSL. Therefore, groundwater at this boring was approximately minus 3 feet MSL.

Based on the 49 test holes by Wallace-Kuhl, this study concludes that groundwater is not likely to be found in the upper 15 feet measured from existing ground surface.

- Sewer Manhole Details:

This study does not identify the need for any special sanitary sewer structures, and standard SASD details will be used for all manholes.

III.4 CAPACITY RESERVATION

This study has identified the shed area east of Sorento Road as the only upstream shed area. Capacity based on the 262 acre shed times 6 ESD per acre has been “reserved” and accounted for in the proposed Natomas Panhandle sewer system.

III.5 EXCEPTIONS TO POLICY

This study does not request any exceptions to SASD policy.

IV: PROJECT PHASING

The sanitary sewer has been planned to allow the north and south property owners to develop sewer infrastructure to serve those respective properties independently. The middle property, Twin Rivers Unified School District, will sewer the south part of their site to an 8-inch sewer stub at Faletto Avenue and the north portion of the site to a 10-inch sewer stub at Domino Way. A sewer easement through the Krumenacher property is required for the Twin Rivers Unified School District property to access the Domino Way sewer stub.

Phasing of the overall Project is not known at this time, but if Phase 1 starts with properties in the south, the first phase will likely construct the following infrastructure/sewer improvements:

- Improve (widen) Del Paso Road from the west boundary to National Drive.
- Extend the 21-inch trunk sewer at Aimwell Avenue to National Drive.
- National Drive from Del Paso Road to Club Center Drive.
- Club Center Drive from the west Project boundary to National Drive.
- Residential neighborhoods and other land uses served by Phase 1 infrastructure may be developed concurrently.

V: CONCLUSION

- The total PWWF from the Natomas Panhandle project area (including Krumenacher Parcel), and the upstream off-site Valley View Estates area were determined to be 2.97 MGD and 1.16 MGD respectively. When applying the calculated peaking factor to the combined flows, the total PWWF is 4.13 mgd.
- A total Project area of 589 acres and off-site area of 262 acres contributing 4223 ESDs and 1573 ESDs respectively, were analyzed in this study.
- The existing trunk and collector sewers stubbed at the west boundary of the Project have sufficient capacity to serve the Project and the upstream off-site area.
- Lotting is based on unapproved tentative map with the likelihood of it changing
- Land uses identified herein are consistent with the proposed large lot tentative map as submitted. Future small lot tentative map will likely trigger the need for an amendment to this study as lotting patterns may change.
- It was determined that the Natomas Panhandle project can be served by a gravity sewer system without any constraints. However, a future lift station will be required to serve approximately 133.3 acres of the upstream shed east of Sorento Road.

Table 8 - Natomas Panhandle Sanitary Sewer Calculations

Node Out	Node In	Land Use	ESD by Lot Count	ESD by Land Use	Largest ESD	Sum ESD	Q ADWF (mgd)	Peaking Factor	Q PDWF (mgd)	Area (acres)	Sum Area (acres)	I/I (mgd)	Q PWWF (mgd)	Q PWWF (gpm)	Q PWWF (cfs)	Dia. (in.)	Min. Slope	Pipe Length (ft.)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Velocity (fps)	Depth of Flow (ft.)	(d/D)%
1-2	1-1	PD	0	277	277	277	0.09	1.91	0.16	46.20	46.20	0.06	0.23	159	0.35	8	0.0060	2200	14.00	0.80	29.7	15.7	2.49	0.28	43
1-3	1-1	PD	0	137	137	137	0.04	1.96	0.08	22.89	22.89	0.03	0.12	80	0.18	8	0.0060	2350	15.00	0.80	32.8	17.8	2.07	0.20	30
1-1	1-0	PD	0	0	0	415	0.13	1.88	0.24	0.00	69.09	0.10	0.34	235	0.52	10	0.0025	135	0.63	0.29	16.3	15.7	1.98	0.41	49
2-2	2-1	PD	0	374	374	374	0.12	1.88	0.22	62.28	62.28	0.09	0.31	212	0.47	8	0.0060	2050	10.14	-2.16	35.0	24.9	2.69	0.34	50
2-3	2-1	PD	0	103	103	103	0.03	1.98	0.06	17.17	17.17	0.02	0.09	61	0.14	8	0.0060	1575	7.39	-2.16	28.5	21.1	1.91	0.17	26
2-1	2-0	PD	0	0	0	477	0.15	1.86	0.28	0.00	79.45	0.11	0.39	269	0.60	10	0.0025	140	-2.33	-2.68	16.2	18.5	2.05	0.44	53
3-2	3-1	PD	0	218	218	218	0.07	1.93	0.13	36.40	36.40	0.05	0.18	126	0.28	8	0.0060	1530	10.13	0.95	26.0	15.9	2.34	0.25	38
3-1	3-0	PD	0	0	0	218	0.07	1.93	0.13	0.00	36.40	0.05	0.18	126	0.28	8	0.0060	50	0.85	0.50	16.0	15.2	2.34	0.25	38

Table 8 - Natomas Panhandle Sanitary Sewer Calculations

Node Out	Node In	Land Use	ESD by Lot Count	ESD by Land Use	Largest ESD	Sum ESD	Q ADWF (mgd)	Peaking Factor	Q PDWF (mgd)	Area (acres)	Sum Area (acres)	I/I (mgd)	Q PWWF (mgd)	Q PWWF (gpm)	Q PWWF (cfs)	Dia. (in.)	Min. Slope	Pipe Length (ft.)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Velocity (fps)	Depth of Flow (ft.)	(d/D)%
5-184	5-183	OS	0	10	10	10	0.00	2.15	0.01	1.67	1.67	0.00	0.01	6	0.01	8	0.0060	440	11.09	8.53	18.0	6.9	0.97	0.06	9
5-181	5-179	SNLD-C	6	19	19	19	0.01	2.11	0.01	2.49	2.49	0.00	0.02	11	0.02	8	0.0035	395	10.57	9.09	18.4	7.8	0.95	0.08	13
5-180	5-179	SNLD-C	2	1	2	2	0.00	2.26	0.00	0.16	0.16	0.00	0.00	1	0.00	8	0.0035	105	9.46	9.09	17.5	8.0	0.48	0.03	4
5-178	5-176	SNLD-C	32	15	32	32	0.01	2.07	0.02	1.97	1.97	0.00	0.02	16	0.04	8	0.0035	220	9.74	8.82	17.7	8.0	1.07	0.10	15
5-177	5-176	SNLD-C	0	3	3	3	0.00	2.23	0.00	0.43	0.43	0.00	0.00	2	0.00	8	0.0035	185	9.93	8.82	17.5	7.6	0.57	0.04	6
5-175	5-173	OS	0	63	63	63	0.02	2.02	0.04	10.48	10.48	0.01	0.05	38	0.08	8	0.0060	715	14.12	9.85	19.5	5.4	1.66	0.13	20
5-174	5-173	SNLD-C	16	9	16	16	0.00	2.12	0.01	1.20	1.20	0.00	0.01	8	0.02	8	0.0035	205	10.67	9.85	18.5	7.8	0.88	0.07	11
5-182	5-172	SNLD-C	12	6	12	12	0.00	2.14	0.01	0.82	0.82	0.00	0.01	6	0.01	8	0.0035	175	9.93	9.21	17.8	7.9	0.81	0.06	10
5-173	5-172	SNLD-C	2	2	2	81	0.03	2.00	0.05	0.26	11.94	0.02	0.07	46	0.10	8	0.0035	155	9.75	9.21	18.0	8.3	1.46	0.17	26
5-176	5-171	SNLD-C	8	4	8	43	0.01	2.05	0.03	0.55	2.95	0.00	0.03	22	0.05	8	0.0035	95	8.77	8.39	17.5	8.7	1.17	0.12	18
5-172	5-171	SNLD-C	4	4	4	97	0.03	1.99	0.06	0.49	13.25	0.02	0.08	54	0.12	8	0.0035	220	9.21	8.39	18.0	8.8	1.53	0.19	28
5-179	5-170	SNLD-C	12	6	12	33	0.01	2.07	0.02	0.84	3.49	0.00	0.03	18	0.04	8	0.0035	240	8.99	8.15	17.2	8.2	1.10	0.11	16
5-171	5-170	SNLD-C	0	1	1	141	0.04	1.96	0.09	0.08	16.28	0.02	0.11	75	0.17	8	0.0035	55	8.34	8.15	17.2	8.9	1.67	0.22	33
5-161	5-159	SNLD-T	11	13	13	13	0.00	2.13	0.01	2.19	2.19	0.00	0.01	8	0.02	8	0.0035	400	7.71	6.31	16.4	8.7	0.87	0.07	11
5-160	5-159	SNLD-T	9	13	13	13	0.00	2.14	0.01	2.09	2.09	0.00	0.01	8	0.02	8	0.0035	260	7.22	6.31	17.2	10.0	0.86	0.07	11
5-159	5-157	SNLD-T	3	6	6	31	0.01	2.07	0.02	0.96	5.24	0.01	0.03	19	0.04	8	0.0035	260	6.21	5.30	17.1	10.9	1.12	0.11	17
5-158	5-157	SNLD-T	6	9	9	9	0.00	2.16	0.01	1.42	1.42	0.00	0.01	5	0.01	8	0.0035	305	6.37	5.30	16.1	9.7	0.77	0.06	9
5-157	5-155	SNLD-T	14	19	19	59	0.02	2.03	0.04	3.10	9.76	0.01	0.05	35	0.08	8	0.0035	605	5.20	3.02	17.1	11.9	1.34	0.15	22
5-156	5-155	SNLD-T	7	10	10	10	0.00	2.15	0.01	1.69	1.69	0.00	0.01	6	0.01	8	0.0035	190	3.64	3.02	16.9	13.3	0.81	0.06	10
5-169	5-151	SNLD-C	0	2	2	2	0.00	2.25	0.00	0.28	0.28	0.00	0.00	1	0.00	8	0.0035	220	8.16	7.39	16.9	8.7	0.50	0.03	5
5-153	5-151	PR	30	29	30	30	0.01	2.08	0.02	4.86	4.86	0.01	0.03	18	0.04	8	0.0060	600	10.97	7.39	18.3	7.3	1.34	0.09	14
5-152	5-151	SNLD-C	5	10	10	10	0.00	2.15	0.01	1.28	1.28	0.00	0.01	6	0.01	8	0.0035	80	7.67	7.39	17.6	9.9	0.78	0.06	9
5-151	5-149	SNLD-C	0	3	3	45	0.01	2.05	0.03	0.43	6.85	0.01	0.04	26	0.06	8	0.0035	320	7.29	6.17	17.5	10.2	1.24	0.13	19
5-150	5-149	SNLD-T	6	8	8	8	0.00	2.16	0.01	1.41	1.41	0.00	0.01	5	0.01	8	0.0035	360	7.43	6.17	17.0	9.6	0.77	0.06	9
5-81	5-145	SNLD-T	3	3	3	228	0.07	1.92	0.14	0.57	44.23	0.06	0.20	137	0.31	8	0.0035	345	5.62	4.41	19.0	13.4	1.97	0.30	46
5-49	5-141	SNLD-C	18	30	30	30	0.01	2.08	0.02	4.01	4.01	0.01	0.02	17	0.04	8	0.0035	795	10.84	7.83	17.8	7.0	1.09	0.11	16
5-142	5-141	SNLD-T	26	17	26	26	0.01	2.09	0.02	2.83	2.83	0.00	0.02	14	0.03	8	0.0035	570	9.92	7.83	17.4	7.5	1.03	0.10	14
5-141	5-139	SNLD-C	21	19	21	77	0.02	2.01	0.05	2.50	9.34	0.01	0.06	42	0.09	8	0.0035	655	7.73	5.39	18.0	10.3	1.42	0.16	25
5-138	5-139	SNLD-C	19	10	19	82	0.03	2.00	0.05	1.38	10.99	0.02	0.07	46	0.10	8	0.0035	205	6.16	5.39	17.2	11.0	1.45	0.17	26
5-148	5-138	SNLD-T	24	37	37	37	0.01	2.06	0.02	6.21	6.21	0.01	0.03	23	0.05	8	0.0035	1110	10.35	6.26	17.9	7.6	1.18	0.12	18
5-137	5-138	SNLD-C	15	26	26	26	0.01	2.09	0.02	3.40	3.40	0.00	0.02	15	0.03	8	0.0035	115	6.66	6.26	16.6	9.9	1.04	0.10	15
5-149	5-135	SNLD-T	12	19	19	72	0.02	2.01	0.05	3.14	11.40	0.02	0.06	42	0.09	8	0.0035	770	6.07	3.27	17.1	11.0	1.42	0.16	25
5-136	5-135	SNLD-T	32	11	32	32	0.01	2.07	0.02	1.84	1.84	0.00	0.02	16	0.04	8	0.0035	325	4.51	3.27	16.3	11.8	1.07	0.10	15
5-132	5-130	SNLD-T	0	23	23	23	0.01	2.10	0.01	3.75	3.75	0.01	0.02	14	0.03	8	0.0060	485	8.70	5.81	16.2	7.5	1.23	0.08	12
5-131	5-130	SNLD-T	3	5	5	5	0.00	2.20	0.00	0.84	0.84	0.00	0.00	3	0.01	8	0.0035	170	6.40	5.81	15.7	9.3	0.66	0.05	7

Table 8 - Natomas Panhandle Sanitary Sewer Calculations

8/10/2016

Node Out	Node In	Land Use	ESD by Lot Count	ESD by Land Use	Largest ESD	Sum ESD	Q ADWF (mgd)	Peaking Factor	Q PDWF (mgd)	Area (acres)	Sum Area (acres)	I/I (mgd)	Q PWWF (mgd)	Q PWWF (gpm)	Q PWWF (cfs)	Dia. (in.)	Min. Slope	Pipe Length (ft.)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Velocity (fps)	Depth of Flow (ft.)	(d/D)%
5-130	5-128	SNLD-T	24	25	25	52	0.02	2.04	0.03	4.12	8.71	0.01	0.05	31	0.07	8	0.0035	780	5.71	2.93	16.0	10.3	1.30	0.14	21
5-129	5-128	SNLD-T	3	5	5	5	0.00	2.20	0.00	0.75	0.75	0.00	0.00	3	0.01	8	0.0035	170	3.52	2.93	16.5	13.0	0.64	0.04	7
5-119	5-126	SNLD-C	2	6	6	90	0.03	1.99	0.06	0.77	13.14	0.02	0.07	52	0.12	8	0.0035	170	5.56	4.96	16.0	10.4	1.50	0.18	27
5-125	5-126	SNLD-C	2	3	3	16	0.00	2.12	0.01	0.39	2.38	0.00	0.01	10	0.02	8	0.0035	155	5.50	4.96	16.0	10.5	0.92	0.08	12
5-127	5-125	SNLD-C	3	6	6	6	0.00	2.19	0.00	0.74	0.74	0.00	0.00	3	0.01	8	0.0035	170	6.20	5.60	15.5	9.3	0.67	0.05	7
5-189	5-125	PR	7	8	8	8	0.00	2.17	0.01	1.25	1.25	0.00	0.01	5	0.01	8	0.0035	225	6.39	5.60	16.9	10.5	0.74	0.06	8
5-124	5-123	SNLD-T	22	21	22	22	0.01	2.10	0.01	3.51	3.51	0.00	0.02	13	0.03	8	0.0035	610	5.83	3.59	15.7	9.9	1.01	0.09	14
5-122	5-123	SNLD-C	17	23	23	23	0.01	2.09	0.01	3.05	3.05	0.00	0.02	13	0.03	8	0.0035	625	5.88	3.59	16.9	11.0	1.01	0.09	14
5-134	5-121	SNLD-T	0	32	32	32	0.01	2.07	0.02	5.37	5.37	0.01	0.03	20	0.04	8	0.0060	730	11.00	6.64	17.6	6.6	1.37	0.10	15
5-133	5-121	SNLD-C	7	13	13	13	0.00	2.14	0.01	1.69	1.69	0.00	0.01	7	0.02	8	0.0035	510	8.52	6.64	15.8	7.3	0.85	0.07	11
5-121	5-119	SNLD-C	3	6	6	51	0.02	2.04	0.03	0.80	7.86	0.01	0.04	30	0.07	8	0.0035	250	6.54	5.66	15.4	8.9	1.28	0.14	21
5-120	5-119	SNLD-C	21	34	34	34	0.01	2.07	0.02	4.51	4.51	0.01	0.03	19	0.04	8	0.0035	770	8.55	5.66	15.6	7.1	1.13	0.11	17
5-115	5-113	SNLD-E	26	24	26	26	0.01	2.09	0.02	5.41	5.41	0.01	0.02	17	0.04	8	0.0035	1105	14.61	10.44	22.3	7.7	1.08	0.10	16
5-114	5-113	SNLD-E	7	7	7	7	0.00	2.18	0.00	1.56	1.56	0.00	0.01	5	0.01	8	0.0035	210	11.18	10.44	20.7	9.5	0.74	0.06	9
5-165	5-112	OS	0	30	30	30	0.01	2.08	0.02	4.94	4.94	0.01	0.03	18	0.04	8	0.0060	665	13.48	9.52	20.0	6.5	1.34	0.09	14
5-116	5-112	SNLD-E	9	8	9	9	0.00	2.16	0.01	1.85	1.85	0.00	0.01	6	0.01	8	0.0035	480	11.40	9.52	21.9	10.5	0.79	0.06	9
5-113	5-112	SNLD-E	0	1	1	34	0.01	2.07	0.02	0.26	7.23	0.01	0.03	22	0.05	8	0.0035	235	10.34	9.52	19.7	9.4	1.18	0.12	18
5-111	5-109	SNLD-E	13	12	13	13	0.00	2.13	0.01	2.74	2.74	0.00	0.01	9	0.02	8	0.0035	475	12.42	10.66	22.3	9.9	0.89	0.08	11
5-110	5-109	SNLD-E	15	13	15	15	0.00	2.12	0.01	2.83	2.83	0.00	0.01	10	0.02	8	0.0035	450	12.24	10.66	20.4	8.2	0.92	0.08	12
5-117	5-108	SNLD-E	6	6	6	6	0.00	2.19	0.00	1.29	1.29	0.00	0.01	4	0.01	8	0.0035	355	11.18	9.74	18.7	7.5	0.71	0.05	8
5-109	5-108	SNLD-E	2	2	2	30	0.01	2.07	0.02	0.51	6.08	0.01	0.03	19	0.04	8	0.0035	235	10.56	9.74	19.9	9.3	1.13	0.11	17
5-105	5-104	SNLD-E	9	8	9	9	0.00	2.16	0.01	1.73	1.73	0.00	0.01	6	0.01	8	0.0035	250	13.32	12.44	20.6	7.3	0.79	0.06	9
5-106	5-103	SNLD-E	6	5	6	6	0.00	2.19	0.00	1.19	1.19	0.00	0.01	4	0.01	8	0.0035	225	10.65	9.86	19.0	8.4	0.70	0.05	8
5-104	5-103	SNLD-E	13	11	13	22	0.01	2.10	0.01	2.41	4.14	0.01	0.02	14	0.03	8	0.0035	665	12.34	9.86	20.4	8.1	1.02	0.09	14
5-108	5-102	SNLD-E	1	1	1	38	0.01	2.06	0.02	0.31	7.68	0.01	0.03	24	0.05	8	0.0035	205	9.64	8.92	18.1	8.5	1.21	0.12	19
5-103	5-102	SNLD-E	7	6	7	35	0.01	2.06	0.02	1.33	6.66	0.01	0.03	22	0.05	8	0.0035	240	9.76	8.92	18.2	8.4	1.17	0.12	18
5-112	5-100	SNLD-E	0	2	2	75	0.02	2.01	0.05	0.40	14.42	0.02	0.07	46	0.10	8	0.0035	310	9.42	8.33	18.9	9.5	1.46	0.17	26
5-102	5-100	SNLD-E	0	1	1	74	0.02	2.01	0.05	0.19	14.53	0.02	0.07	46	0.10	8	0.0035	140	8.82	8.33	17.4	8.6	1.45	0.17	26
5-101	5-100	SNLD-E	11	8	11	11	0.00	2.15	0.01	1.79	1.79	0.00	0.01	7	0.02	8	0.0060	285	10.04	8.33	18.5	8.5	1.00	0.06	9
5-167	5-99	Road	0	0	0	0	0.00	3.50	0.00	1.70	1.70	0.00	0.00	2	0.00	8	0.0035	880	10.48	7.20	18.6	8.1	0.54	0.03	5
5-100	5-99	PR	0	5	5	164	0.05	1.95	0.10	0.84	31.58	0.04	0.14	100	0.22	8	0.0035	265	8.47	7.20	18.0	9.5	1.81	0.26	38
5-98	5-99	Road	0	0	0	27	0.01	2.08	0.02	0.25	5.30	0.01	0.02	17	0.04	8	0.0035	200	7.90	7.20	16.5	8.6	1.09	0.10	16
5-164	5-98	PR	0	14	14	14	0.00	2.13	0.01	2.32	2.32	0.00	0.01	9	0.02	8	0.0060	510	11.06	8.00	18.0	6.9	1.07	0.07	10
5-147	5-98	SNLD-T	13	11	13	13	0.00	2.13	0.01	1.91	1.91	0.00	0.01	8	0.02	8	0.0060	90	9.72	8.00	16.9	7.2	1.04	0.06	9
5-185	5-98	Road	0	0	0	0	0.00	3.50	0.00	0.82	0.82	0.00	0.00	1	0.00	8	0.0070	200	9.40	8.00	16.2	6.8	0.55	0.02	3

Table 8 - Natomas Panhandle Sanitary Sewer Calculations

Node Out	Node In	Land Use	ESD by Lot Count	ESD by Land Use	Largest ESD	Sum ESD	Q ADWF (mgd)	Peaking Factor	Q PDWF (mgd)	Area (acres)	Sum Area (acres)	I/I (mgd)	Q PWWF (mgd)	Q PWWF (gpm)	Q PWWF (cfs)	Dia. (in.)	Min. Slope	Pipe Length (ft.)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Velocity (fps)	Depth of Flow (ft.)	(d/D)%
5-97	5-95	SNLD-E	6	5	6	6	0.00	2.19	0.00	1.19	1.19	0.00	0.01	4	0.01	8	0.0035	225	9.57	8.79	20.7	11.1	0.70	0.05	8
5-96	5-95	SNLD-E	6	5	6	6	0.00	2.19	0.00	1.01	1.01	0.00	0.01	4	0.01	8	0.0035	180	9.42	8.79	19.4	10.0	0.69	0.05	8
5-95	5-93	SNLD-E	7	6	7	19	0.01	2.11	0.01	1.32	3.52	0.00	0.02	12	0.03	8	0.0035	250	8.69	7.81	19.9	11.2	0.98	0.09	13
5-94	5-93	SNLD-E	17	15	17	17	0.01	2.12	0.01	3.30	3.30	0.00	0.02	11	0.02	8	0.0035	585	10.06	7.81	20.6	10.5	0.95	0.08	13
5-91	5-89	SNLD-C	14	8	14	14	0.00	2.13	0.01	1.11	1.11	0.00	0.01	7	0.02	8	0.0035	125	11.73	11.40	18.8	7.1	0.85	0.07	11
5-90	5-89	SNLD-C	24	13	24	24	0.01	2.09	0.02	1.67	1.67	0.00	0.02	12	0.03	8	0.0035	180	11.93	11.40	19.0	7.1	0.99	0.09	13
5-89	5-87	SNLD-C	14	11	14	52	0.02	2.04	0.03	1.41	4.19	0.01	0.04	27	0.06	8	0.0035	380	11.20	9.77	18.2	7.0	1.24	0.13	20
5-88	5-87	SNLD-C	16	8	16	16	0.00	2.12	0.01	1.04	1.04	0.00	0.01	8	0.02	8	0.0035	90	10.09	9.77	18.0	7.9	0.88	0.07	11
5-190	5-86	SNLD-T	9	8	9	9	0.00	2.16	0.01	1.27	1.27	0.00	0.01	5	0.01	8	0.0035	395	7.85	6.47	17.5	9.7	0.77	0.06	9
5-168	5-86	OS	0	15	15	15	0.00	2.12	0.01	2.50	2.50	0.00	0.01	9	0.02	8	0.0060	450	9.17	6.47	18.0	8.8	1.09	0.07	10
5-99	5-86	OS	0	2	2	193	0.06	1.94	0.12	0.27	38.85	0.05	0.17	118	0.26	8	0.0035	150	7.10	6.47	17.5	10.4	1.89	0.28	42
5-187	5-84	SNLD-T	4	4	4	4	0.00	2.21	0.00	0.65	0.65	0.00	0.00	3	0.01	8	0.0035	215	6.58	5.83	17.7	11.1	0.61	0.04	6
5-186	5-84	SNLD-T	10	6	10	10	0.00	2.15	0.01	1.06	1.06	0.00	0.01	6	0.01	8	0.0035	225	6.62	5.83	19.1	12.5	0.78	0.06	9
5-84	5-82	SNLD-T	5	3	5	19	0.01	2.11	0.01	0.58	2.29	0.00	0.02	11	0.02	8	0.0035	215	5.73	4.98	18.3	12.6	0.95	0.08	13
5-83	5-82	SNLD-T	10	8	10	10	0.00	2.15	0.01	1.35	1.35	0.00	0.01	6	0.01	8	0.0035	325	6.02	4.98	18.3	12.3	0.79	0.06	9
5-86	5-81	SNLD-T	9	8	9	217	0.07	1.93	0.13	1.27	42.62	0.06	0.19	131	0.29	8	0.0035	185	6.37	5.72	20.4	14.0	1.95	0.30	45
5-85	5-81	SNLD-T	8	6	8	8	0.00	2.17	0.01	1.04	1.04	0.00	0.01	5	0.01	8	0.0035	230	6.53	5.72	19.1	12.6	0.74	0.06	8
5-188	5-80	SNLD-T	10	8	10	10	0.00	2.15	0.01	1.38	1.38	0.00	0.01	6	0.01	8	0.0035	230	5.03	4.13	16.5	11.5	0.79	0.06	9
5-82	5-80	SNLD-T	5	4	5	34	0.01	2.07	0.02	0.69	4.33	0.01	0.03	19	0.04	8	0.0035	215	4.88	4.13	17.9	13.0	1.13	0.11	17
5-76	5-74	SNLD-E	31	20	31	31	0.01	2.07	0.02	4.45	4.45	0.01	0.03	18	0.04	8	0.0035	905	18.00	14.44	26.8	8.8	1.11	0.11	16
5-75	5-74	SNLD-E	18	9	18	18	0.01	2.11	0.01	1.89	1.89	0.00	0.01	10	0.02	8	0.0035	360	15.77	14.44	23.4	7.6	0.93	0.08	12
5-74	5-72	SNLD-E	0	1	1	50	0.02	2.04	0.03	0.22	6.56	0.01	0.04	28	0.06	8	0.0035	215	14.41	13.66	21.4	7.0	1.26	0.13	20
5-73	5-72	SNLD-E	25	15	25	25	0.01	2.09	0.02	3.29	3.29	0.00	0.02	14	0.03	8	0.0035	730	16.32	13.66	25.0	8.7	1.03	0.10	14
5-71	5-69	SNLD-E	27	14	27	27	0.01	2.08	0.02	3.22	3.22	0.00	0.02	15	0.03	8	0.0035	770	17.00	13.56	24.0	7.0	1.05	0.10	15
5-70	5-69	SNLD-E	28	19	28	28	0.01	2.08	0.02	4.21	4.21	0.01	0.02	17	0.04	8	0.0035	980	16.48	13.56	25.0	8.5	1.08	0.10	15
5-118	5-68	OS	0	9	9	9	0.00	2.16	0.01	1.53	1.53	0.00	0.01	6	0.01	8	0.0060	335	14.90	12.79	22.0	7.1	0.95	0.05	8
5-72	5-68	SNLD-E	7	4	7	82	0.03	2.00	0.05	0.89	10.74	0.02	0.07	46	0.10	8	0.0035	220	13.56	12.79	20.5	6.9	1.45	0.17	26
5-69	5-68	SNLD-E	3	2	3	58	0.02	2.03	0.04	0.49	7.92	0.01	0.05	33	0.07	8	0.0035	190	13.46	12.79	21.4	7.9	1.32	0.14	22
5-185	5-67	OS	0	32	32	32	0.01	2.07	0.02	5.34	5.34	0.01	0.03	19	0.04	8	0.0060	945	17.50	11.78	27.4	9.9	1.37	0.10	15
5-68	5-67	OS	0	2	2	151	0.05	1.96	0.09	0.35	20.54	0.03	0.12	84	0.19	8	0.0035	260	12.69	11.78	20.4	7.7	1.72	0.23	35
5-163	5-65	SNLD-T	8	15	15	15	0.00	2.13	0.01	2.45	2.45	0.00	0.01	9	0.02	8	0.0035	530	19.07	16.71	27.2	8.1	0.90	0.08	12
5-162	5-65	SNLD-T	4	8	8	8	0.00	2.17	0.01	1.28	1.28	0.00	0.01	5	0.01	8	0.0035	310	17.80	16.71	28.2	10.4	0.74	0.06	9
5-66	5-63	SNLD-T	16	22	22	22	0.01	2.10	0.01	3.74	3.74	0.01	0.02	14	0.03	8	0.0035	920	18.91	15.59	27.0	8.1	1.02	0.09	14
5-65	5-63	SNLD-T	8	9	9	31	0.01	2.07	0.02	1.47	5.20	0.01	0.03	19	0.04	8	0.0035	290	16.61	15.59	28.0	11.4	1.12	0.11	16
5-64	5-63	SNLD-T	14	19	19	19	0.01	2.11	0.01	3.16	3.16	0.00	0.02	12	0.03	8	0.0035	720	18.31	15.59	28.5	10.2	0.97	0.09	13

Table 8 - Natomas Panhandle Sanitary Sewer Calculations

Node Out	Node In	Land Use	ESD by Lot Count	ESD by Land Use	Largest ESD	Sum ESD	Q ADWF (mgd)	Peaking Factor	Q PDWF (mgd)	Area (acres)	Sum Area (acres)	I/I (mgd)	Q PWWF (mgd)	Q PWWF (gpm)	Q PWWF (cfs)	Dia. (in.)	Min. Slope	Pipe Length (ft.)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Velocity (fps)	Depth of Flow (ft.)	(d/D)%
5-154	5-62	OS	0	16	16	16	0.00	2.12	0.01	2.60	2.60	0.00	0.01	10	0.02	8	0.0060	500	16.47	15.03	31.0	14.5	1.11	0.07	10
5-63	5-62	SNLD-T	0	2	2	74	0.02	2.01	0.05	0.26	12.36	0.02	0.06	44	0.10	8	0.0035	130	15.49	15.03	27.5	12.0	1.44	0.17	25
5-166	5-61	Road	0	0	0	0	0.00	3.50	0.00	1.97	1.97	0.00	0.00	2	0.00	8	0.0035	560	17.18	14.40	31.0	13.8	0.56	0.04	6
5-62	5-61	OS	0	1	1	91	0.03	1.99	0.06	0.13	15.09	0.02	0.08	54	0.12	8	0.0035	150	14.93	14.40	27.2	12.3	1.52	0.18	28
5-67	5-60	SNLD-T	0	2	2	185	0.06	1.94	0.11	0.31	26.19	0.04	0.15	103	0.23	8	0.0035	260	11.73	11.33	21.0	9.3	1.82	0.26	39
5-61	5-60	Road	0	0	0	91	0.03	1.99	0.06	3.14	20.20	0.03	0.08	59	0.13	8	0.0035	980	14.31	11.33	27.0	12.7	1.56	0.19	29
5-59	5-54	SNLD-T	87	23	87	87	0.03	2.00	0.05	3.75	3.75	0.01	0.06	41	0.09	8	0.0060	500	12.64	9.64	19.0	6.4	1.70	0.14	21
5-56	5-54	SNLD-T	68	27	68	68	0.02	2.02	0.04	4.49	4.49	0.01	0.05	34	0.08	8	0.0035	510	11.83	9.64	19.0	7.2	1.33	0.15	22
5-55	5-54	SNLD-T	32	18	32	32	0.01	2.07	0.02	2.97	2.97	0.00	0.02	17	0.04	8	0.0035	790	12.81	9.64	18.7	5.9	1.09	0.10	16
5-87	5-53	SNLD-C	10	7	10	78	0.02	2.01	0.05	0.91	6.14	0.01	0.06	40	0.09	8	0.0035	260	9.67	8.66	17.8	8.1	1.39	0.16	24
5-60	5-53	Road	0	0	0	276	0.09	1.91	0.16	1.47	47.86	0.07	0.23	160	0.36	8	0.0035	980	10.72	8.66	19.3	8.6	2.05	0.33	50
5-54	5-53	SNLD-T	0	2	2	189	0.06	1.94	0.11	0.30	11.51	0.02	0.13	90	0.20	8	0.0035	250	9.54	8.66	17.3	7.8	1.76	0.24	36
5-170	5-52	SNLD-C	0	2	2	176	0.05	1.94	0.11	0.29	20.06	0.03	0.13	93	0.21	8	0.0035	205	8.05	7.33	17.0	9.0	1.77	0.25	37
5-53	5-52	Road	0	0	0	543	0.17	1.85	0.31	1.62	67.13	0.09	0.41	282	0.63	10	0.0025	510	8.49	7.16	17.6	9.1	2.08	0.45	54
5-183	5-51	Road	0	0	0	10	0.00	2.15	0.01	1.52	3.19	0.00	0.01	8	0.02	8	0.0035	510	8.43	6.59	15.5	7.1	0.86	0.07	11
5-58	5-51	SNLD-T	74	24	74	74	0.02	2.01	0.05	4.07	4.07	0.01	0.05	36	0.08	8	0.0060	465	9.29	6.59	16.6	7.3	1.64	0.13	20
5-52	5-51	Road	0	0	0	718	0.22	1.83	0.41	0.79	87.98	0.12	0.53	368	0.82	10	0.0025	275	7.11	6.42	17.4	10.3	2.20	0.54	65
5-47	5-45	SNLD-T	3	2	3	3	0.00	2.23	0.00	0.40	0.40	0.00	0.00	2	0.00	8	0.0035	130	7.06	6.61	18.1	11.0	0.55	0.04	5
5-46	5-45	SNLD-T	18	12	18	18	0.01	2.11	0.01	1.97	1.97	0.00	0.01	10	0.02	8	0.0035	350	7.83	6.61	17.9	10.1	0.93	0.08	12
5-45	5-43	SNLD-T	5	4	5	26	0.01	2.09	0.02	0.60	2.97	0.00	0.02	15	0.03	8	0.0035	200	6.51	5.81	18.0	11.5	1.04	0.10	15
5-44	5-43	SNLD-T	18	12	18	18	0.01	2.11	0.01	1.97	1.97	0.00	0.01	10	0.02	8	0.0035	350	7.03	5.81	18.1	11.1	0.93	0.08	12
5-40	5-37	SNLD-T	22	21	22	22	0.01	2.10	0.01	3.58	3.58	0.01	0.02	13	0.03	8	0.0060	460	10.27	7.53	19.0	8.7	1.22	0.08	12
5-38	5-37	PR	3	3	3	3	0.00	2.23	0.00	0.54	0.54	0.00	0.00	2	0.00	8	0.0035	120	7.95	7.53	18.0	10.1	0.58	0.04	6
5-29	5-27	SNLD-E	10	8	10	10	0.00	2.15	0.01	1.71	1.71	0.00	0.01	6	0.01	8	0.0035	330	10.06	8.90	20.1	10.0	0.81	0.06	10
5-28	5-27	SNLD-E	3	4	4	4	0.00	2.22	0.00	0.82	0.82	0.00	0.00	3	0.01	8	0.0035	140	9.39	8.90	19.8	10.4	0.61	0.04	6
5-79	5-23	SNLD-E	4	5	5	5	0.00	2.20	0.00	1.06	1.06	0.00	0.00	3	0.01	8	0.0035	175	9.51	8.90	20.1	10.6	0.66	0.05	7
5-25	5-23	SNLD-E	10	11	11	11	0.00	2.14	0.01	2.46	2.46	0.00	0.01	8	0.02	8	0.0035	480	10.68	8.90	20.9	10.2	0.85	0.07	11
5-22	5-20	SNLD-E	9	9	9	9	0.00	2.16	0.01	1.99	1.99	0.00	0.01	6	0.01	8	0.0035	455	10.25	8.56	23.1	12.9	0.80	0.06	10
5-21	5-20	Upstream	1290	1290	1290	1290	0.40	1.56	0.63	215.03	215.03	0.30	0.93	644	1.43	15	0.0015	160	7.55	7.31	20.6	13.1	2.11	0.68	54
5-27	5-19	SNLD-E	3	3	3	17	0.01	2.12	0.01	0.71	3.24	0.00	0.02	11	0.02	8	0.0035	245	8.80	7.94	18.9	10.1	0.95	0.08	13
5-26	5-19	SNLD-E	8	6	8	8	0.00	2.17	0.01	1.42	1.42	0.00	0.01	5	0.01	8	0.0035	335	9.11	7.94	19.8	10.7	0.76	0.06	9
5-20	5-19	SNLD-E	0	0	0	1299	0.40	1.56	0.63	0.00	217.02	0.30	0.93	648	1.44	15	0.0015	380	7.26	6.69	20.2	12.9	2.11	0.68	55

Table 8 - Natomas Panhandle Sanitary Sewer Calculations

Node Out	Node In	Land Use	ESD by Lot Count	ESD by Land Use	Largest ESD	Sum ESD	Q ADWF (mgd)	Peaking Factor	Q PDWF (mgd)	Area (acres)	Sum Area (acres)	I/I (mgd)	Q PWWF (mgd)	Q PWWF (gpm)	Q PWWF (cfs)	Dia. (in.)	Min. Slope	Pipe Length (ft.)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Velocity (fps)	Depth of Flow (ft.)	(d/D)%
5-30	5-18	SNLD-E	3	3	3	3	0.00	2.23	0.00	0.70	0.70	0.00	0.00	2	0.00	8	0.0035	205	8.18	7.47	19.0	10.8	0.59	0.04	6
5-23	5-18	SNLD-E	10	8	10	26	0.01	2.09	0.02	1.72	5.24	0.01	0.02	17	0.04	8	0.0035	380	8.80	7.47	20.2	11.4	1.08	0.10	16
5-19	5-18	SNLD-E	0	0	0	1324	0.41	1.56	0.64	0.00	221.68	0.31	0.95	661	1.47	15	0.0015	245	6.59	6.22	19.2	12.6	2.12	0.69	55
5-32	5-17	OS	0	21	21	21	0.01	2.10	0.01	3.51	3.51	0.00	0.02	13	0.03	8	0.0060	860	12.33	7.07	20.0	7.7	1.21	0.08	12
5-31	5-17	SNLD-E	0	9	9	9	0.00	2.16	0.01	2.01	2.01	0.00	0.01	6	0.01	8	0.0060	425	9.63	7.07	19.0	9.4	0.97	0.06	8
5-24	5-17	SNLD-E	3	3	3	3	0.00	2.23	0.00	0.62	0.62	0.00	0.00	2	0.00	8	0.0035	170	7.67	7.07	18.5	10.8	0.57	0.04	6
5-18	5-17	SNLD-E	0	0	0	1353	0.42	1.56	0.65	0.00	227.62	0.32	0.97	676	1.51	15	0.0015	200	6.12	5.82	18.6	12.5	2.13	0.70	56
5-35	5-16	OS	0	13	13	13	0.00	2.13	0.01	2.17	2.17	0.00	0.01	8	0.02	8	0.0060	275	8.24	6.61	18.0	9.8	1.05	0.06	10
5-33	5-16	SNLD-E	18	13	18	18	0.01	2.11	0.01	2.90	2.90	0.00	0.02	11	0.02	8	0.0035	490	8.43	6.61	19.9	11.5	0.95	0.08	13
5-17	5-16	Road	0	0	0	1386	0.43	1.56	0.67	0.32	234.08	0.33	1.00	693	1.54	15	0.0015	245	5.72	5.36	18.3	12.6	2.14	0.71	57
5-93	5-15	SNLD-T	2	3	3	39	0.01	2.06	0.02	0.51	7.33	0.01	0.04	24	0.05	8	0.0035	165	7.71	7.13	18.6	10.9	1.21	0.12	19
5-92	5-15	OS	0	14	14	14	0.00	2.13	0.01	2.32	2.32	0.00	0.01	9	0.02	8	0.0060	340	9.15	7.13	18.0	8.9	1.07	0.07	10
5-34	5-14	SNLD-T	18	17	18	18	0.01	2.11	0.01	2.88	2.88	0.00	0.02	11	0.02	8	0.0035	500	8.04	6.19	20.8	12.8	0.95	0.08	13
5-16	5-14	Road	0	0	0	1417	0.44	1.56	0.68	0.30	239.45	0.34	1.02	708	1.58	15	0.0015	245	5.31	4.94	18.6	13.3	2.16	0.72	58
5-15	5-14	Road	0	0	0	53	0.02	2.03	0.03	0.27	9.92	0.01	0.05	33	0.07	8	0.0035	240	7.03	6.19	18.4	11.4	1.32	0.14	22
5-36	5-13	PR	8	7	8	8	0.00	2.17	0.01	1.15	1.15	0.00	0.01	5	0.01	8	0.0035	310	6.79	5.70	18.3	11.5	0.75	0.06	9
5-14	5-13	Road	0	0	0	1488	0.46	1.55	0.72	0.16	252.41	0.35	1.07	744	1.66	15	0.0015	260	4.84	4.45	19.4	14.6	2.18	0.74	59
5-39	5-12	SNLD-T	16	10	16	16	0.00	2.12	0.01	1.62	1.62	0.00	0.01	9	0.02	8	0.0035	310	6.44	5.35	17.4	11.0	0.89	0.08	11
5-13	5-12	SNLD-T	0	0	0	1496	0.46	1.55	0.72	0.00	253.56	0.35	1.08	747	1.66	15	0.0015	200	4.40	4.10	17.6	13.2	2.18	0.75	60
5-43	5-11	SNLD-T	5	4	5	49	0.02	2.04	0.03	0.63	5.57	0.01	0.04	27	0.06	8	0.0035	210	5.71	4.97	18.2	12.5	1.24	0.13	20
5-42	5-11	SNLD-T	9	8	9	9	0.00	2.16	0.01	1.26	1.26	0.00	0.01	5	0.01	8	0.0035	350	6.20	4.97	17.0	10.8	0.77	0.06	9
5-37	5-11	SNLD-T	11	10	11	36	0.01	2.06	0.02	1.70	5.82	0.01	0.03	22	0.05	8	0.0035	660	7.43	4.97	17.6	10.2	1.17	0.12	18
5-12	5-11	SNLD-T	0	0	0	1512	0.47	1.55	0.73	0.00	255.18	0.36	1.09	754	1.68	15	0.0015	220	4.05	3.72	17.5	13.5	2.19	0.75	60
5-50	5-10	SNLD-T	12	26	26	26	0.01	2.09	0.02	4.31	4.31	0.01	0.02	16	0.04	8	0.0060	490	7.45	4.54	16.5	9.1	1.28	0.09	13
5-48	5-10	SNLD-T	24	15	24	24	0.01	2.09	0.02	2.45	2.45	0.00	0.02	13	0.03	8	0.0035	540	6.53	4.54	17.7	11.2	1.01	0.09	14
5-11	5-10	SNLD-T	0	1	1	1608	0.50	1.55	0.77	0.21	268.04	0.38	1.15	797	1.78	15	0.0015	220	3.62	3.24	17.3	13.7	2.21	0.78	62
5-126	5-8	SNLD-C	0	3	3	109	0.03	1.98	0.07	0.39	15.91	0.02	0.09	62	0.14	8	0.0035	220	4.86	4.09	16.5	11.6	1.58	0.20	30
5-51	5-8	Road	0	0	0	802	0.25	1.82	0.45	2.32	97.56	0.14	0.59	409	0.91	10	0.0025	870	6.37	4.09	16.4	10.0	2.25	0.58	70
5-10	5-8	SNLD-T	0	2	2	1660	0.51	1.55	0.80	0.35	275.15	0.39	1.18	820	1.83	15	0.0015	230	3.19	2.84	16.3	13.1	2.23	0.79	63
5-9	5-7	SNLD-T	11	15	15	15	0.00	2.12	0.01	2.50	2.50	0.00	0.01	9	0.02	8	0.0035	385	4.90	3.56	16.3	11.4	0.91	0.08	12
5-8	5-7	Road	0	0	0	2571	0.80	1.52	1.21	0.00	388.62	0.54	1.75	1217	2.71	18	0.0012	440	2.59	2.06	16.5	13.9	2.26	0.96	64
5-145	5-6	Road	0	0	0	228	0.07	1.92	0.14	1.49	45.72	0.06	0.20	139	0.31	8	0.0035	400	4.31	2.94	16.9	12.6	1.97	0.31	46
5-80	5-6	SNLD-T	8	7	8	52	0.02	2.04	0.03	1.13	6.84	0.01	0.04	29	0.07	8	0.0035	305	4.03	2.94	17.2	13.2	1.28	0.14	20
5-7	5-6	Road	0	0	0	2586	0.80	1.52	1.22	1.30	392.42	0.55	1.76	1225	2.73	18	0.0012	500	2.01	1.44	16.7	14.7	2.26	0.97	65

Table 8 - Natomas Panhandle Sanitary Sewer Calculations

Node Out	Node In	Land Use	ESD by Lot Count	ESD by Land Use	Largest ESD	Sum ESD	Q ADWF (mgd)	Peaking Factor	Q PDWF (mgd)	Area (acres)	Sum Area (acres)	I/I (mgd)	Q PWWF (mgd)	Q PWWF (gpm)	Q PWWF (cfs)	Dia. (in.)	Min. Slope	Pipe Length (ft.)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Velocity (fps)	Depth of Flow (ft.)	(d/D)%
5-78	5-5	SNLD-C	3	6	6	6	0.00	2.19	0.00	0.74	0.74	0.00	0.00	3	0.01	8	0.0035	160	3.20	2.64	16.1	12.9	0.67	0.05	7
5-6	5-5	SNLD-C	0	0	0	2866	0.89	1.51	1.34	0.00	444.98	0.62	1.96	1363	3.04	21	0.0011	275	1.19	0.89	16.9	15.7	2.26	0.95	55
5-139	5-5	SNLD-C	69	61	69	228	0.07	1.92	0.14	8.10	28.43	0.04	0.18	122	0.27	8	0.0035	685	5.29	2.64	17.0	11.7	1.91	0.28	43
5-123	5-4	SNLD-C	7	9	9	54	0.02	2.03	0.03	1.25	7.81	0.01	0.05	31	0.07	8	0.0035	310	3.49	2.40	16.7	13.2	1.30	0.14	21
5-5	5-4	SNLD-C	1	0	1	3101	0.96	1.50	1.44	0.00	474.15	0.66	2.11	1464	3.26	21	0.0011	175	0.84	0.65	16.9	16.1	2.30	1.00	57
5-135	5-3	SNLD-T	5	7	7	111	0.03	1.98	0.07	1.15	14.39	0.02	0.09	61	0.14	8	0.0035	315	3.07	2.07	16.4	13.3	1.58	0.20	30
5-77	5-3	SNLD-T	9	12	12	12	0.00	2.14	0.01	1.92	1.92	0.00	0.01	7	0.02	8	0.0035	330	3.33	2.07	17.0	13.7	0.84	0.07	10
5-4	5-3	SNLD-T	0	0	0	3155	0.98	1.50	1.47	0.00	481.96	0.67	2.14	1488	3.32	21	0.0011	250	0.59	0.32	16.9	16.3	2.31	1.01	58
5-128	5-2	SNLD-T	9	9	9	66	0.02	2.02	0.04	1.54	11.00	0.02	0.06	39	0.09	8	0.0035	290	2.83	1.81	15.8	13.0	1.39	0.16	24
5-3	5-2	SNLD-T	1	2	2	3280	1.02	1.50	1.52	0.41	498.68	0.70	2.22	1543	3.44	21	0.0011	145	0.22	0.06	16.4	16.2	2.33	1.03	59
5-155	5-1	SNLD-T	11	13	13	82	0.03	2.00	0.05	2.24	13.69	0.02	0.07	49	0.11	8	0.0035	400	2.88	1.48	16.1	13.2	1.48	0.18	26
5-57	5-1	SNLD-T	2	4	4	4	0.00	2.21	0.00	0.69	0.69	0.00	0.00	3	0.01	8	0.0035	180	2.11	1.48	15.8	13.7	0.62	0.04	6
5-2	5-1	SNLD-T	0	0	0	3346	1.04	1.50	1.55	0.00	509.68	0.71	2.27	1574	3.51	21	0.0011	205	-0.04	-0.27	15.9	15.9	2.34	1.05	60
5-41	5-0	SNLD-T	3	4	4	4	0.00	2.22	0.00	0.63	0.63	0.00	0.00	2	0.01	8	0.0035	110	1.67	1.28	16.6	14.9	0.60	0.04	6
5-1	5-0	SNLD-T	0	0	0	3432	1.06	1.50	1.59	0.00	524.06	0.73	2.32	1615	3.60	21	0.0011	140	-0.32	-0.47	16.7	17.0	2.35	1.06	61

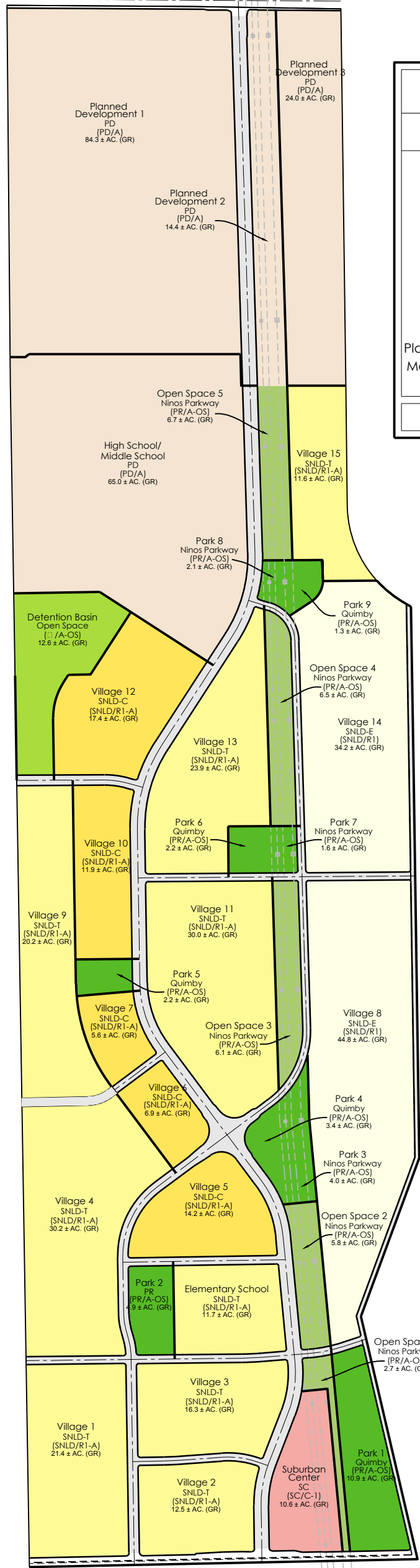
Note:

1) A pump station may be required to service the upstream unsewered offsite area

Table 8 - Natomas Panhandle Sanitary Sewer Calculations

Node Out	Node In	Land Use	ESD by Lot Count	ESD by Land Use	Largest ESD	Sum ESD	Q ADWF (mgd)	Peaking Factor	Q PDWF (mgd)	Area (acres)	Sum Area (acres)	I/I (mgd)	Q PWWF (mgd)	Q PWWF (gpm)	Q PWWF (cfs)	Dia. (in.)	Min. Slope	Pipe Length (ft.)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Velocity (fps)	Depth of Flow (ft.)	(d/D)%
6-32	6-31	SNLD-T	5	5	5	5	0.00	2.20	0.00	0.82	0.82	0.00	0.00	3	0.01	8	0.0035	370	8.01	6.71	18.8	10.8	0.65	0.05	7
6-33	6-31	SNLD-T	159	59	159	159	0.05	1.95	0.10	9.87	9.87	0.01	0.11	76	0.17	8	0.0060	820	11.64	6.71	18.0	6.4	2.04	0.19	29
6-29	6-28	PR	44	37	44	44	0.01	2.05	0.03	6.16	6.16	0.01	0.04	25	0.06	8	0.0060	540	9.11	5.89	17.0	7.9	1.48	0.11	17
6-30	6-28	SNLD-T	12	12	12	12	0.00	2.14	0.01	1.98	1.98	0.00	0.01	7	0.02	8	0.0035	735	8.67	5.89	17.2	8.5	0.85	0.07	11
6-24	6-23	SNLD-T	12	12	12	12	0.00	2.14	0.01	1.94	1.94	0.00	0.01	7	0.02	8	0.0035	400	7.40	6.01	16.4	9.0	0.85	0.07	10
6-26	6-23	SNLD-T	15	10	15	15	0.00	2.12	0.01	1.60	1.60	0.00	0.01	8	0.02	8	0.0035	230	6.92	6.01	16.9	10.0	0.88	0.07	11
6-23	6-22	SNLD-T	16	10	16	43	0.01	2.05	0.03	1.60	5.14	0.01	0.03	24	0.05	8	0.0035	265	5.91	4.88	16.9	11.0	1.20	0.12	18
6-25	6-22	SNLD-T	26	26	26	26	0.01	2.09	0.02	4.28	4.28	0.01	0.02	16	0.04	8	0.0035	780	7.71	4.88	17.0	9.3	1.06	0.10	15
6-22	6-21	SNLD-T	6	5	6	75	0.02	2.01	0.05	0.83	10.25	0.01	0.06	42	0.09	8	0.0035	410	4.78	3.24	17.9	13.1	1.42	0.16	25
6-27	6-21	SNLD-T	52	24	52	52	0.02	2.04	0.03	3.96	3.96	0.01	0.04	27	0.06	8	0.0035	600	5.54	3.24	17.5	12.0	1.24	0.13	19
6-21	6-20	SNLD-T	4	4	4	131	0.04	1.97	0.08	0.59	14.80	0.02	0.10	70	0.16	8	0.0035	295	3.14	2.11	17.5	14.4	1.64	0.21	32
6-28	6-20	SNLD-T	30	19	30	86	0.03	2.00	0.05	3.15	11.29	0.02	0.07	48	0.11	8	0.0035	965	5.79	2.11	17.4	11.6	1.47	0.17	26
6-17	6-16	SNLD-T	69	69	69	69	0.02	2.01	0.04	11.47	11.47	0.02	0.06	41	0.09	8	0.0060	875	6.89	1.64	18.4	11.5	1.70	0.14	21
6-34	6-12	SNLD-E	2	25	25	25	0.01	2.09	0.02	5.62	5.62	0.01	0.02	17	0.04	8	0.0060	230	13.02	8.93	20.8	7.8	1.31	0.09	14
6-12	6-11	Road	14	0	14	39	0.01	2.06	0.03	2.36	7.98	0.01	0.04	25	0.06	8	0.0035	945	8.83	5.37	17.8	9.0	1.22	0.13	19
6-31	6-11	Road	3	0	3	167	0.05	1.95	0.10	0.56	11.25	0.02	0.12	81	0.18	8	0.0035	340	6.61	5.42	18.9	12.3	1.71	0.23	34
6-10	6-9	Upstream	283	283	283	283	0.09	1.91	0.17	47.11	47.11	0.07	0.23	162	0.36	8	0.0035	270	6.66	5.71	20.0	13.3	2.05	0.34	50
6-15	6-9	OS	64	70	70	70	0.02	2.01	0.04	11.70	11.70	0.02	0.06	42	0.09	8	0.0060	1410	14.17	5.71	20.9	6.7	1.71	0.14	21
6-9	6-8	Road	1	0	1	354	0.11	1.89	0.21	0.47	59.28	0.08	0.29	202	0.45	8	0.0035	260	5.61	4.70	19.9	14.3	2.16	0.38	57
6-14	6-8	SC	41	41	41	41	0.01	2.05	0.03	6.86	6.86	0.01	0.04	25	0.06	8	0.0060	1390	13.04	4.70	20.0	7.0	1.47	0.11	17
6-8	6-7	Road	3	0	3	398	0.12	1.88	0.23	0.42	66.56	0.09	0.33	226	0.50	8	0.0035	195	4.60	3.92	19.8	15.2	2.22	0.41	62
6-13	6-7	SC	32	32	32	32	0.01	2.07	0.02	5.35	5.35	0.01	0.03	20	0.04	8	0.0060	850	9.02	3.92	17.0	8.0	1.37	0.10	15
6-7	6-6	Road	3	0	3	433	0.13	1.87	0.25	0.44	72.35	0.10	0.35	245	0.55	10	0.0025	335	3.75	2.91	19.7	16.0	2.01	0.42	50
6-11	6-6	Road	9	0	9	215	0.07	1.93	0.13	1.53	20.76	0.03	0.16	110	0.24	8	0.0035	625	5.32	3.08	18.5	13.2	1.85	0.27	40
6-6	6-5	Road	4	0	4	653	0.20	1.61	0.33	0.64	93.75	0.13	0.46	318	0.71	12	0.0020	365	1.91	1.18	19.6	17.7	1.97	0.47	47
6-5	6-4	Road	3	0	3	656	0.20	1.61	0.33	0.53	94.28	0.13	0.46	319	0.71	12	0.0020	400	1.13	0.33	19.3	18.2	1.97	0.47	47
6-16	6-4	SNLD-T	0	0	0	69	0.02	2.01	0.04	0.00	11.47	0.02	0.06	41	0.09	8	0.0060	60	1.54	1.33	20.0	18.5	1.70	0.14	21
6-4	6-3	Road	1	0	1	726	0.22	1.60	0.36	0.17	105.92	0.15	0.51	354	0.79	12	0.0020	320	0.28	-0.36	19.0	18.7	2.02	0.50	50
6-18	6-3	SNLD-T	150	28	150	150	0.05	1.96	0.09	4.72	4.72	0.01	0.10	68	0.15	8	0.0060	550	3.94	0.64	18.9	15.0	1.97	0.18	27
6-3	6-2	Road	3	0	3	879	0.27	1.59	0.43	0.48	111.12	0.16	0.59	409	0.91	12	0.0020	205	-0.41	-0.82	18.7	19.1	2.10	0.54	54
6-19	6-2	SNLD-T	146	25	146	146	0.05	1.96	0.09	4.17	4.17	0.01	0.09	66	0.15	8	0.0060	540	3.42	0.18	18.9	15.5	1.95	0.18	27
6-2	6-1	Road	3	0	3	1028	0.32	1.58	0.50	0.43	115.72	0.16	0.67	462	1.03	12	0.0020	240	-0.87	-1.35	18.5	19.4	2.16	0.59	59
6-20	6-1	SNLD-T	4	4	4	221	0.07	1.93	0.13	0.65	26.74	0.04	0.17	118	0.26	8	0.0035	660	2.01	-0.35	18.5	16.5	1.89	0.28	42
6-1	6-0	Road	1	0	1	1250	0.39	1.57	0.61	0.05	142.51	0.20	0.81	560	1.25	15	0.0020	60	-1.60	-1.72	18.3	19.9	2.27	0.57	46

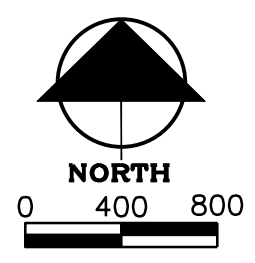
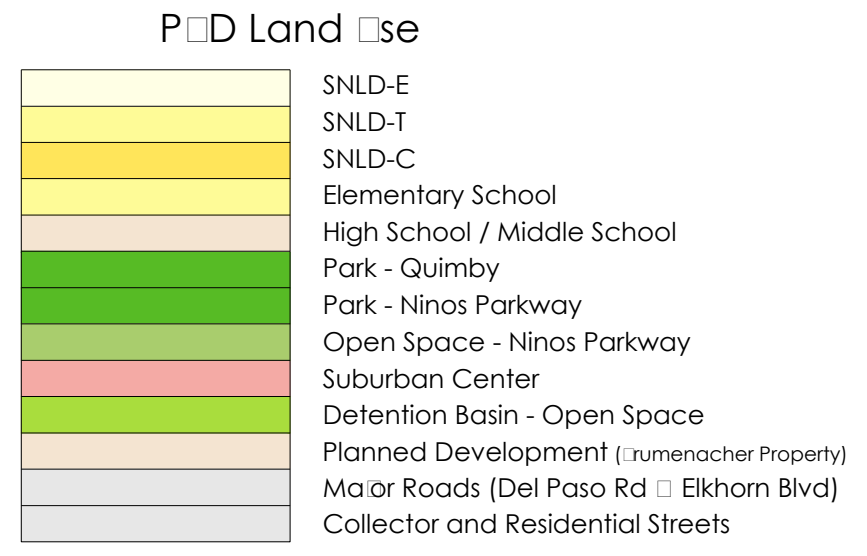
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LAND USE SUMMARY

Planned Land Use	General Plan	Acres	Units
SNLD-E	SNLD (3-8 du/ac)	79.0±	327±
SNLD-T	SNLD (3-8 du/ac)	166.1±	910±
SNLD-C	SNLD (3-8 du/ac)	56.0±	356±
Elementary School	SNLD (3-8 du/ac)	11.7±	
High School / Middle School	PD	65.0±	
Park - Quimby	PR	24.9±	
Park - Ninos Parkway	PR	7.7±	
Open Space - Ninos Parkway	PR	27.8±	
Suburban Center	SC	10.6±	
Detention Basin - Open Space	□	12.6±	
Planned Development (Trumenacher Property)	PD	122.7±	
Major Roads (Del Paso Rd & Elkhorn Blvd)	varies	5.3±	
Collector and Residential Streets	varies	0.0±	
TOTALS		589.4±	1,593± DU

□ SNLD □ Suburban Neighborhood Low Density (Detached Single-Family Residential)
 -E □ Estate (4.5 du/ac average net density)
 -T □ Traditional (6.0 du/ac average net density)
 -C □ Compact (7.5 du/ac average net density)



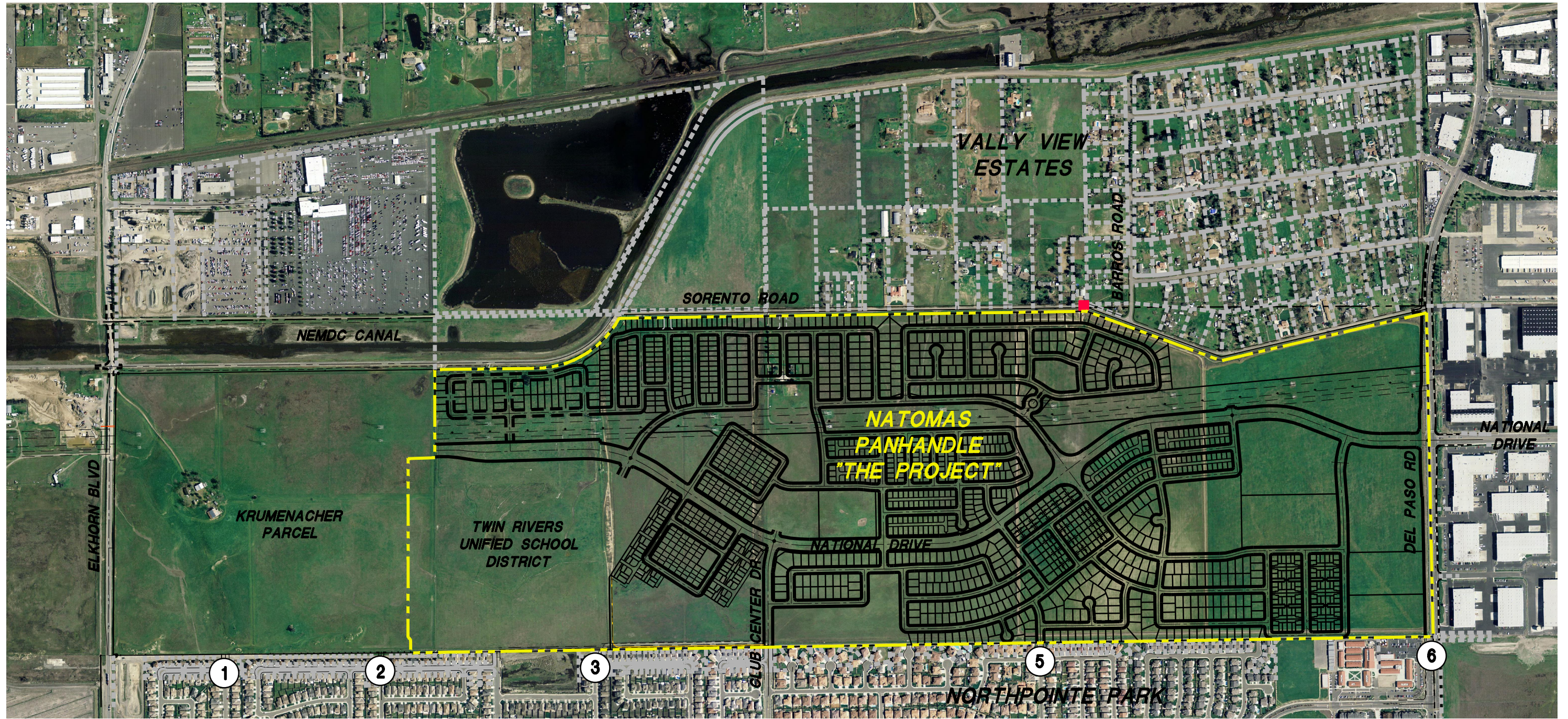
SEWER MASTER PLAN LAND USE LAYOUT AND SUMMARY NATOMAS PANHANDLE

MacKay & Soms Civil Engineers, Inc.
 Roseville, California August 11, 2016

EXHIBIT C

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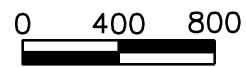
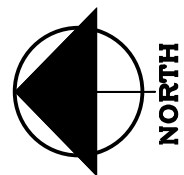


Sanitary Sewer Points of Connection

Number	Location	Size
①	SANDMARK WAY	10"
②	DOMINO AVE.	10"
③	FALETTO AVE.	8"
⑤	AIMWELL AVE.	21"
⑥	DEL PASO RD.	15"

LEGEND

- FUTURE SEWER LIFT STATION (BY OTHERS)
- - - PROJECT BOUNDARY



SEWER MASTER PLAN AERIAL PHOTO WITH POINTS OF CONNECTION NATOMAS PANHANDLE

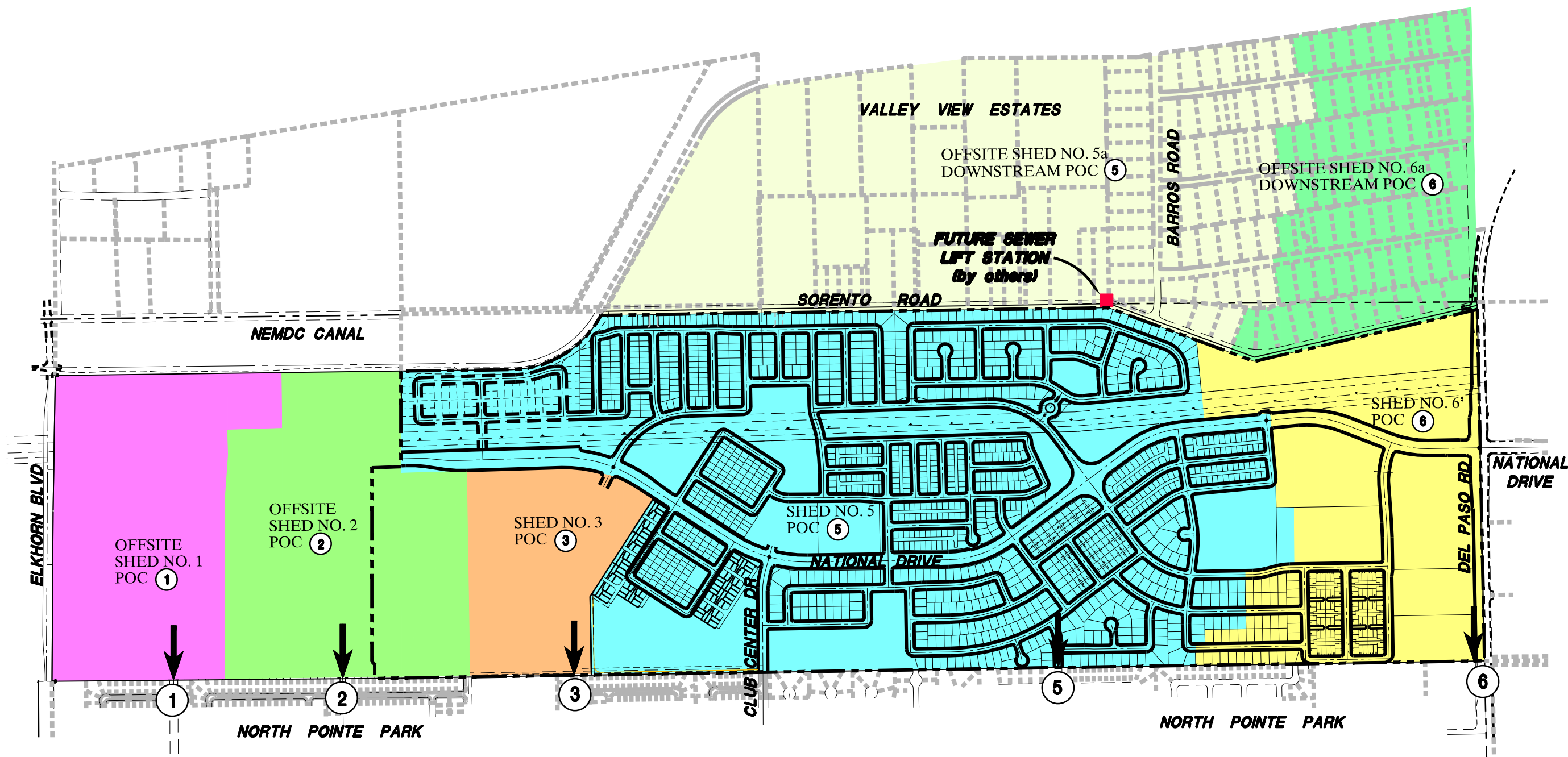
MacKay & Soms Civil Engineers, Inc.
Roseville, California August 11, 2016

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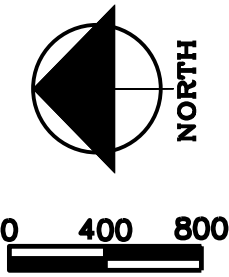
LEGEND

- Sewer Shed No. 1
- Sewer Shed No. 2
- Sewer Shed No. 3
- Sewer Shed No. 5
- Sewer Shed No. 6
- Sewer Shed No. 6a
- Property Boundary
- Right-of-Way

SANITARY SEWER

Points of Connection

Number	Location	Size
1	San Mateo Way	10"
2	Montana Ave	10"
3	Alejo Ave	8"
5	Amwell Ave	21"
6	Del Paso Rd	18"



SEWER MASTER PLAN
SANTA ANA
NATIONAL MAS PANHANDLE
MacKay and Somps Civil Engineers, Inc.
Roseville, California August 11, 2016
EXHIBIT E

EXHIBIT F: SASD RURAL RESIDENTIAL AREA CONNECTION ANALYSIS



Memorandum

TO: *Amandeep Singh*

SASD Development Services

FROM: *Chris Penales*

SASD Business Planning/Hydraulic Modeling

DATE: *June 7, 2016*

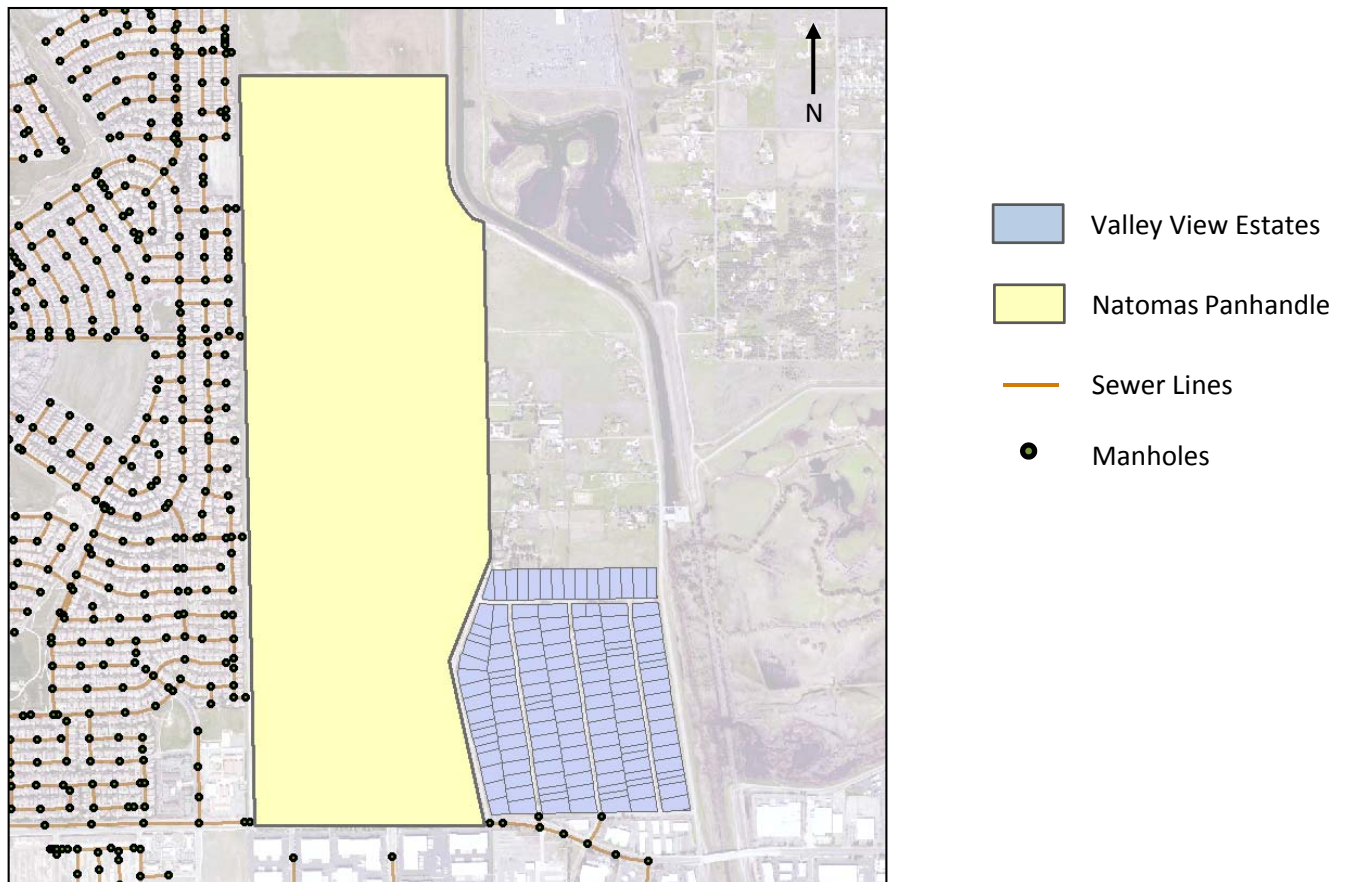
SUBJECT: *Request 1176 – Rural Residential Area (Valley View Estates) Connection Analysis*

This memo responds to your topography and capacity analysis request for the Valley View Estates rural residential area offsite of the Natomas Panhandle Development.

Background

The Valley View Estates is east of the Natomas Panhandle as shown in **Figure 1**.

Figure 1. Plan view map of the Natomas Panhandle and the Valley View Estates



According to the Natomas Panhandle Level Three Sewer Study dated April 2016, the Valley View Estates will either be sewered by a future 8-inch collector along Del Paso Road or by a proposed 0.638 MGD lift station. Each parcel was assigned 6 ESD per acre to generate the model flow of the Valley View Estates. **Figure 2** shows which portions of the Valley View Estates will be served by the future 8-inch collector and the future lift station.

Figure 2. Plan view map of how the Valley View Estates will be sewered based on the Natomas Panhandle Sewer Study

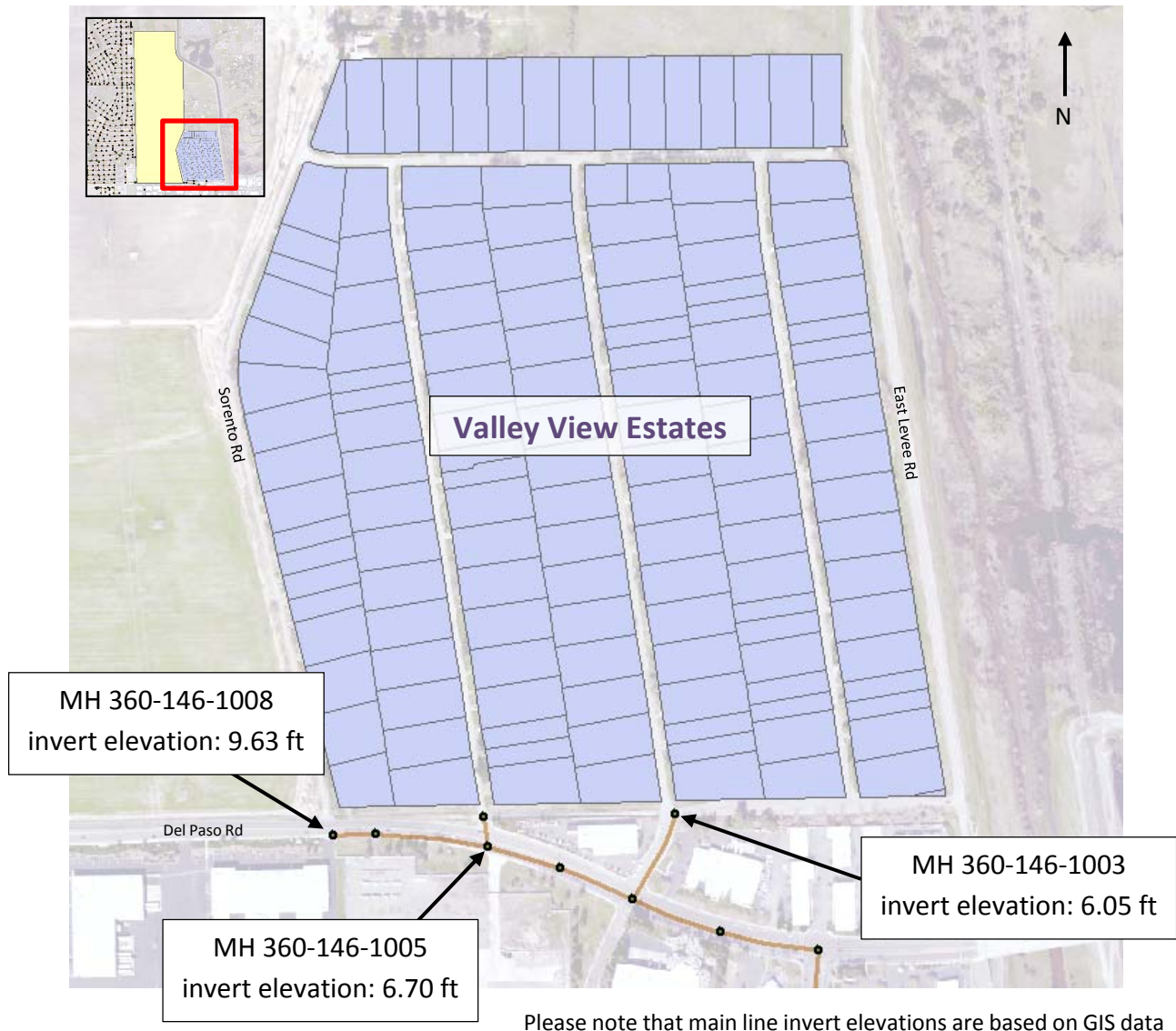


Development Services wants to see if the Valley View Estates can connect to the existing S018 collector system south of Del Paso Road instead of connecting to the future 8-inch collector line or the future lift station.

Modeling Process and Results

Existing manholes 360-146-1008, 360-146-1005, and 360-146-1003 south of the Valley View Estates were used to determine which parcels can gravity to the existing S018 sewer system. **Figure 3** shows the location of each potential connection manhole south of the Valley View Estates.

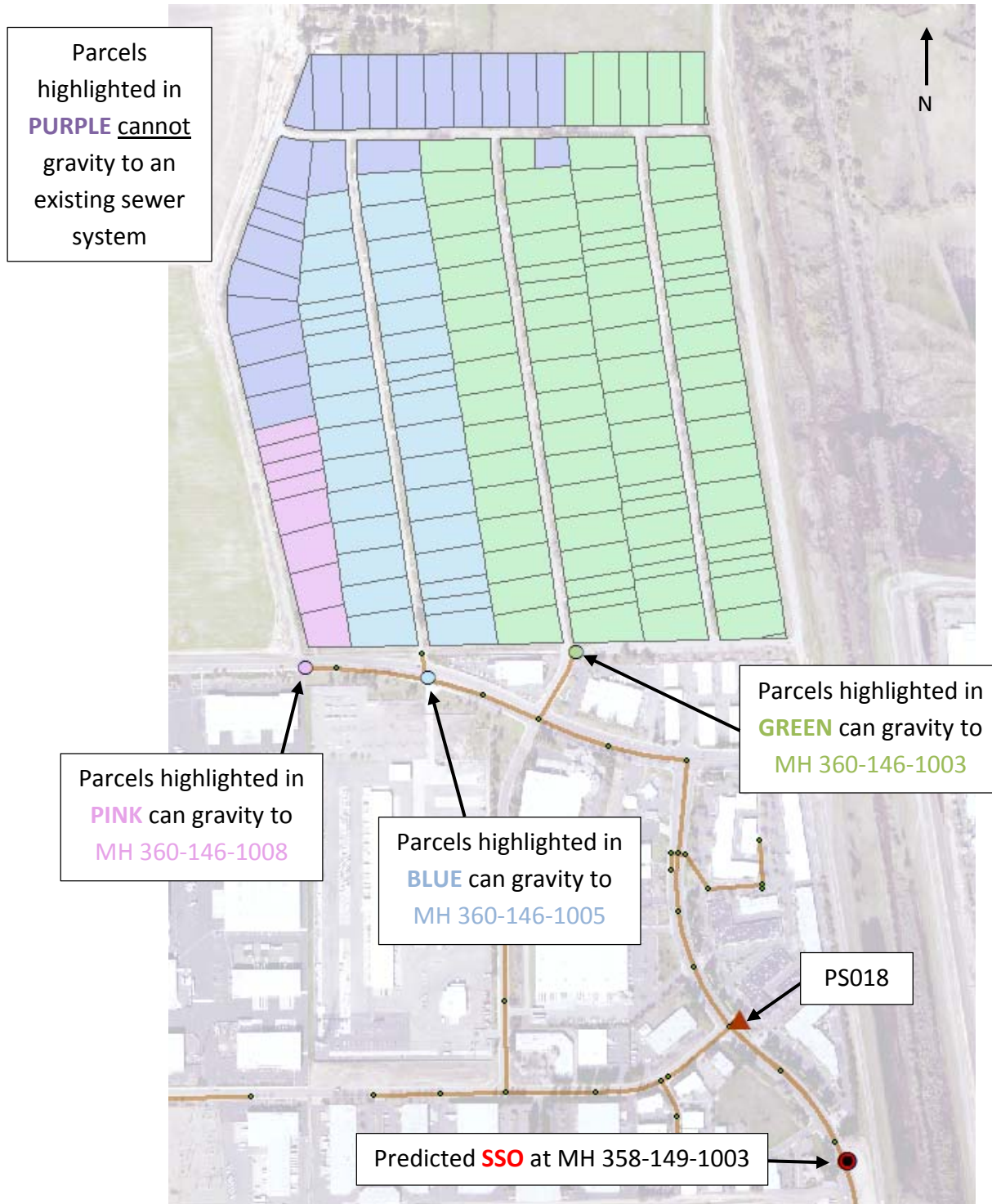
Figure 3. Plan view map of potential manhole connections



Based on current detailed topography analysis, parts of the Valley View Estates are able to gravity to the existing sewer system. However, due to the additional flow from the Valley View Estates the model predicts a **sanitary sewer overflow (SSO)** at the downstream S018 collector system.

Figure 4 displays parcels that can gravity to the existing sewer system and the location of the predicted SSO downstream of the S018 collector system at manhole 358-149-1003.

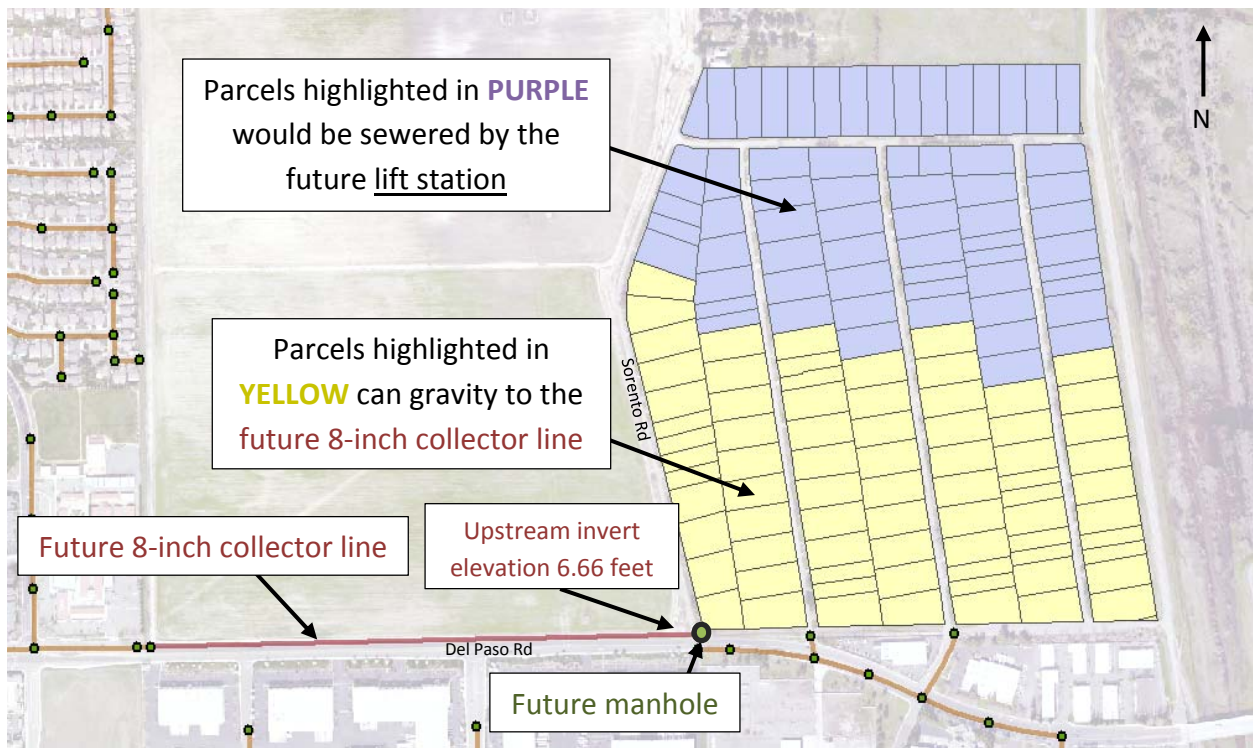
Figure 4. Plan view map of parcels that can gravity to the existing sewer system and the downstream predicted SSO

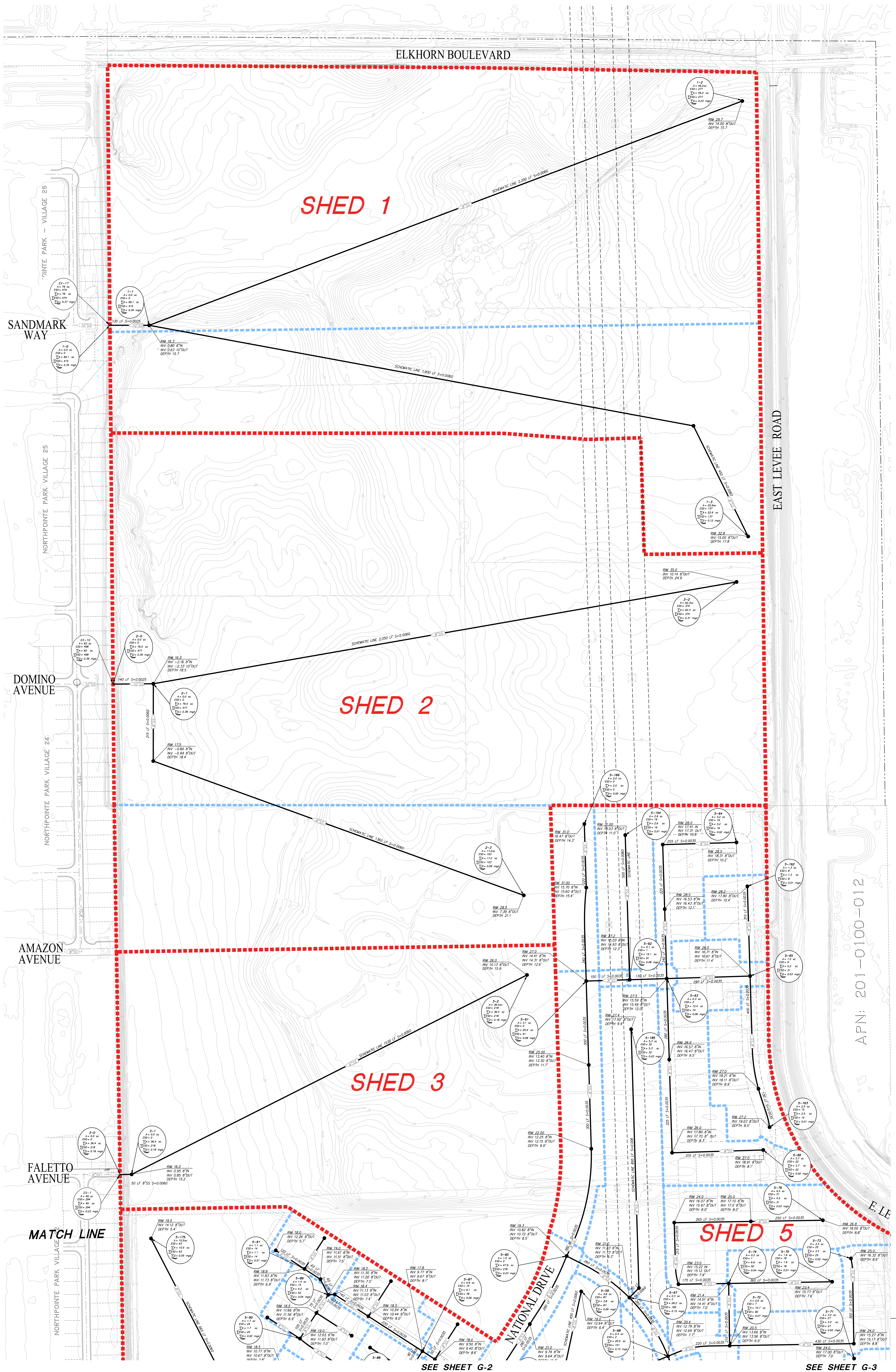


Since the downstream S018 collector system could not accommodate flow from the Valley View Estates, we performed another analysis to relook at which area can gravity to the future 8-inch collector line in Del Paso Road. The analysis takes into account the upstream invert elevation of the future 8-inch collector line at 6.66 feet west of Sorento Road (from the Natomas Panhandle sewer study). Parcels that cannot gravity to the future 8-inch collector line would still require the future lift station. **Figure 5** displays parcels that can gravity to the future 8-inch collector line.

Modeling results show that the future 8-inch collector line and its downstream existing system can accommodate flow from the Valley View Estates area highlighted in yellow shown below.

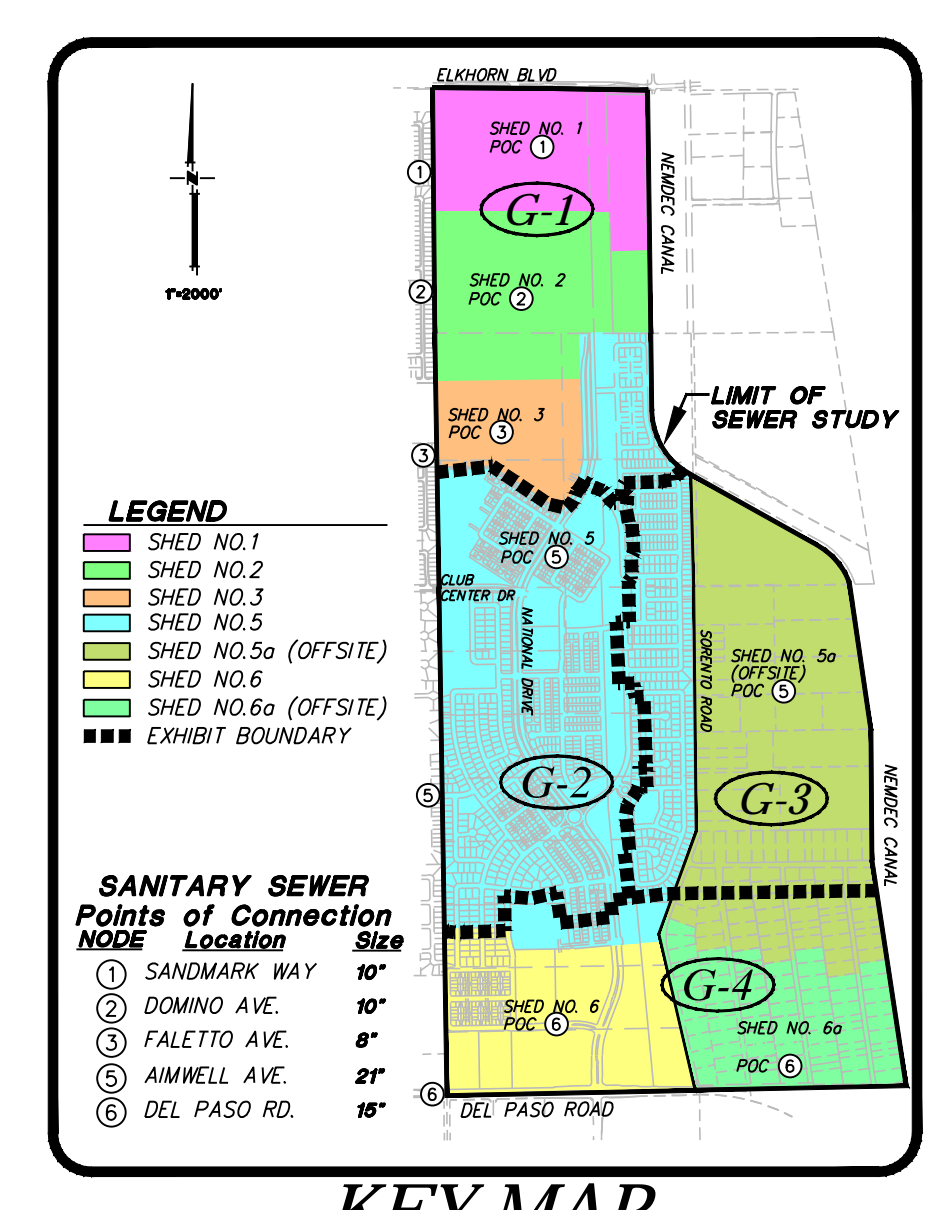
Figure 5. Plan view map of parcels that can gravity to the future 8-inch collector line





APN: 201-0100-012

SCALE: 1"=100'



- LEGEND**
- MAJOR SEWER SHED BOUNDARY
 - MINOR SEWER SHED BOUNDARY
 - SANITARY SEWER (SIZE INDICATED)
 - ADJACENT SANITARY SEWER (SIZE INDICATED)
 - TRUNK SEWER (SIZE INDICATED)
 - 1-1 SS MANHOLE NODE NUMBER
 - A= SS MANHOLE TRIBUTARY AREA (Ac.)
 - ESD= SS MANHOLE CUMULATIVE ESD
 - ΣA= SS MANHOLE CUMULATIVE AREA (Ac.)
 - ΣQ= SS MANHOLE CUMULATIVE FLOW (MGD)

NOTE:
 LOCATION OF SHALLOW PARALLEL SEWER IS SCHEMATIC FOR LEGIBILITY AND SHALL BE REVISIONED IN THE FUTURE SUBMITTALS.
 ESDs HAVE NOT BEEN ALLOCATED TO INFILTRATION AREA FOR PARALLEL SEWER (INFILTRATION AREA ASSUMED AS AREA WITHIN THE STREET RIGHT-OF-WAY AT LOCATION OF PARALLEL SEWER.)

Prepared under direction of:



MASTER SEWER STUDY NATOMAS PANHANDLE

City of Sacramento, California
 Scale: 1"=100' August 11, 2016

MACKAY & SOMPS
 ENGINEERS PLANNERS SURVEYORS
 1552 Eureka Road, Suite 100, Roseville, CA 95661 (916) 773-1189

EXHIBIT G-1

SEE SHEET G-1

MATCH LINE

E. LEVEE ROAD

SORENTO ROAD

FUTURE ROADWAY

SEE SHEET G-3

CLUB CENTER DRIVE

NORTHPOINTE PARK - VILLAGE 15-2

SHED 5

AIMWELL AVENUE

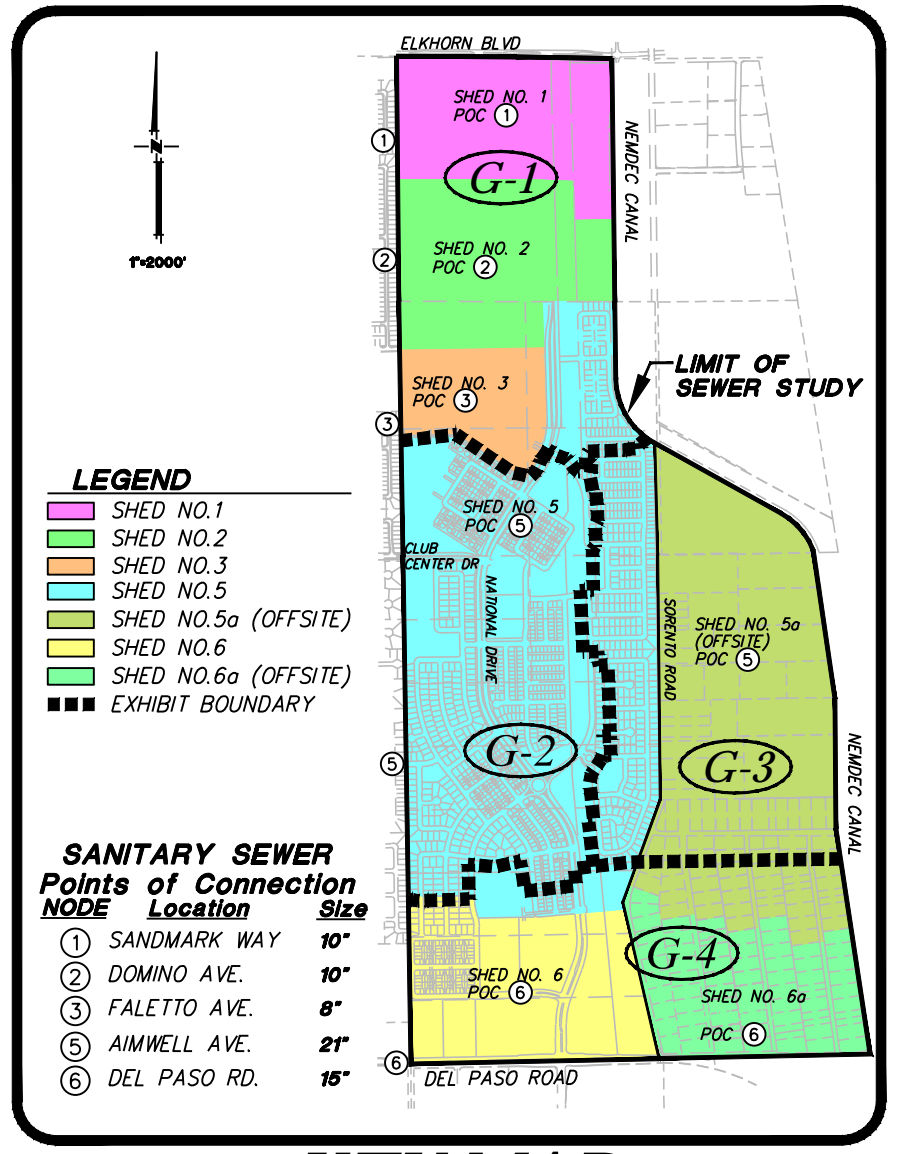
MATCH LINE

SORENTO ROAD

MATCH LINE

SEE SHEET G-4

SCALE: 1"=100'



LEGEND

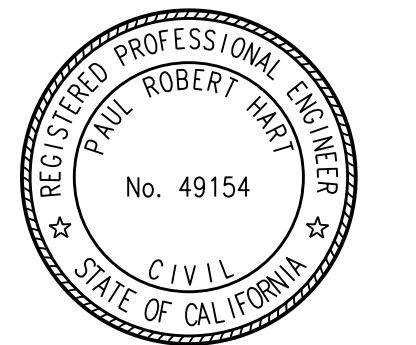
- MAJOR SEWER SHED BOUNDARY
- MINOR SEWER SHED BOUNDARY
- ADJACENT SEWER (SIZE INDICATED)
- ADJACENT SANITARY SEWER (SIZE INDICATED)
- TRUNK SEWER (SIZE INDICATED)

NOTE:

LOCATION OF SHALLOW PARALLEL SEWER IS SCHEMATIC FOR LEGIBILITY AND SHALL BE REVEALED IN THE FUTURE SUBMITTALS.

ESD HAVE NOT BEEN ALLOCATED TO INFILTRATION AREA FOR PARALLEL SEWER (INFILTRATION AREA ASSUMED AS AREA WITHIN THE STREET RIGHT-OF-WAY AT LOCATION OF PARALLEL SEWER).

Prepared under direction of:



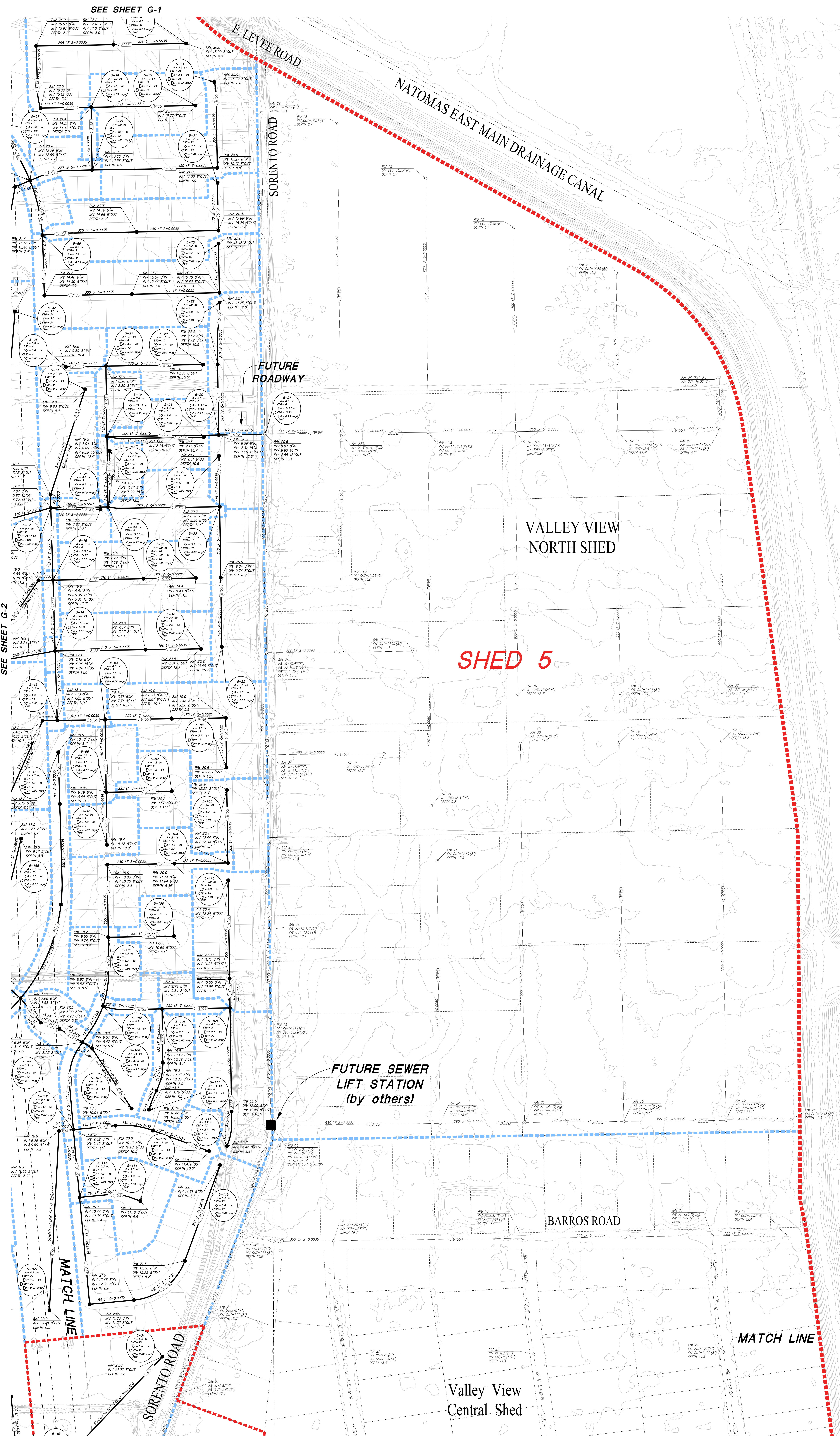
MASTER SEWER STUDY

NATOMAS PANHANDLE

City of Sacramento, California
Scale: 1"=100' August 11, 2016

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
1552 Eureka Road, Suite 100, Roseville, CA 95661 (916) 773-1189

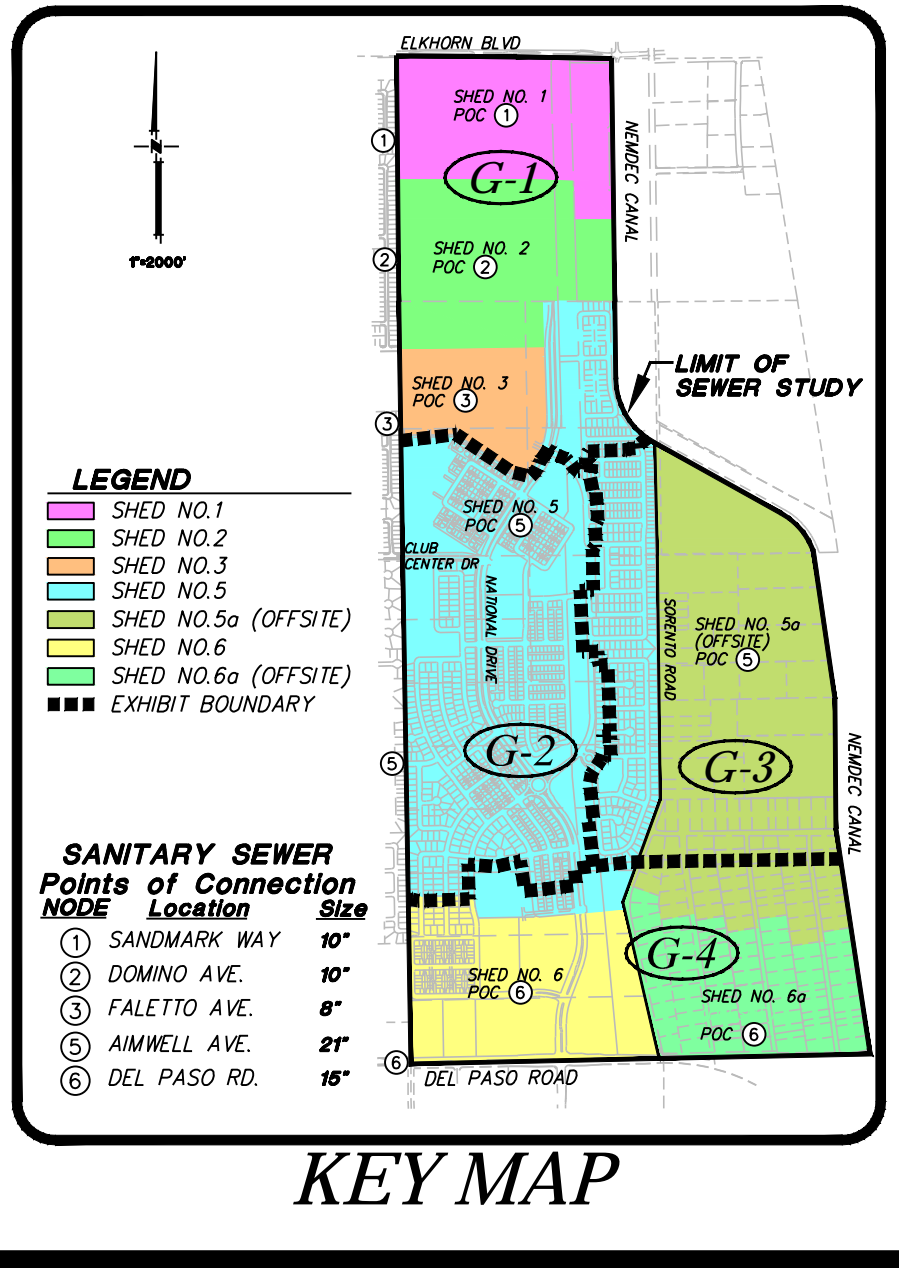
EXHIBIT G-2



SEE SHEET G-2

SEE SHEET G-1

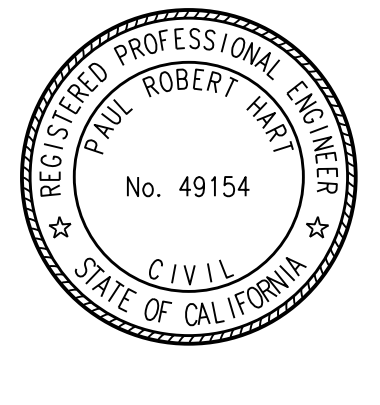
SEE SHEET G-4



- LEGEND**
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 - MINOR SEWER SHED BOUNDARY
 - ADJACENT SEWER (SIZE INDICATED)
 - ADJACENT SANITARY SEWER (SIZE INDICATED)
 - TRUNK SEWER (SIZE INDICATED)
- 1-1
 A = SS MANHOLE NODE NUMBER
 A = SS MANHOLE TRIBUTARY AREA (Ac.)
 A = SS MANHOLE CUMULATIVE AREA (Ac.)
 A = SS MANHOLE CUMULATIVE ESD
 A = SS MANHOLE CUMULATIVE FLOW (MGD)

NOTE:
 LOCATION OF SHALLOW PARALLEL SEWER IS SCHEMATIC FOR LEGIBILITY AND SHALL BE REVISION IN THE FUTURE SUBMITTALS.
 ESDs HAVE NOT BEEN ALLOCATED TO INFILTRATION AREA FOR PARALLEL SEWER (INFILTRATION AREA ASSUMED AS AREA WITHIN THE STREET RIGHT-OF-WAY AT LOCATION OF PARALLEL SEWER.)

Prepared under direction of:



MASTER SEWER STUDY NATOMAS PANHANDLE

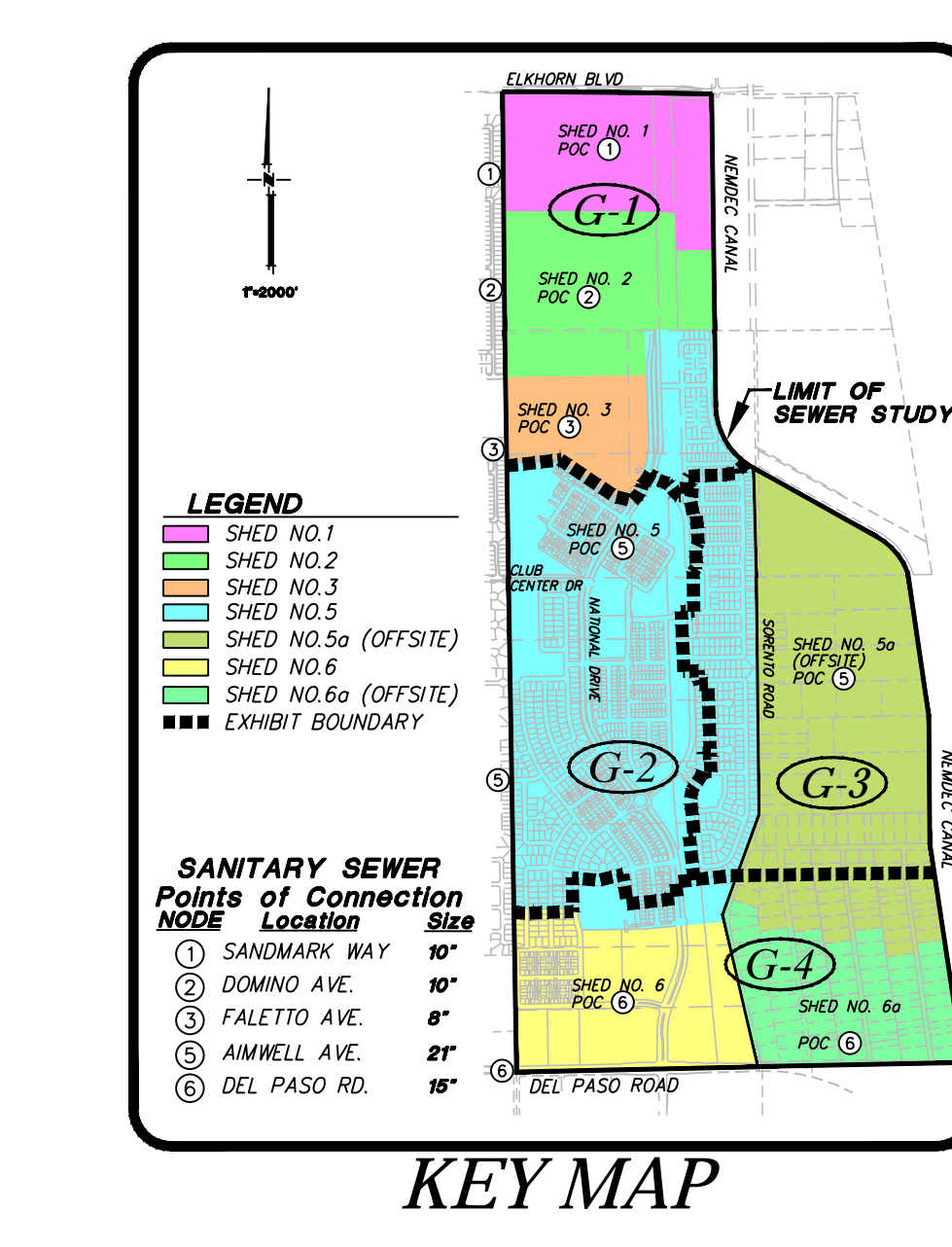
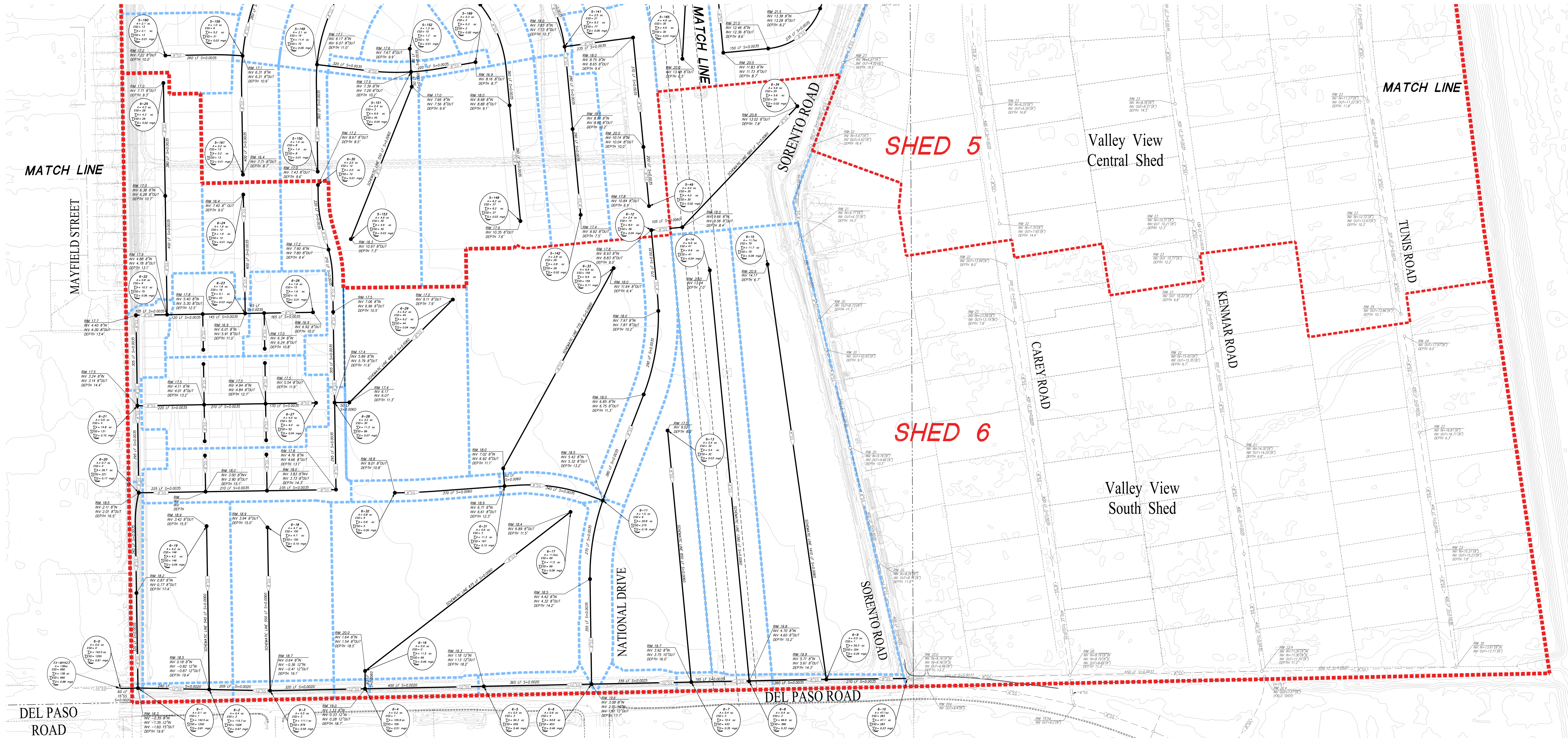
City of Sacramento, California
 Scale: 1" = 100'
 August 11, 2016

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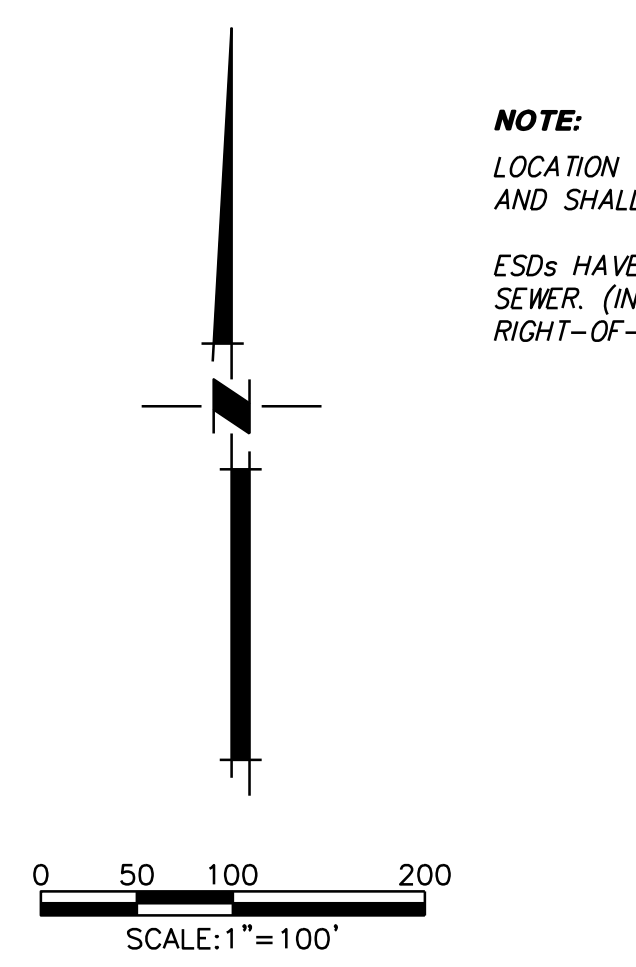
EXHIBIT G-3

SEE SHEET G-2

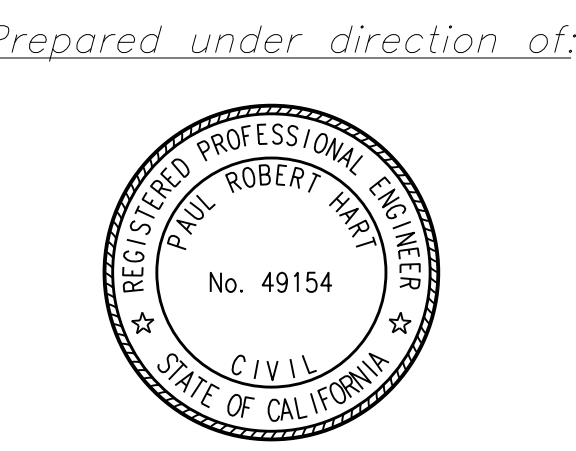
SEE SHEET G-3



- LEGEND**
- MAJOR SEWER SHED BOUNDARY
 - MINOR SEWER SHED BOUNDARY
 - SANITARY SEWER (SIZE INDICATED)
 - ADJACENT SANITARY SEWER (SIZE INDICATED)
 - TRUNK SEWER (SIZE INDICATED)
 - 1-1 SS MANHOLE NODE NUMBER
 - A SS MANHOLE TRIBUTARY AREA (A.C.)
 - ESD SS MANHOLE TRIBUTARY ESD
 - ΣA SS MANHOLE CUMULATIVE AREA (A.C.)
 - ΣESD SS MANHOLE CUMULATIVE ESD
 - ΣQ SS MANHOLE CUMULATIVE FLOW (MGD)



NOTE:
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MASTER SEWER STUDY NATOMAS PANHANDLE

City of Sacramento, California
 Scale: 1" = 100' August 11, 2016

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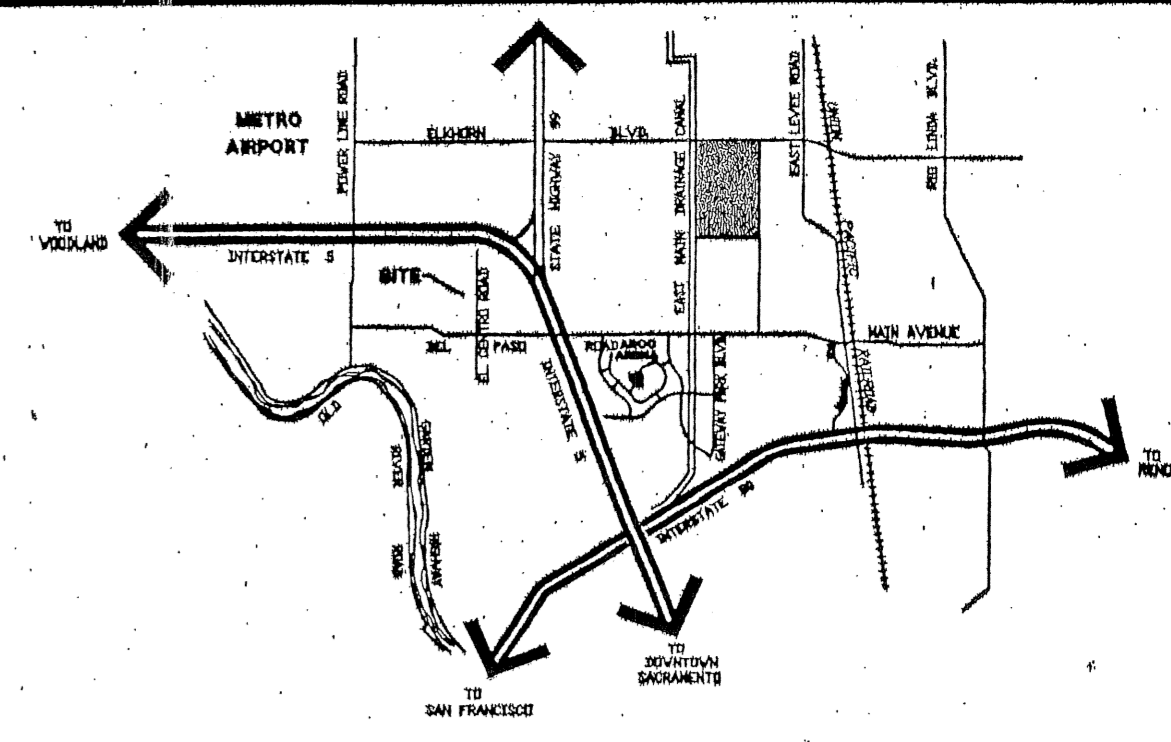
EXHIBIT G-4

EXHIBIT H

Sewer Study for

NORTHPOINTE PARK PHASE 2

City of Sacramento, California



SEE NORTHBOROUGH PHASE 3 & NORTH NATOMAS ESTATES EXHIBIT "G"

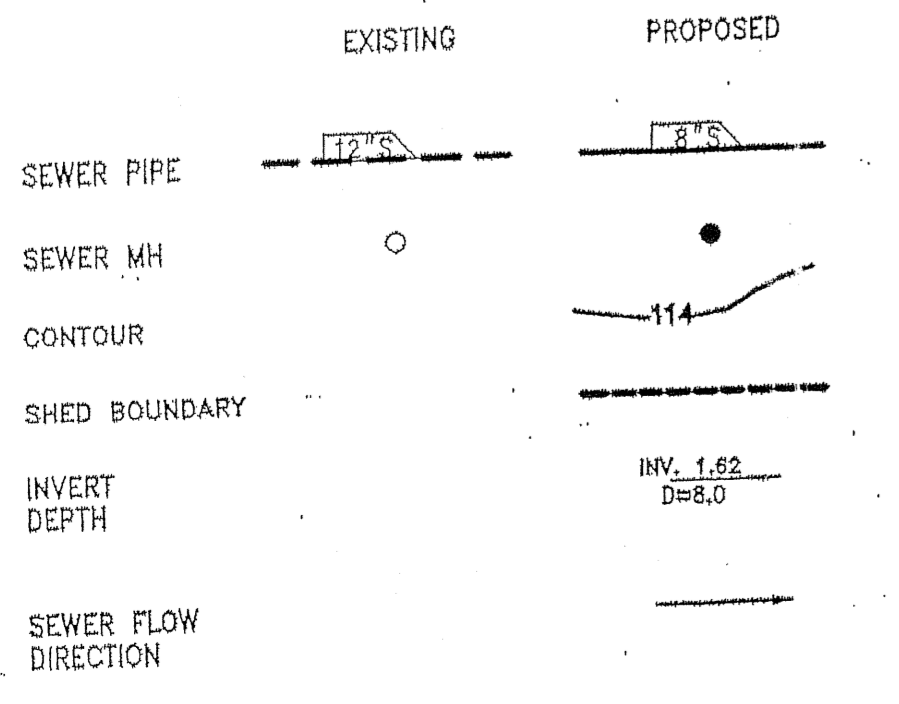
PROPOSED NORTH NATOMAS BLVD. TRUNK SEWER (SEE EXHIBIT A)

OPTION 1: 24" GRAVITY SEWER
OPTION 2: 15" FORCE MAIN

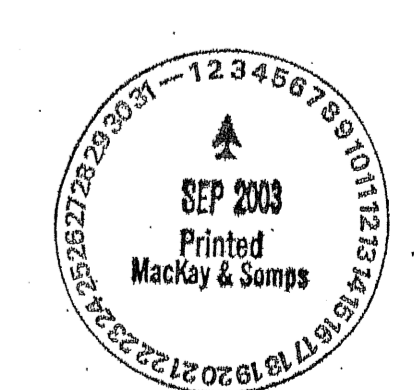
OPTION: USE EXISTING 24" TRUNK SEWER AS CONDUCTOR CASING AND PLACE 12" PIP FROM STA 2+80 TO 1+070

FUTURE 78" DIA. NORTHWEST INTERCEPTOR

LEGEND



SEE NORTHPOINTE PARK SEWER STUDY PREPARED BY THE SPINK CORP. DATED NOV. 1996 AND REVISED PORTION NORTHPOINTE PARK VILLAGES 15 & 16 SEWER STUDY DATED NOV. 1999



WOOD · RODGERS INC.

CIVIL ENGINEERING
SURVEYING
PLANNING

3001 STREET, STE. 100B
300 KANESVILLE, IA 52240
319-336-1100 FAX 319-336-1107

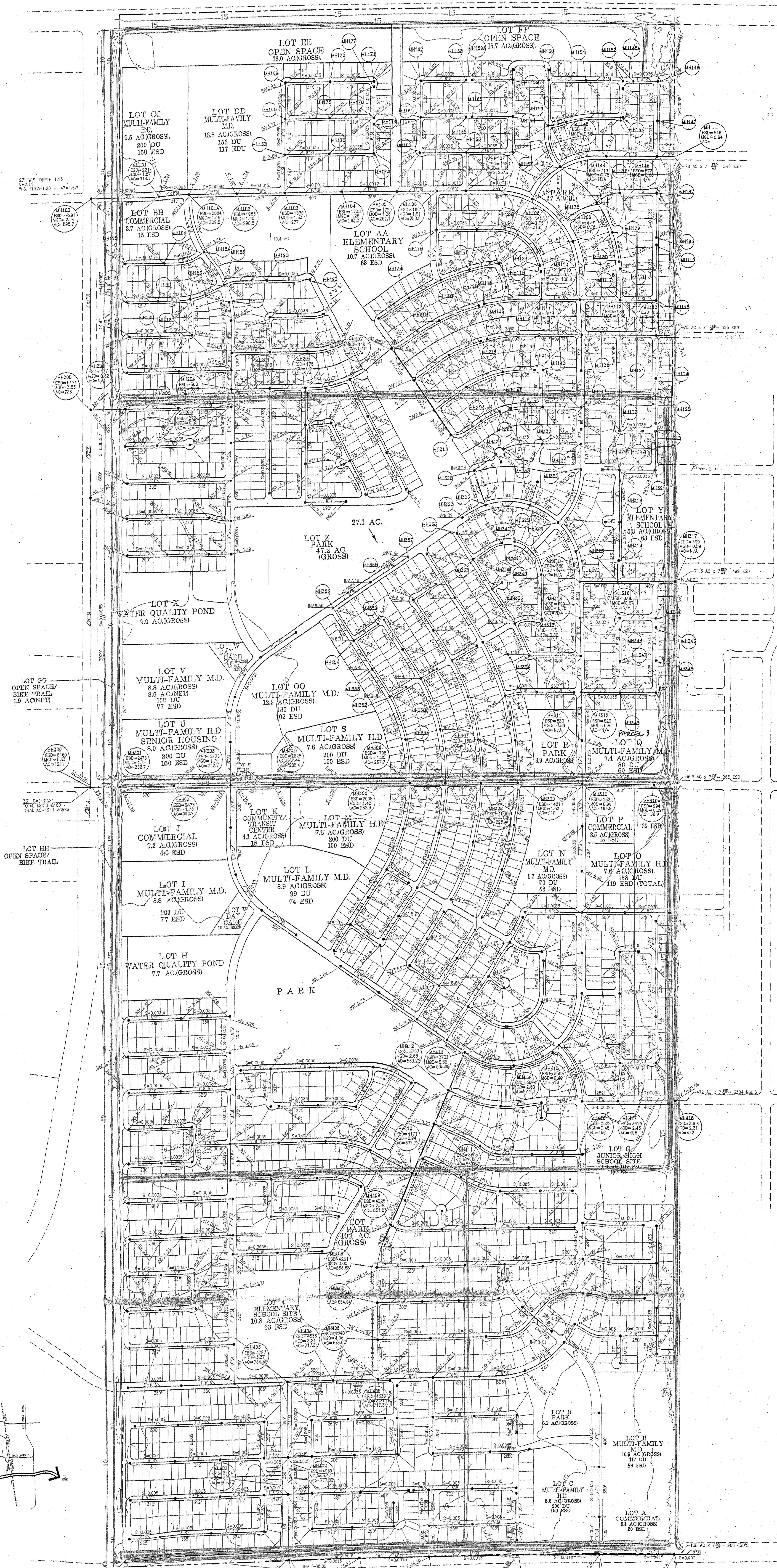
SEWER STUDY

NORTHPOINTE PARK

City of Sacramento, California

REVISED STUDY
4-6-98

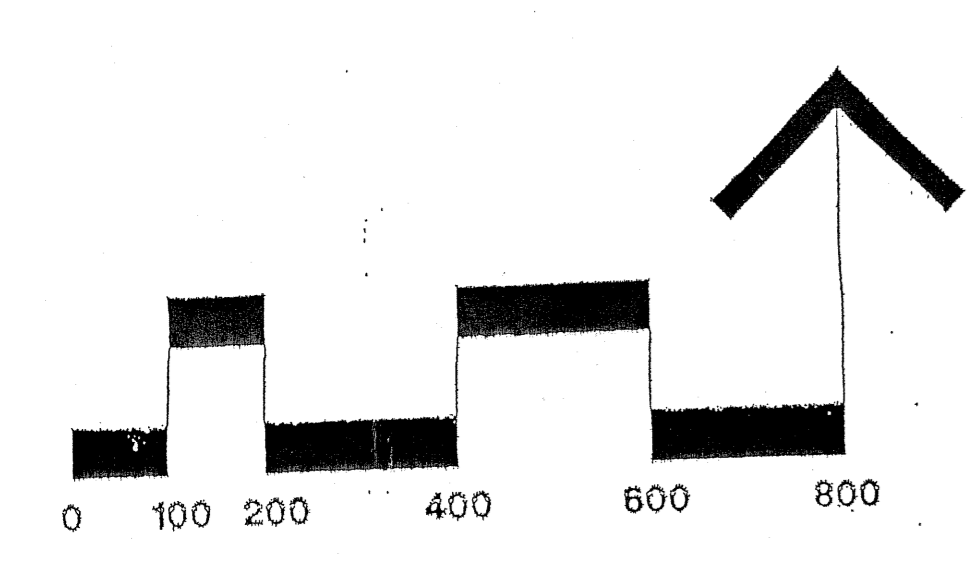
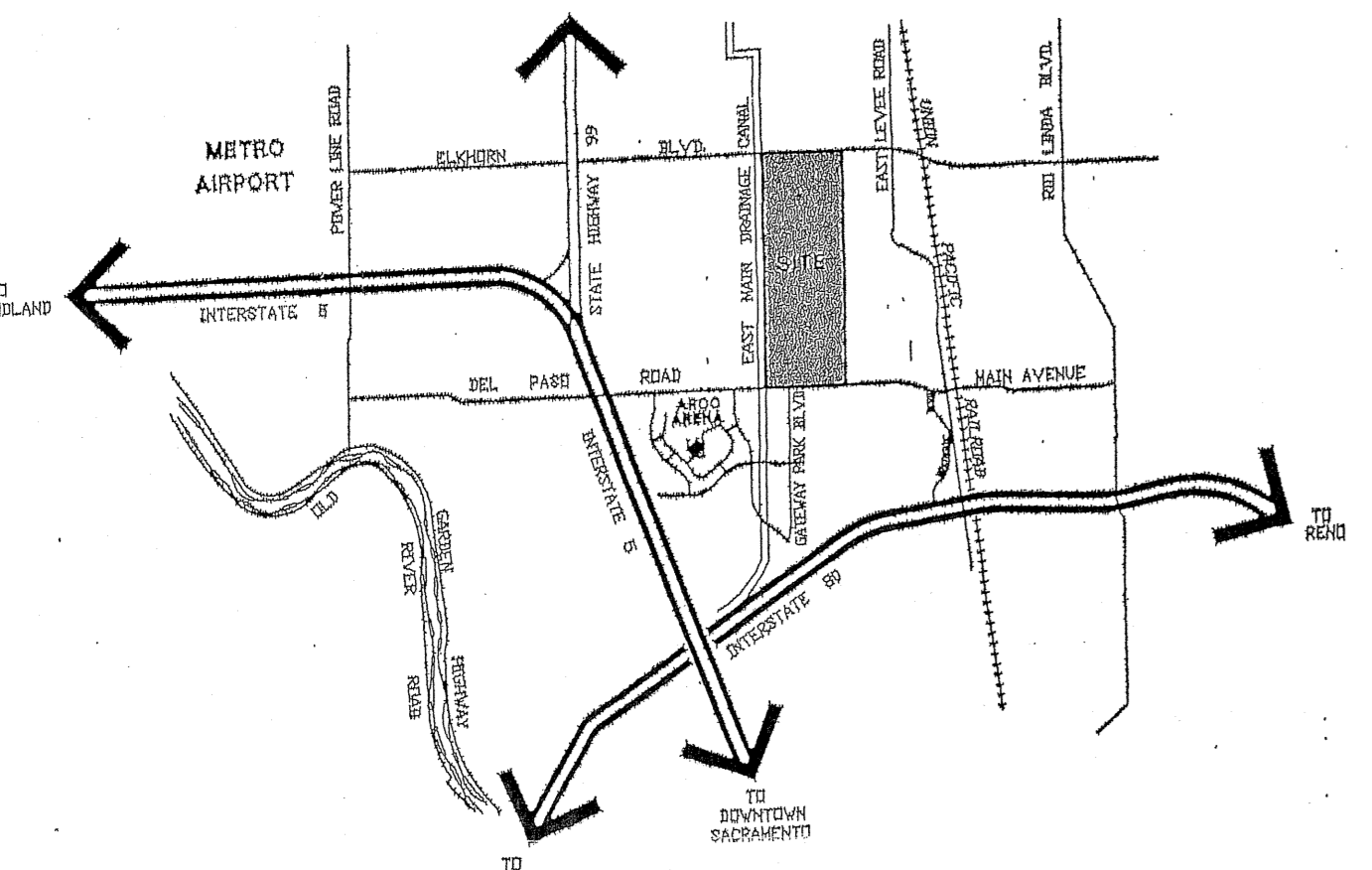
EXHIBIT J



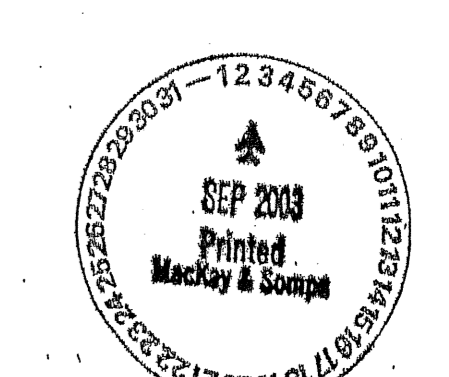
27' W.S. SOUTH 1.13
V=2.11
W.S. ELEV=1.20 + 47=1.67

SP-1-10-10
TOTAL ESD=2180
TOTAL AC=1211 ACRES

LOT HH
OPEN SPACE/
BIKE TRAIL
1.9 AC(NE)



- LEGEND:**
- MH = MANHOLE
 - FB = FLUSHING BRANCH
 - INV= INVERT OF SEWER
 - S = SLOPE OF SEWER PIPE
 - (MH#)
ESD=...
CA=...
VC=...
 - MANHOLE NUMBER
EQUIVALENT SINGLE FAMILY
DWELLING UNITS
 - MILLION GALLONS PER DAY
CONTRIBUTORY ACREAGE



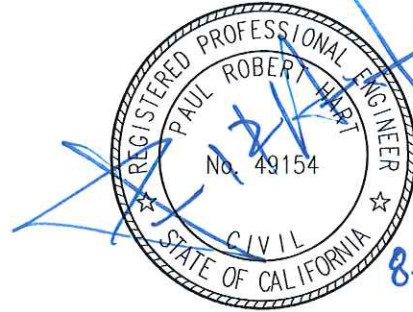
The Spink Corporation
2550 VENTURE GATE WAY, SACRAMENTO CALIFORNIA 95833-2898
PHONE: (916) 921-5500 FAX: (916) 921-6274

Note: This is an Application for a Development Permit.

**Revised Preliminary Water Study
Evaluation for the
Panhandle Development**

TECHNICAL MEMORANDUM

Date: August 22, 2016
To: Brett Ewart, City of Sacramento
From: Paul Hart
CC: John Hodgson, The Hodgson Company
Subject: Revised Preliminary Water Study Evaluation for the Panhandle Development



Introduction

The original Panhandle project proposed the annexation of approximately 1,430 acres within the North Natomas Community Plan (NNCP) area to the City of Sacramento (City). The affected territory comprising the Panhandle consists of two components: the Southern Portion of the site (the 835-acre area to the south of Del Paso Road, between Del Paso Road and Interstate 80) which is nearly built-out with light industrial, warehousing, commercial and office uses, and the Northern Portion of the site (the area to the north of Del Paso Road, between Del Paso Road and Elkhorn Boulevard) which is primarily undeveloped grazing land.

The Northern Portion consists of approximately 589.4 acres, all of which were proposed to be developed as a Planned Unit Development (PUD). The area is adjacent to City lands on the west and adjacent to County lands on the east, north and south. It is bounded by Elkhorn Boulevard on the north, Sorento Road and East Levee Road on the east, Del Paso Road on the south, and the current City limits/North Natomas to the west. The location of the Panhandle development is shown on the vicinity map attached as Exhibit 1.

The original PUD proposed 3,075 dwelling units, 24.3 acres of commercial uses, and 108 acres of parks and open space. The environmental review process consisted of a Draft EIR (2006) and a Final EIR completed but certified in 2007. The project was formally withdrawn by the Applicants in 2007 prior to approval action by the City of Sacramento.

Minor administrative modifications are proposed to the original PUD; however, the refinements have been preliminarily determined to be consistent with the overall spirit and intent of the land use plan. A Tentative Master Parcel Map and PUD Schematic Plan, both dated July 1, 2016,

— Since 1953 —

have been recently submitted to the City of Sacramento for approval. The map and plan are shown on the attached Exhibit 2 & 3, respectively.

The updated Panhandle development seeks to subdivide approximately 465.5 acres of the total 589.4 acres (excluding the 123.9 ac Krumenacher lands) into 38 large lots (parcels) for future sale and development. The parcels include 1,625 single family dwelling units, 9.7 acres of commercial use, 73.8 acres of elementary and high/middle schools, and 22.3 acres of parks, and 35.5 acres of open space. Refer to Exhibit 3 – PUD Schematic Plan.

The purpose of this technical memo is to reevaluate the Panhandle water system, modeled and approved in February 2006, using the current Tentative Master Parcel Map and PUD Schematic Plan.

Discussion

The 2006 water distribution system used H2ONet version 6.0 to evaluate the hydraulic performance. In reanalyzing the water system, it was converted to the WaterCAD Version 8i program. The water model was then updated by the following:

1. Remove the two point of connections and all proposed water pipes within the area of the Krumenacher lands.
2. Move water piping layout to incorporate the Tentative Master Parcel Map revised street and large lot layout.
3. Revise water demands using the PUD Schematic Plan with the current City water use factors. For the parcel and node breakdowns, refer to the tables in Attachment 1.
4. Revise each junction node elevation to 3 feet below the preliminary street grade as indicated on the Mass Grading Plan Exhibit with Backbone Roadways prepared by MacKay & Somps dated July 15, 2016. This project will be on the City's current vertical datum, National Geodetic Vertical Datum of 1929.
5. At the four point of connections on Mayfield Street, Aimwell Avenue, Club Center Drive, and Faletto Avenue, use the static pressures obtained from the City's water supply tests dated July 22, 2016. Refer to Attachment 2.

The demand scenarios simulated include peak hour and fire flow plus maximum day analysis. The water model layout is shown on the attached Exhibit 4.

Results

The fire flow plus maximum day demand analysis showed that for a fire flow demand of 1,500 gpm for single family residential, 3,000 gpm for commercial, and 4,000 gpm for schools there was sufficient flow available while maintaining a minimum residual pressure of 27.96 psi. The maximum velocity occurring within the system was 9.40 ft/sec.

For the peak hour demand analysis, the water system had a minimum pressure of 34.55 psi, a maximum pressure of 42.87 psi, and a maximum velocity of 2.94 ft/sec.

As for the average day demand analysis, the water system had a minimum pressure of 35.19 psi, a maximum pressure of 43.50 psi, and a maximum velocity of 1.83 ft/sec.

Refer to Attachment 3 for the WaterCAD results tables.

Conclusion

This Technical Memorandum confirms that the updated Panhandle development can be adequately served by the proposed water distribution system presented in Exhibit 4 – Water Model Layout. The results of the hydraulic analysis demonstrate that the water system meets the City of Sacramento standards to provide sufficient flow and pressure, and validates that there is not a need to update the February 2006 Water Study for land use entitlement approvals of the proposed large lot tentative map.

As the 38 large lots develop, additional hydraulic analysis will be required to layout and size the water pipes for each of the future Villages, the Suburban Center, the high/middle school, and the elementary school. Water studies will be required to be approved by the City of Sacramento.

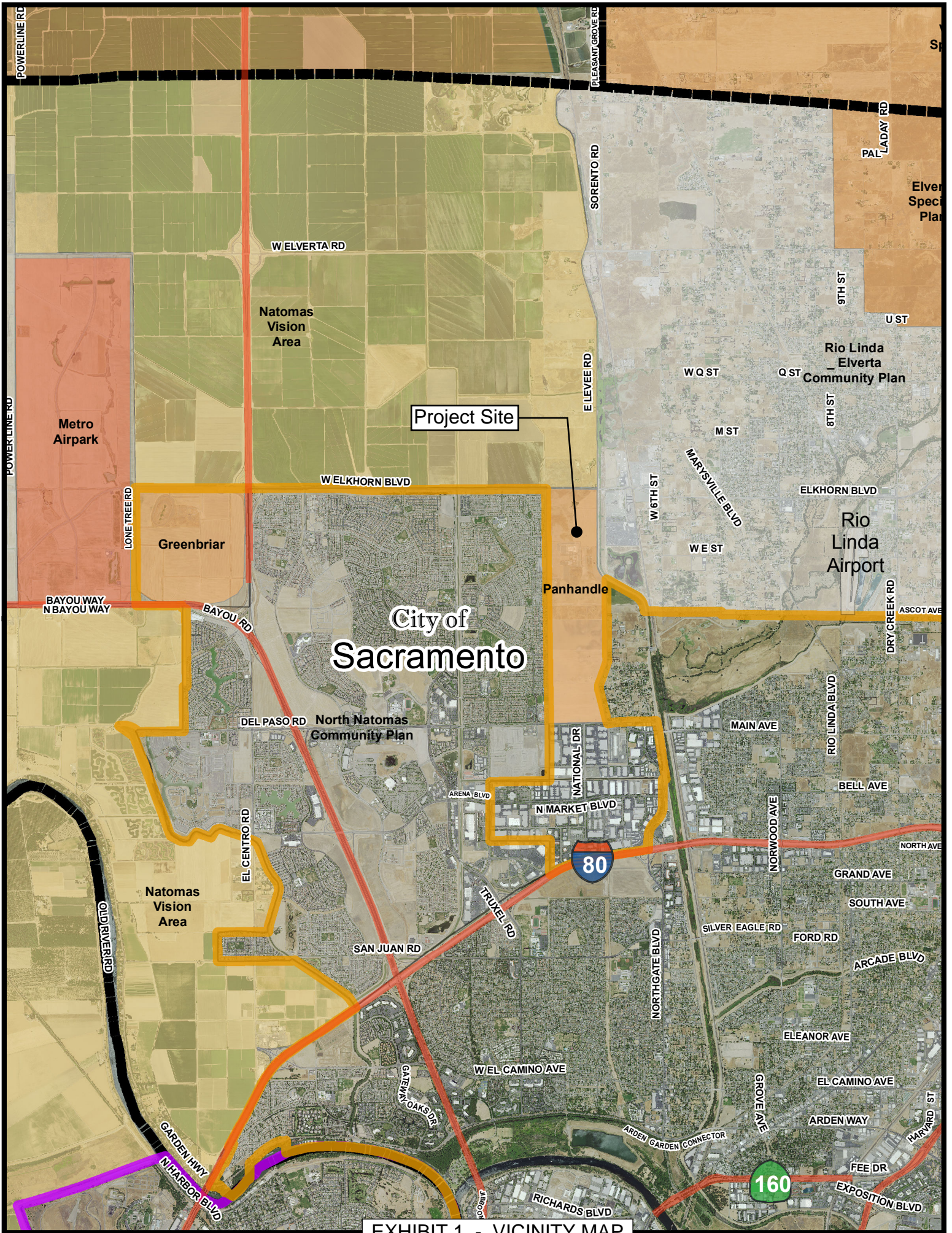
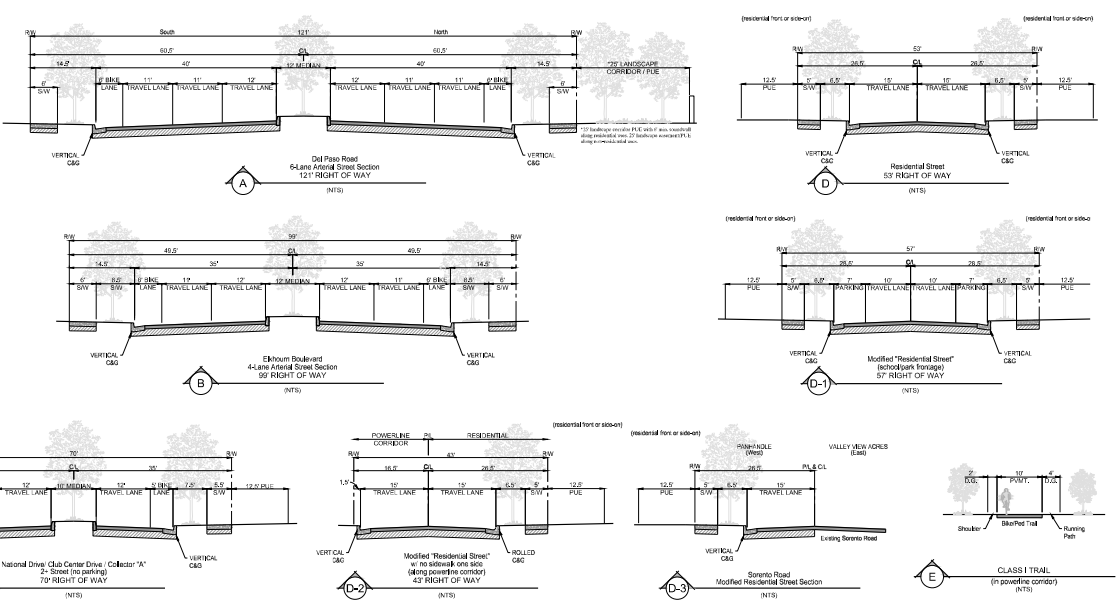
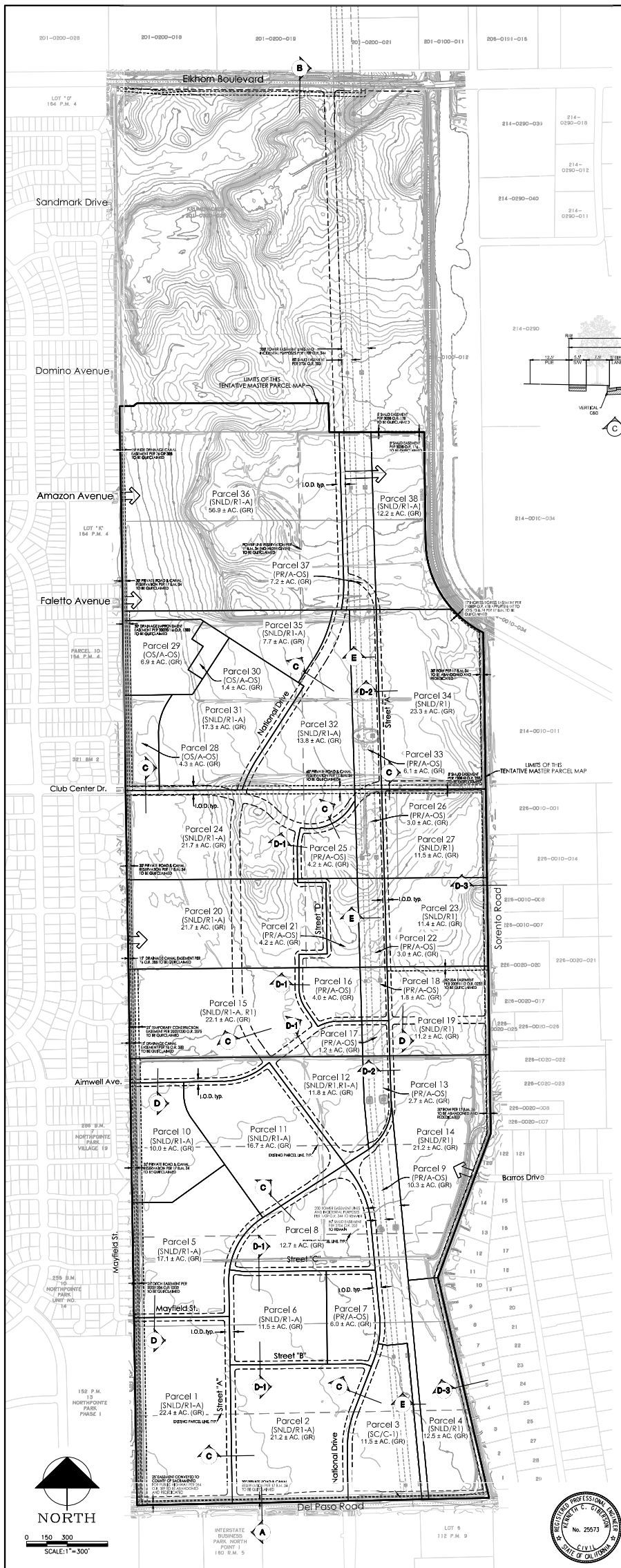


EXHIBIT 1 - VICINITY MAP



PROPERTY DESCRIPTION

PARCEL ONE: Lots 75 and 76, as shown on the "Plan of Natomas East Side Subdivision", recorded in Book 17 of Maps, Map no. 34, records of said county, excepting therefrom all that portion described in deed to the Grant Union High School District, a California Public School District, recorded September 21, 2007 in Book 20070921, page 556 of official records thereof.

PARCEL TWO: The South one-half of lots no. 82 and 83 as said lots are delineated on that certain map entitled "Natomas East Side Subdivision", filed in the Office of the County Recorder of the County of Sacramento on January 24, 1924 in Book 17 of Maps, map no. 34.

PARCEL THREE: The North one-half of lots 82 and 83 as shown on the "Plan of Natomas East Side Subdivision", filed January 18, 1924 in Book 17 of Maps, map no. 34, Sacramento County Records, excepting therefrom the East 640 feet thereof.

PARCEL FOUR: The East 640 feet of the North one-half of lot 83, as shown on the "Plan of Natomas East Side Subdivision", filed January 18, 1924 in Book 17 of Maps, map no. 34, Sacramento County records.

PARCEL FIVE: Lot 87, of Natomas East Side Subdivision, according to the official plat thereof, filed in the Office of the Recorder of Sacramento County, on January 18, 1924 in Book 17 of Maps, map no. 34.

PARCEL SIX: Lots 92, 93, 97 and 98 as shown on the official "Map of Natomas East Side Subdivision", filed in the Office of the County Recorder of Sacramento County, January 18, 1924, in Book 17 of Maps, map no. 34.

LAND USE SUMMARY

Parcel	Use	General Plan	Zoning	Acres (G)
Parcel 1	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	22.42
Parcel 2	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	21.22
Parcel 3	SUBURBAN CENTER	SC	CA-1	11.5
Parcel 4	SINGLE FAMILY RESIDENTIAL	SNLD	R-1	12.5
Parcel 5	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	17.12
Parcel 6	ELEMENTARY SCHOOL	SNLD	R1-A	11.42
Parcel 7	PARK	PR	A-OS	6.32
Parcel 8	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	11.92
Parcel 9	OPEN SPACE	PR	A-OS	10.82
Parcel 10	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	10.02
Parcel 11	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	16.72
Parcel 12	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A, R1	11.82
Parcel 13	OPEN SPACE	PR	A-OS	2.72
Parcel 14	SINGLE FAMILY RESIDENTIAL	SNLD	R1	21.22
Parcel 15	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A, R-1	22.12
Parcel 16	PARK	PR	A-OS	4.02
Parcel 17	OPEN SPACE	PR	A-OS	1.22
Parcel 18	PARK	PR	A-OS	1.82
Parcel 19	SINGLE FAMILY RESIDENTIAL	SNLD	R1	11.22
Parcel 20	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	21.72
Parcel 21	PARK	PR	A-OS	4.22
Parcel 22	PARK	PR	A-OS	3.02
Parcel 23	SINGLE FAMILY RESIDENTIAL	SNLD	R1	11.42
Parcel 24	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	21.72
Parcel 25	PARK	PR	A-OS	4.22
Parcel 26	PARK	PR	A-OS	3.02
Parcel 27	SINGLE FAMILY RESIDENTIAL	SNLD	R1	11.52
Parcel 28	DETENTION BASIN	OS	A-OS	4.32
Parcel 29	DETENTION BASIN	OS	A-OS	6.92
Parcel 30	DETENTION BASIN	OS	A-OS	1.42
Parcel 31	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	17.32
Parcel 32	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	15.52
Parcel 33	OPEN SPACE	PR	A-OS	6.12
Parcel 34	SINGLE FAMILY RESIDENTIAL	SNLD	R1	23.42
Parcel 35	HIGH SCHOOL/MIDDLE SCHOOL	SNLD	R1-A	7.72
Parcel 36	HIGH SCHOOL/MIDDLE SCHOOL	SNLD	R1-A	56.42
Parcel 37	OPEN SPACE	PR	A-OS	7.72
Parcel 38	SINGLE FAMILY RESIDENTIAL	SNLD	R1-A	12.22
TOTAL				465.4±

TENTATIVE MASTER PARCEL MAP INFORMATION

OWNERSHIP INFORMATION:

Carl Brothers, Successor Trustee of the Ernest G. Brothers 1993 Trust P.O. Box 2756 Orangeville, CA 95662 ATTN: Carl Brothers (916) 257-2193	Twin Rivers Unified School District 3115 Dudley Blvd. McClellan, CA 95652 ATTN: Bill McGuire (916) 566-1600
Tasso Peter Cononelos 4300 D St. Sacramento, CA 95819 (916) 747-6264	32932 Pacific Coast Highway # 14-357 Monarch Beach, CA 92629 ATTN: J. Rios Richter (949) 499-6443
8D Properties, LLC 1082 Sunrise Avenue, Suite 100 Roseville, CA 95661 ATTN: Steven W. Decou / Orin Bennett (916) 783-4100	Beachfields, LLC 32932 Pacific Coast Highway # 14-357 Monarch Beach, CA 92629 ATTN: J. Rios Richter (949) 499-6443

APPLICANT: The Hodgson Company
2514 Chintatown Alley
Sacramento, CA 95816
ATTN: John Hodgson (916) 548-8554
jhodgson@thehodgsoncompany.com

PLANNER & ENGINEER: Mackay & Somp's Civil Engineers, Inc.
1522 Eureka Road, Suite 100
Roseville, CA 95661
ATTN: Donna Pasquantonio-Leslie
(916) 773-1189

ASSESSORS PARCEL NUMBER: 201-0320-018, 201-0320-019, 201-0320-024
201-0540-071, 201-0540-072, 201-0540-073
225-0300-020, 225-0300-031, 225-0300-016
225-0300-003, 225-0300-022, 226-0600-021

SITE ACREAGE: 465.4± AC.

EXISTING GENERAL PLAN DESIGNATION: AC, CROP

PROPOSED GENERAL PLAN DESIGNATION: SNLD, PR, W, PD, SC

EXISTING ZONING DESIGNATION: AG, R

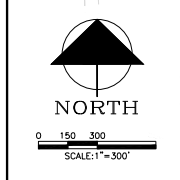
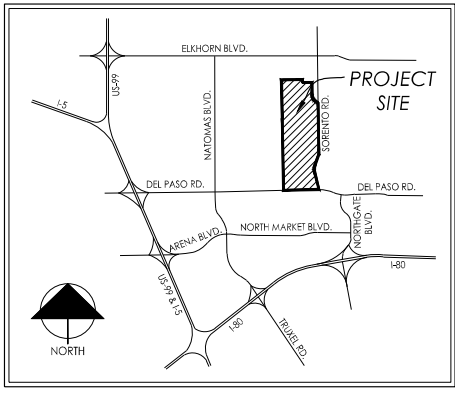
PROPOSED ZONING DESIGNATION: R1, R1-A, A-OS, A, C-1

NUMBER OF LOTS: 38: Total Lots
19: Single Family Residential Lots
7: Park Lots
5: Open Space Lots
2: Detention Basin Lots
1: Elementary School Lot
1: Suburban Center Lot

SERVICE PROVIDERS:

PARKS & RECREATION	City of Sacramento
SCHOOL DISTRICT	Twin Rivers Unified School District
FIRE DISTRICT	City of Sacramento
POLICE PROTECTION	City of Sacramento
SANITARY SEWER	Sacramento Regional Sanitation District
DOMESTIC WATER	City of Sacramento
STORM DRAIN	City of Sacramento
ELECTRICITY	SMUD
GAS	Pacific Gas & Electric Company
STORM DRAIN	City of Sacramento

- ### NOTES
- Lot dimensions and acreages are approximate. Actual lot dimensions will be established with the Final Map, subject to the approval of the City of Sacramento.
 - Lot lines and lot areas may be adjusted at the time of the Final Map(s) provided no additional lots are created, subject to the approval of the City of Sacramento. Flexibility in parcel configuration as shown herein is allowed provided the new configuration is in substantial compliance, subject to the approval of the City of Sacramento.
 - The Final Mapping and subsequent development of lots may be phased. Phasing is to be consistent with the Development Agreement.
 - Pursuant to Government Code Section 64561, the subdivisor may file multiple Final Maps based upon this Tentative Master Parcel Map. The filing of a Final Map on a portion of this Tentative Map shall not invalidate any part of this Tentative Map.
 - Lot numbering is for identification purposes only and does not indicate phasing or order of development. Ultimate development phasing shall be orderly and will be determined at Final Map and/or Improvement Plan stage.
 - Pursuant to California Government Code Section 66499.202, the land shown herein shall be merged and resubdivided without reversion to acreage and shall constitute abandonment of the public easements listed.
 - 25' Public Highway easement to the County of Sacramento per 264 O.R. 389
 - 30' Right-of-Way easement to the County of Sacramento per 17 B.M. 34 (Sorento Road)
 - The following easements shall be quitclaimed:
 - 60' Private road & canal reservation per 17 B.M. 34
 - 30' Private road & canal reservation per 17 B.M. 34
 - 25' Ditch easement per 20001206 O.R. 0350
 - 15' Drainage canal easement per 76 O.R. 388
 - 25' Temporary construction easement per 20021230 O.R. 2075
 - 50' Drainage improvement easement per 20020716 O.R. 1300
 - 5' SMUD easement per 3038 O.R. 176
 - 5' SMUD easement per 3038 O.R. 176
 - 12' Ingress/Egress easement per 710809 O.R. 418 appurtenant to lots 73 & 74 per 17 B.M. 34
 - 5' SMUD easement per 730810 O.R. 233
 - 30' USA easement per 20091112 O.R. 0232
 - Additional easements to accommodate new public utility improvements, access required for lot development, or other similar mapping requirements needed to accomplish the final design may be added prior to the Final Map based on this Master Tentative Parcel Map.
 - A public utility easement will be located adjacent to all rights-of-way, or as approved by the City Engineer.



TENTATIVE MASTER PARCEL MAP

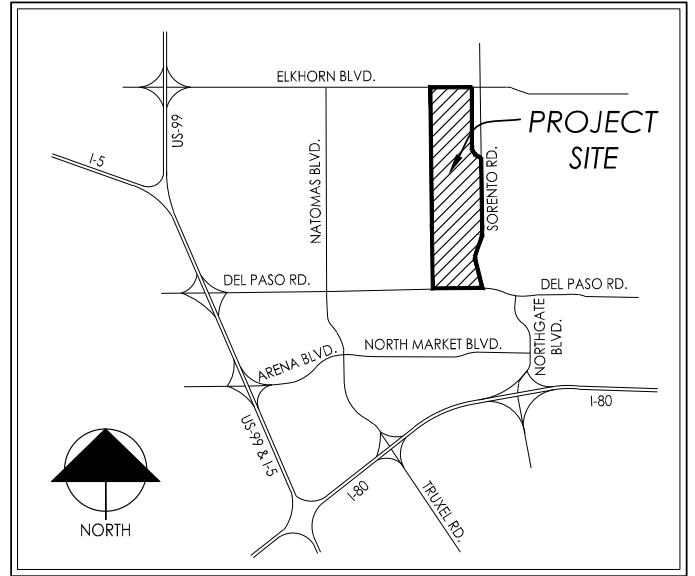
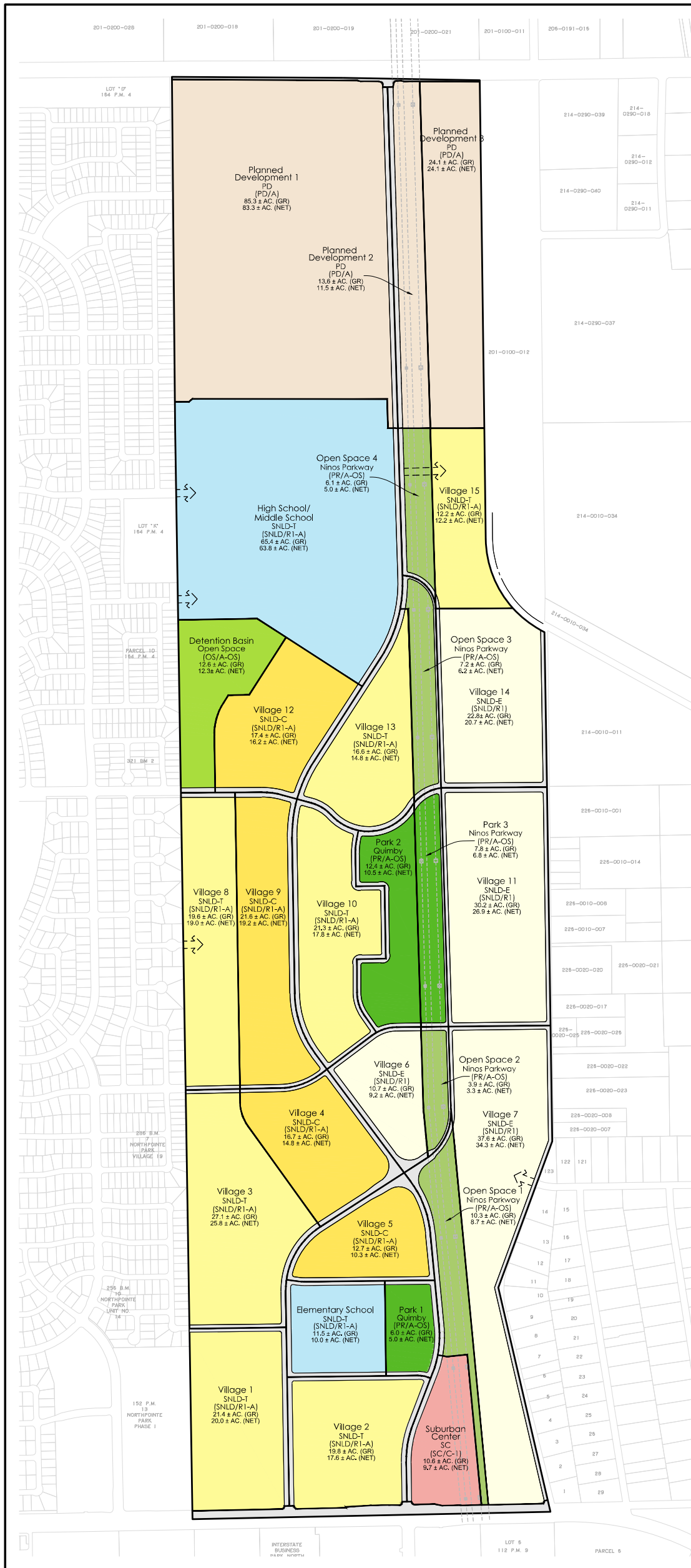
PANHANDLE

City of Sacramento

MACKAY & SOMP'S
ENGINEERS PLANNERS SURVEYORS

July 01, 2016

EXHIBIT 2 - TENTATIVE MASTER PARCEL MAP



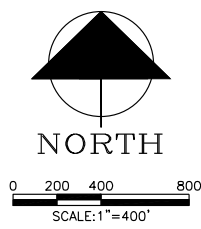
Land Dedication Summary Table 07-01-15

PANHANDLE Planned Unit Development Plan						GIS National dedication formula	
land use	unit type	net acres	net density	total units	total acres	total units	total acres
SNLD-E	58	191.1	3.3	58	191.1	58	191.1
SNLD-T	58	191.1	3.3	58	191.1	58	191.1
SNLD-C	58	191.1	3.3	58	191.1	58	191.1
TOTALS						174	573.3

LAND USE SUMMARY

PUD Land Use*	General Plan	Zoning	Acres (G)	Acres (N)	Units
SNLD-E	SNLD (3-8 du/ac)	R-1	101.32	91.12	409±
SNLD-T	SNLD (3-8 du/ac)	R1-A	138.02	127.22	763±
SNLD-C	SNLD (3-8 du/ac)	R1-A	68.42	60.52	453±
Elementary School	SNLD (3-8 du/ac)	R1-A	11.52	10.02	
High School / Middle School	SNLD (3-8 du/ac)	R1-A	65.42	63.82	
Park - Quimby	PR	A-OS	18.42	15.52	
Park - Ninos Parkway	PR	A-OS	7.82	6.82	
Open Space - Ninos Parkway	PR	A-OS	27.52	23.22	
Suburban Center	SC	C-1	10.62	9.72	
Detention Basin - Open Space	W	A-OS	12.62	12.32	
Planned Development (Krumenacher Property)	PD	A	123.02	118.92	
Major Roads (Del Paso Rd & Elkhorn Blvd)	varies	varies	4.92	4.92	
Collector and Residential Streets	varies	varies	0.02	45.52	
TOTALS			589.4±	589.4±	1,625± DU

*SNLD = Suburban Neighborhood Low Density (Detached Single-Family Residential)
 -E = Estate (4.5 du/ac average net density)
 -T = Traditional (6.0 du/ac average net density)
 -C = Compact (7.5 du/ac average net density)



PUD SCHEMATIC PLAN

PANHANDLE

City of Sacramento

MACKAY & SOMPS
 ENGINEERS PLANNERS SURVEYORS

July 01, 2016

EXHIBIT 3 - PUD SCHEMATIC PLAN

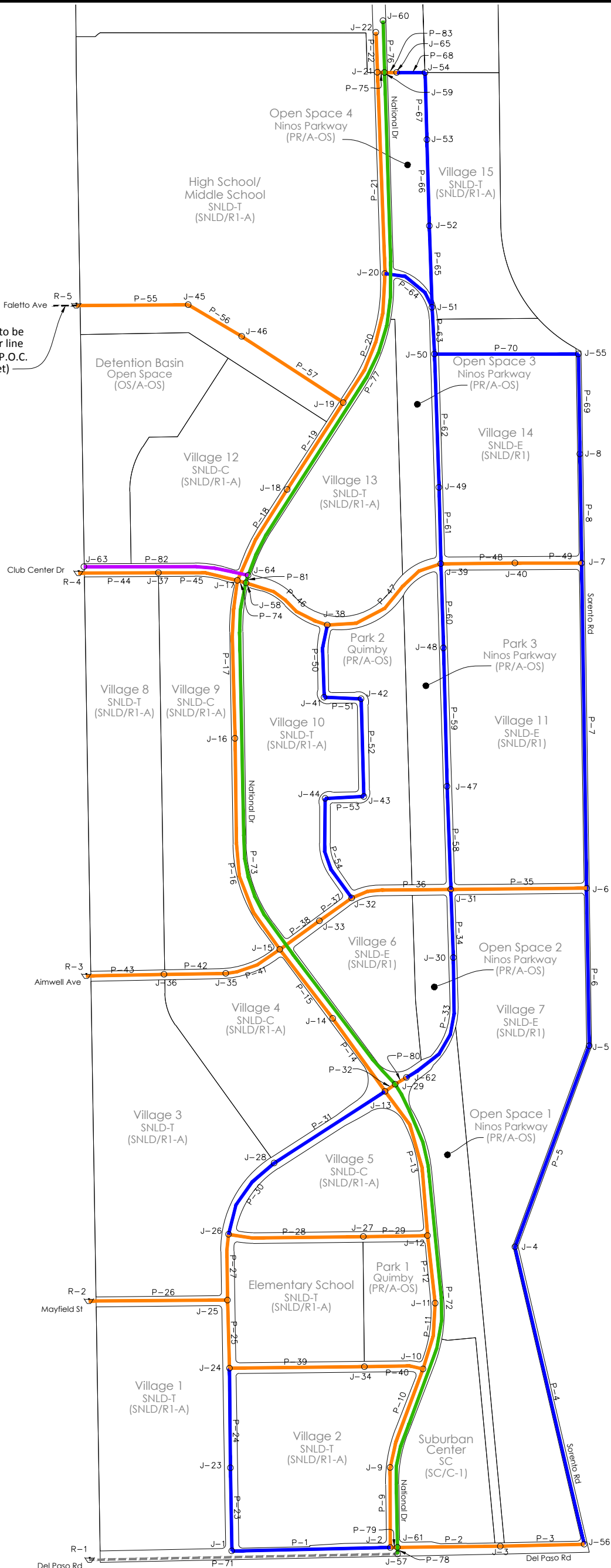


Existing 8" water line to be upsized to a 12" water line from Dreamy Way to P.O.C. (Approximately 87 feet)

AVERAGE DAY DEMAND			
	ELEVATION	PRESSURE	FLOW
R-1	0.00 ft	40 psi	0.00 gpm
R-2	11.50 ft	44 psi	176.96 gpm
R-3	12.60 ft	44 psi	646.22 gpm
R-4	12.40 ft	42 psi	21.55 gpm
R-5	12.50 ft	43 psi	0.00 gpm

MAXIMUM DAY DEMAND			
	ELEVATION	PRESSURE	FLOW
R-1	0.00 ft	40 psi	0.00 gpm
R-2	11.50 ft	44 psi	659.35 gpm
R-3	12.60 ft	44 psi	942.18 gpm
R-4	12.40 ft	42 psi	0.00 gpm
R-5	12.50 ft	43 psi	87.91 gpm

PEAK HOUR DEMAND			
	ELEVATION	PRESSURE	FLOW
R-1	0.00 ft	40 psi	0.00 gpm
R-2	11.50 ft	44 psi	770.90 gpm
R-3	12.60 ft	44 psi	1,037.98 gpm
R-4	12.40 ft	42 psi	56.03 gpm
R-5	12.50 ft	43 psi	331.34 gpm

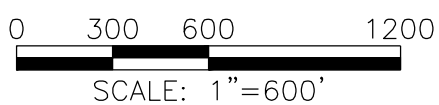


LEGEND

- EX. 36" TRANSMISSION MAIN
- 24" TRANSMISSION MAIN
- 18" TRANSMISSION MAIN
- 12" TRANSMISSION MAIN
- 8" DISTRIBUTION MAIN

Exhibit 4 - Water Model Layout

Panhandle



City of Sacramento
Scale 1"=600'

MACKEY & SOMPS
ENGINEERS PLANNERS SURVEYORS
1552 Eureka Road, Suite 100, Roseville, CA 95661 (916) 773-1189

California
August 12, 2016
Job No: 27141

ATTACHMENT 1

PANHANDLE

	LAND USE	ACRES (Net)	DEMAND FACTOR (gpm/DU or gpm/acres)	# of DU's	AVERAGE DAY DEMAND (gallon/minute)	MAXIMUM DAY DEMAND (gallon/minute)	PEAK HOUR DEMAND (gallon/minute)
Village 1	SNLD-T	20.0	0.37817514	120.0	45.38	90.76	117.99
Village 2	SNLD-T	17.6	0.37817514	105.6	39.94	79.88	103.84
Village 3	SNLD-T	25.8	0.37817514	154.8	58.54	117.08	152.20
Village 4	SNLD-C	14.8	0.37817514	111.0	41.98	83.96	109.15
Village 5	SNLD-C	10.3	0.37817514	77.2	29.20	58.40	75.92
Village 6	SNLD-E	9.2	0.37817514	41.4	15.66	31.32	40.72
Village 7	SNLD-E	34.3	0.37817514	154.3	58.35	116.70	151.71
Village 8	SNLD-T	19.0	0.37817514	114.0	43.11	86.22	112.09
Village 9	SNLD-C	19.2	0.37817514	144.0	54.46	108.92	141.60
Village 10	SNLD-T	17.8	0.37817514	106.8	40.39	80.78	105.01
Village 11	SNLD-E	26.9	0.37817514	121.0	45.76	91.52	118.98
Village 12	SNLD-C	16.2	0.37817514	121.5	45.95	91.90	119.47
Village 13	SNLD-T	14.8	0.37817514	88.8	33.58	67.16	87.31
Village 14	SNLD-E	20.7	0.37817514	93.1	35.21	70.42	91.55
Village 15	SNLD-T	12.2	0.37817514	73.2	27.68	55.36	71.97
Elementary School	SNLD	10.0	0.37817514	80.0	30.25	60.50	78.65
High/Middle School	SNLD	63.8	0.37817514	510.4	193.02	386.04	501.85
Suburban Center	SC	9.7	0.117792257		1.14	2.28	2.96
Park 1	PR	5.0	0.229384921		1.15	2.30	2.99
Park 2	PR	10.5	0.229384921		2.41	4.82	6.27
Park 3	PR	6.8	0.229384921		1.56	3.12	4.06
					844.72	1,689.44	2,196.27

PANHANDLE

JUNCTION NODE	AVERAGE DAY DEMAND (gallon/minute)	MAXIMUM DAY DEMAND (gallon/minute)	PEAK HOUR DEMAND (gallon/minute)
J-1	19.97	39.94	51.92
J-4	19.45	38.90	50.57
J-5	19.45	38.90	50.57
J-9	20.54	41.08	53.40
J-10	0.57	1.14	1.48
J-11	1.15	2.30	2.99
J-12	14.60	29.20	37.96
J-13	20.99	41.98	54.57
J-14	7.83	15.66	20.36
J-15	27.23	54.46	70.80
J-16	47.43	94.86	123.32
J-17	22.97	45.94	59.72
J-18	16.79	33.58	43.65
J-20	64.34	128.68	167.28
J-21	64.34	128.68	167.28
J-23	22.69	45.38	58.99
J-25	22.69	45.38	58.99
J-26	29.27	58.54	76.10
J-27	15.12	30.24	39.31
J-28	14.60	29.20	37.96
J-30	19.45	38.90	50.57
J-32	7.83	15.66	20.36
J-33	20.19	40.38	52.49
J-34	15.13	30.26	39.34
J-35	20.99	41.98	54.57
J-36	50.83	101.66	132.16
J-37	21.55	43.10	56.03
J-38	16.79	33.58	43.65
J-42	1.56	3.12	4.06
J-43	2.41	4.82	6.27
J-45	64.34	128.68	167.28
J-46	22.98	45.96	59.75
J-47	22.88	45.76	59.49
J-48	22.88	45.76	59.49
J-49	17.61	35.22	45.79
J-51	13.84	27.68	35.98
J-53	13.84	27.68	35.98
J-55	17.60	35.20	45.76
	844.72	1,689.44	2,196.27

ATTACHMENT 2

WATER SUPPLY TEST - DEPARTMENT OF UTILITIES

City of Sacramento Development Services Planning & Building Department 300 Richards Blvd., 3rd Floor Sacramento, CA 95811	TEST NUMBER: (1 of 1)	FILE NUMBER: R16-072
	COMPLETE DATE: 7/22/2016	PC NUMBER: WST-1610452
	ANALYSIS FEE: \$491.00	DATE PAID:
	FIELD TEST FEE: \$774.00	DATE PAID: 7/5/2016
CONTACT: JOHN HODGSON	PHONE NUMBER: 916-548-8854	FAX NUMBER:
COMPANY: THE HODSON COM	CELL NUMBER:	EMAIL: JHODSON@THEHODSONCOMPANY.COM
COMPLETE CO. 2514 CHINATOWN ALLEY	STREET ADDRESS OF TEST: 1430 MAYFIELD ST	
ADDRESS: SACRAMENTO, CA	ASSESSOR'S PARCEL NUMBER: 225-1120-029-0000	

When more than one water supply test has been performed contact your Fire Plancher to determine which test to use.

The undersigned agrees to the following items and conditions:

- (1) *The street address shown above is correct*
- (2) *Water supply data is developed from several sources of information which may include water supply test data pipe network, computer models, and continuous pressure recording stations. The design water supply data given below is to be used for design purposes.*
- (3) *Although the water supply data reported herein is believed to be accurate, the City makes no warranty, guaranty, certification or other representation of any kind that such data is accurate or correct, or that the pressures and/or flow rates reported herein can or will be maintained. The undersigned agrees that the City, its officers and employees shall not be liable for any damages of any kind resulting from the use of or reliance upon the water supply data reported herein by the undersigned or by any third party.*
- (4) *When more than one water supply test has been performed, the decision is left to the Fire Plan Checker as to which water supply test is to be used.*
- (5) *If the undersigned desires to witness the water supply test performed by the City, please check the box below:*
 I want to witness this water supply test, which will be scheduled at the convenience of the Department of Utilities.
- (6) *If the undersigned elects to hire a licensed engineer, at the undersigned's sole expense, to witness and certify the water supply test performed by the City, please check the box below:*
 At my expense, I will arrange for a licensed engineer to witness and certify this water supply test, which will be scheduled at the convenience of the Department of Utilities.

PRINT NAME:			SIGNATURE:							
DATE:			FIELD REQUEST DATE:							
DATE OF TEST: 6/21/2016			TIME OF TEST: 6:00 AM							
WTR. MAIN SIZE: 8"/12"			TEST CONDUCTED BY: Sal Miano							
	Hydrant Number	Map Page	Static Pres. (PSI)	Residual Pres. (PSI)	Pitot Pres. (PSI)	Outlet Dia. (Inches)	Coefficient		Calc. Flow @ Pres. (GPM)	Flow @ 20 PSI (G.P.M.)
							C ₁	C ₂		
Residual	804	N14	54	43						
Flowed	805	N14			29	4.5	0.90	0.83	2430	3703
Flowed	802	N14			25	4.5	0.90	0.83	2256	3438
Flowed										
Flowed										

* THE WATER SUPPLY TEST DATA IS NOT TO BE USED FOR THE DESIGN OF DOMESTIC WATER SYSTEMS.
 * (STATIC PRES. - RESIDUAL PRES.) / (STATIC PRES. - 20 PSI) MUST NOT BE LESS THAN 25%. THEREFORE, THESE RESULTS ARE ONLY VALID FOR RESIDUAL PRESSURES LESS THAN 46 PSI

WATER SUPPLY DATA SUMMARY

	Design (1)
Static Pressure	44 PSI
Residual Pressure	33 PSI
Total Flow @ Residual	4700 G.P.M.
Total Flow @ 20 PSI	7100 G.P.M.

(1) The Design Water Supply Data reflects fluctuations and future demands on the water distribution system. It is to be used for design purposes.

WO 385877

7/26/2016

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WATER SUPPLY TEST - DEPARTMENT OF UTILITIES

City of Sacramento Development Services Planning & Building Department 300 Richards Blvd., 3rd Floor Sacramento, CA 95811	TEST NUMBER: (1 of 1)	FILE NUMBER: R16-071
	COMPLETE DATE: 7/22/2016	PC NUMBER: WST-1610450
	ANALYSIS FEE: \$491.00	DATE PAID:
	FIELD TEST FEE: \$774.00	DATE PAID: 7/5/2016
CONTACT: JOHN HODGSON	PHONE NUMBER: 916-548-8854	FAX NUMBER:
COMPANY: THE HODSON COM	CELL NUMBER:	EMAIL: JHODSON@THEHODSONCOMPANY.COM
COMPLETE CO. 2514 CHINATOWN ALLEY	STREET ADDRESS OF TEST: 1551 AIMWELL AVENUE	
ADDRESS: SACRAMENTO, CA	ASSESSOR'S PARCEL NUMBER: 225-1520-041-0000	

When more than one water supply test has been performed contact your Fire Planchecker to determine which test to use.

The undersigned agrees to the following items and conditions:

- (1) *The street address shown above is correct*
- (2) *Water supply data is developed from several sources of information which may include water supply test data pipe network, computer models, and continuous pressure recording stations. The design water supply data given below is to be used for design purposes.*
- (3) *Although the water supply data reported herein is believed to be accurate, the City makes no warranty, guaranty, certification or other representation of any kind that such data is accurate or correct, or that the pressures and/or flow rates reported herein can or will be maintained. The undersigned agrees that the City, its officers and employees shall not be liable for any damages of any kind resulting from the use of or reliance upon the water supply data reported herein by the undersigned or by any third party.*
- (4) *When more than one water supply test has been performed, the decision is left to the Fire Plan Checker as to which water supply test is to be used.*
- (5) *If the undersigned desires to witness the water supply test performed by the City, please check the box below:*
 I want to witness this water supply test, which will be scheduled at the convenience of the Department of Utilities.
- (6) *If the undersigned elects to hire a licensed engineer, at the undersigned's sole expense, to witness and certify the water supply test performed by the City, please check the box below:*
 At my expense, I will arrange for a licensed engineer to witness and certify this water supply test, which will be scheduled at the convenience of the Department of Utilities.

PRINT NAME:				SIGNATURE:						
DATE:				FIELD REQUEST DATE:						
DATE OF TEST: 6/21/2016				TIME OF TEST: 6:00 AM						
WTR. MAIN SIZE: 8"/12"				TEST CONDUCTED BY: Sal Miano						
	Hydrant Number	Map Page	Static Pres. (PSI)	Residual Pres. (PSI)	Pitot Pres. (PSI)	Outlet Dia. (Inches)	Coefficient		Calc. Flow @ Pres. (GPM)	Flow @ 20 PSI (G.P.M.)
							C ₁	C ₂		
Residual	204	N14	53	43						
Flowed	205	N14			29	4.5	0.90	0.83	2430	3899
Flowed	801	M14			29	4.5	0.90	0.83	2430	3899
Flowed										
Flowed										

* THE WATER SUPPLY TEST DATA IS NOT TO BE USED FOR THE DESIGN OF DOMESTIC WATER SYSTEMS.
 * (STATIC PRES. - RESIDUAL PRES.) / (STATIC PRES. - 20 PSI) MUST NOT BE LESS THAN 25%. THEREFORE, THESE RESULTS ARE ONLY VALID FOR RESIDUAL PRESSURES LESS THAN 45 PSI

WATER SUPPLY DATA SUMMARY

	Design (1)
Static Pressure	44 PSI
Residual Pressure	34 PSI
Total Flow @ Residual	4900 G.P.M.
Total Flow @ 20 PSI	7800 G.P.M.

(1) The Design Water Supply Data reflects fluctuations and future demands on the water distribution system. It is to be used for design purposes.

WO 385876

7/26/2016

WATER SUPPLY TEST - DEPARTMENT OF UTILITIES

City of Sacramento Development Services Planning & Building Department 300 Richards Blvd., 3rd Floor Sacramento, CA 95811	TEST NUMBER: (1 of 1)	FILE NUMBER: R16-069
	COMPLETE DATE: 7/22/2016	PC NUMBER: WST-1610445
	ANALYSIS FEE: \$491.00	DATE PAID: 7/5/2016
	FIELD TEST FEE: \$774.00	DATE PAID: 7/5/2016
CONTACT: JOHN HODGSON	PHONE NUMBER: 916-548-8854	FAX NUMBER:
COMPANY: THE HODSON COM	CELL NUMBER:	EMAIL: JHODSON@THEHODSONCOMPANY.COM
COMPLETE CO. 2514 CHINATOWN ALLEY	STREET ADDRESS OF TEST: 5301 JANERO WAY	
ADDRESS: SACRAMENTO, CA	ASSESSOR'S PARCEL NUMBER: 201-0970-021-0000	

When more than one water supply test has been performed contact your Fire Planchecker to determine which test to use.

The undersigned agrees to the following items and conditions:

- (1) *The street address shown above is correct*
- (2) *Water supply data is developed from several sources of information which may include water supply test data pipe network, computer models, and continuous pressure recording stations. The design water supply data given below is to be used for design purposes.*
- (3) *Although the water supply data reported herein is believed to be accurate, the City makes no warranty, guaranty, certification or other representation of any kind that such data is accurate or correct, or that the pressures and/or flow rates reported herein can or will be maintained. The undersigned agrees that the City, its officers and employees shall not be liable for any damages of any kind resulting from the use of or reliance upon the water supply data reported herein by the undersigned or by any third party.*
- (4) *When more than one water supply test has been performed, the decision is left to the Fire Plan Checker as to which water supply test is to be used.*
- (5) *If the undersigned desires to witness the water supply test performed by the City, please check the box below:*
 I want to witness this water supply test, which will be scheduled at the convenience of the Department of Utilities.
- (6) *If the undersigned elects to hire a licensed engineer, at the undersigned's sole expense, to witness and certify the water supply test performed by the City, please check the box below:*
 At my expense, I will arrange for a licensed engineer to witness and certify this water supply test, which will be scheduled at the convenience of the Department of Utilities.

PRINT NAME:			SIGNATURE:							
DATE:			FIELD REQUEST DATE:							
DATE OF TEST: 6/14/2016			TIME OF TEST: 5:55 AM							
WTR. MAIN SIZE: 8"/12"			TEST CONDUCTED BY: Sal Miano							
	Hydrant Number	Map Page	Static Pres. (PSI)	Residual Pres. (PSI)	Pitot Pres. (PSI)	Outlet Dia. (Inches)	Coefficient		Calc. Flow @ Pres. (GPM)	Flow @ 20 PSI (G.P.M.)
							C ₁	C ₂		
Residual	806	L14	52	40						
Flowed	805	L14			27	4.5	0.90	0.83	2345	3253
Flowed	802	L14			30	4.5	0.90	0.83	2471	3429
Flowed										
Flowed										

* THE WATER SUPPLY TEST DATA IS NOT TO BE USED FOR THE DESIGN OF DOMESTIC WATER SYSTEMS.
 * (STATIC PRES. - RESIDUAL PRES.) / (STATIC PRES. - 20 PSI) MUST NOT BE LESS THAN 25%. THEREFORE, THESE RESULTS ARE ONLY VALID FOR RESIDUAL PRESSURES LESS THAN 44 PSI

WATER SUPPLY DATA SUMMARY

	Design (1)
Static Pressure	42 PSI
Residual Pressure	30 PSI
Total Flow @ Residual	4800 G.P.M.
Total Flow @ 20 PSI	6700 G.P.M.

(1) The Design Water Supply Data reflects fluctuations and future demands on the water distribution system. It is to be used for design purposes.

WO 385873

7/26/2016

WDB

WATER SUPPLY TEST - DEPARTMENT OF UTILITIES

City of Sacramento Development Services Planning & Building Department 300 Richards Blvd., 3rd Floor Sacramento, CA 95811	TEST NUMBER: (1 of 1)	FILE NUMBER: R16-070
	COMPLETE DATE: 7/22/2016	PC NUMBER: WST-1610447
	ANALYSIS FEE: \$491.00	DATE PAID: 7/5/2016
	FIELD TEST FEE: \$774.00	DATE PAID: 7/5/2016
CONTACT: JOHN HODGSON	PHONE NUMBER: 916-548-8854	FAX NUMBER:
COMPANY: THE HODSON COM	CELL NUMBER:	EMAIL: JHODSON@THEHODSONCOMPANY.COM
COMPLETE CO. 2514 CHINATOWN ALLEY	STREET ADDRESS OF TEST: 1390 DREAMY WAY	
ADDRESS: SACRAMENTO, CA	ASSESSOR'S PARCEL NUMBER: 201-0810-072-0000	

When more than one water supply test has been performed contact your Fire Planchecker to determine which test to use.

The undersigned agrees to the following items and conditions:

- (1) *The street address shown above is correct*
- (2) *Water supply data is developed from several sources of information which may include water supply test data pipe network, computer models, and continuous pressure recording stations. The design water supply data given below is to be used for design purposes.*
- (3) *Although the water supply data reported herein is believed to be accurate, the City makes no warranty, guaranty, certification or other representation of any kind that such data is accurate or correct, or that the pressures and/or flow rates reported herein can or will be maintained. The undersigned agrees that the City, its officers and employees shall not be liable for any damages of any kind resulting from the use of or reliance upon the water supply data reported herein by the undersigned or by any third party.*
- (4) *When more than one water supply test has been performed, the decision is left to the Fire Plan Checker as to which water supply test is to be used.*
- (5) *If the undersigned desires to witness the water supply test performed by the City, please check the box below:*
 I want to witness this water supply test, which will be scheduled at the convenience of the Department of Utilities.
- (6) *If the undersigned elects to hire a licensed engineer, at the undersigned's sole expense, to witness and certify the water supply test performed by the City, please check the box below:*
 At my expense, I will arrange for a licensed engineer to witness and certify this water supply test, which will be scheduled at the convenience of the Department of Utilities.

PRINT NAME:			SIGNATURE:							
DATE:			FIELD REQUEST DATE:							
DATE OF TEST: 6/14/2016			TIME OF TEST: 5:30 AM							
WTR. MAIN SIZE: 8"/12"			TEST CONDUCTED BY: Sal Miano							
	Hydrant Number	Map Page	Static Pres. (PSI)	Residual Pres. (PSI)	Pitot Pres. (PSI)	Outlet Dia. (Inches)	Coefficient		Calc. Flow @ Pres. (GPM)	Flow @ 20 PSI (G.P.M.)
							C ₁	C ₂		
Residual	202	L14	50	37						
Flowed	503	L14			23	4.5	0.90	0.83	2164	2945
Flowed	204	L14			27	4.5	0.90	0.83	2345	3191
Flowed										
Flowed										

* THE WATER SUPPLY TEST DATA IS NOT TO BE USED FOR THE DESIGN OF DOMESTIC WATER SYSTEMS.
 * (STATIC PRES. - RESIDUAL PRES.) / (STATIC PRES. - 20 PSI) MUST NOT BE LESS THAN 25%. THEREFORE, THESE RESULTS ARE ONLY VALID FOR RESIDUAL PRESSURES LESS THAN 43 PSI

WATER SUPPLY DATA SUMMARY

	Design (1)
Static Pressure	43 PSI
Residual Pressure	30 PSI
Total Flow @ Residual	4500 G.P.M.
Total Flow @ 20 PSI	6100 G.P.M.

(1) The Design Water Supply Data reflects fluctuations and future demands on the water distribution system. It is to be used for design purposes.

WO 385874

7/26/2016

ATTACHMENT 3

Panhandle Development
Average Day Demands

ID	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	14.00	19.97	112.94	42.81
J-2	15.60	0.00	112.95	42.12
J-3	16.50	0.00	112.95	41.73
J-4	19.50	19.45	112.94	40.43
J-5	27.40	19.45	112.94	37.01
J-6	21.40	0.00	112.96	39.62
J-7	17.80	0.00	112.93	41.16
J-8	24.00	0.00	112.92	38.47
J-9	15.60	20.54	112.95	42.12
J-10	14.20	0.57	112.95	42.72
J-11	15.20	1.15	112.95	42.29
J-12	14.10	14.60	112.95	42.77
J-13	13.80	20.99	112.95	42.90
J-14	13.40	7.83	113.01	43.09
J-15	14.30	27.23	113.06	42.73
J-16	14.10	47.43	112.97	42.78
J-17	13.50	22.97	112.94	43.02
J-18	14.50	16.79	112.92	42.58
J-19	14.20	0.00	112.91	42.71
J-20	19.40	64.34	112.91	40.46
J-21	29.50	64.34	112.93	36.09
J-22	31.50	0.00	112.93	35.23
J-23	15.50	22.69	112.94	42.16
J-24	14.60	0.00	112.96	42.55
J-25	15.10	22.69	112.96	42.34
J-26	14.30	29.27	112.96	42.68
J-27	16.10	15.12	112.95	41.90
J-28	14.70	14.60	112.95	42.51
J-29	14.50	0.00	112.95	42.59
J-30	16.00	19.45	112.96	41.95
J-31	16.50	0.00	112.97	41.74
J-32	15.50	7.83	113.01	42.19
J-33	15.00	20.19	113.03	42.41
J-34	15.00	15.13	112.95	42.38
J-35	13.40	20.99	113.35	43.24
J-36	14.40	50.83	113.67	42.95
J-37	12.60	21.55	109.32	41.85
J-38	15.50	16.79	112.94	42.16
J-39	16.80	0.00	112.93	41.59
J-40	18.50	0.00	112.93	40.86
J-41	16.00	0.00	112.95	41.94
J-42	16.50	1.56	112.95	41.73
J-43	16.50	2.41	112.97	41.74
J-44	16.00	0.00	112.98	41.96
J-45	12.50	64.34	112.89	43.43
J-46	12.50	22.98	112.89	43.43
J-47	17.00	22.88	112.94	41.51
J-48	15.60	22.88	112.93	42.11

Panhandle Development
Average Day Demands

ID	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-49	17.50	17.61	112.92	41.28
J-50	17.20	0.00	112.92	41.41
J-51	18.50	13.84	112.91	40.85
J-52	24.50	0.00	112.91	38.25
J-53	26.50	13.84	112.92	37.39
J-54	30.20	0.00	112.92	35.79
J-55	26.00	17.60	112.92	37.60
J-56	17.20	0.00	112.95	41.42
J-57	15.60	0.00	112.95	42.12
J-58	13.63	0.00	112.94	42.97
J-59	29.60	0.00	112.93	36.05
J-60	31.60	0.00	112.93	35.19
J-61	15.60	0.00	112.95	42.12
J-62	14.62	0.00	112.95	42.54
J-63	12.40	0.00	112.94	43.50
J-64	13.78	0.00	112.94	42.90
J-65	29.76	0.00	112.93	35.98

Panhandle Development

Average Day Demands

ID	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Hazen-Williams C	Material	Flow (gpm)	Velocity (ft/s)	Pressure Loss (psi)	Headloss Gradient (ft/ft)
P-1	J-1	J-2	835	8.0	130.0	PVC	-12.66	0.08	0.0020	0.000006
P-2	J-61	J-3	547	12.0	130.0	Ductile Iron	10.21	0.03	0.0001	0.000001
P-3	J-3	J-56	447	12.0	130.0	Ductile Iron	10.21	0.03	0.0001	0.000001
P-4	J-56	J-4	1,627	8.0	130.0	PVC	10.21	0.07	0.0026	0.000004
P-5	J-4	J-5	1,143	8.0	130.0	PVC	-9.24	0.06	0.0015	0.000003
P-6	J-5	J-6	840	8.0	130.0	PVC	-28.69	0.18	0.0092	0.000025
P-7	J-6	J-7	1,733	8.0	130.0	PVC	24.10	0.15	0.0138	0.000018
P-8	J-7	J-8	582	8.0	130.0	PVC	21.52	0.14	0.0038	0.000015
P-9	J-2	J-9	418	12.0	130.0	Ductile Iron	-20.03	0.06	0.0003	0.000002
P-10	J-9	J-10	556	12.0	130.0	Ductile Iron	-40.57	0.12	0.0016	0.000007
P-11	J-10	J-11	359	12.0	130.0	Ductile Iron	-13.26	0.04	0.0001	0.000001
P-12	J-11	J-12	362	12.0	130.0	Ductile Iron	-14.41	0.04	0.0002	0.000001
P-13	J-12	J-13	820	12.0	130.0	Ductile Iron	-8.33	0.02	0.0001	0.000000
P-14	J-13	J-14	479	12.0	130.0	Ductile Iron	-186.02	0.53	0.0233	0.000112
P-15	J-14	J-15	463	12.0	130.0	Ductile Iron	-193.85	0.55	0.0243	0.000121
P-16	J-15	J-16	1,185	12.0	130.0	Ductile Iron	152.82	0.43	0.0401	0.000078
P-17	J-16	J-17	843	12.0	130.0	Ductile Iron	105.39	0.30	0.0143	0.000039
P-18	J-17	J-18	554	12.0	130.0	Ductile Iron	89.41	0.25	0.0069	0.000029
P-19	J-18	J-19	552	12.0	130.0	Ductile Iron	72.62	0.21	0.0047	0.000020
P-20	J-19	J-20	738	12.0	130.0	Ductile Iron	-14.70	0.04	0.0003	0.000001
P-21	J-20	J-21	1,073	12.0	130.0	Ductile Iron	-62.95	0.18	0.0070	0.000015
P-22	J-21	J-22	214	12.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-23	J-1	J-23	441	8.0	130.0	PVC	-7.31	0.05	0.0004	0.000002
P-24	J-23	J-24	531	8.0	130.0	PVC	-30.00	0.19	0.0064	0.000028
P-25	J-24	J-25	363	12.0	130.0	Ductile Iron	-73.02	0.21	0.0031	0.000020
P-26	R-2	J-25	739	12.0	130.0	Ductile Iron	176.96	0.50	0.0328	0.000103
P-27	J-25	J-26	351	12.0	130.0	Ductile Iron	81.25	0.23	0.0037	0.000024
P-28	J-26	J-27	719	12.0	130.0	Ductile Iron	35.80	0.10	0.0017	0.000005
P-29	J-27	J-12	343	12.0	130.0	Ductile Iron	20.68	0.06	0.0003	0.000002
P-30	J-26	J-28	467	8.0	130.0	PVC	16.18	0.10	0.0018	0.000009
P-31	J-28	J-13	704	8.0	130.0	PVC	1.58	0.01	0.0000	0.000000
P-32	J-13	J-29	65	12.0	130.0	Ductile Iron	158.28	0.45	0.0024	0.000083
P-33	J-62	J-30	746	8.0	130.0	PVC	-19.80	0.13	0.0041	0.000013
P-34	J-30	J-31	364	8.0	130.0	PVC	-39.25	0.25	0.0071	0.000045
P-35	J-31	J-6	724	12.0	130.0	Ductile Iron	52.79	0.15	0.0034	0.000011
P-36	J-31	J-32	535	12.0	130.0	Ductile Iron	-135.34	0.38	0.0145	0.000062
P-37	J-32	J-33	212	12.0	130.0	Ductile Iron	-180.31	0.51	0.0097	0.000106
P-38	J-33	J-15	259	12.0	130.0	Ductile Iron	-200.50	0.57	0.0145	0.000129
P-39	J-24	J-34	719	12.0	130.0	Ductile Iron	43.02	0.12	0.0023	0.000007
P-40	J-34	J-10	314	12.0	130.0	Ductile Iron	27.89	0.08	0.0005	0.000003
P-41	J-15	J-35	321	12.0	130.0	Ductile Iron	-574.40	1.63	0.1260	0.000908
P-42	J-35	J-36	329	12.0	130.0	Ductile Iron	-595.39	1.69	0.1379	0.000970
P-43	R-3	J-36	415	12.0	130.0	Ductile Iron	646.22	1.83	0.2026	0.001129
P-44	R-4	J-37	426	12.0	130.0	Ductile Iron	21.55	0.06	0.0004	0.000002
P-45	J-37	J-17	426	12.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-46	J-58	J-38	496	12.0	130.0	Ductile Iron	15.06	0.04	0.0002	0.000001
P-47	J-38	J-39	719	12.0	130.0	Ductile Iron	31.44	0.09	0.0013	0.000004

Panhandle Development
Average Day Demands

ID	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Hazen-Williams C	Material	Flow (gpm)	Velocity (ft/s)	Pressure Loss (psi)	Headloss Gradient (ft/ft)
P-48	J-39	J-40	395	12.0	130.0	Ductile Iron	-2.58	0.01	0.0000	0.000000
P-49	J-40	J-7	355	12.0	130.0	Ductile Iron	-2.58	0.01	0.0000	0.000000
P-50	J-38	J-41	388	8.0	130.0	PVC	-33.17	0.21	0.0056	0.000033
P-51	J-41	J-42	197	8.0	130.0	PVC	-33.17	0.21	0.0028	0.000033
P-52	J-42	J-43	521	8.0	130.0	PVC	-34.73	0.22	0.0082	0.000036
P-53	J-43	J-44	206	8.0	130.0	PVC	-37.14	0.24	0.0037	0.000041
P-54	J-44	J-32	572	8.0	130.0	PVC	-37.14	0.24	0.0101	0.000041
P-55	R-5	J-45	597	12.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-56	J-45	J-46	331	12.0	130.0	Ductile Iron	-64.34	0.18	0.0023	0.000016
P-57	J-46	J-19	646	12.0	130.0	Ductile Iron	-87.32	0.25	0.0077	0.000028
P-58	J-31	J-47	549	8.0	130.0	PVC	43.30	0.28	0.0130	0.000054
P-59	J-47	J-48	739	8.0	130.0	PVC	20.42	0.13	0.0043	0.000014
P-60	J-48	J-39	449	8.0	130.0	PVC	-2.46	0.02	0.0000	0.000000
P-61	J-39	J-49	407	8.0	130.0	PVC	31.56	0.20	0.0053	0.000030
P-62	J-49	J-50	711	8.0	130.0	PVC	13.95	0.09	0.0021	0.000007
P-63	J-50	J-51	250	8.0	130.0	PVC	17.87	0.11	0.0011	0.000011
P-64	J-51	J-20	332	8.0	130.0	PVC	16.09	0.10	0.0013	0.000009
P-65	J-51	J-52	434	8.0	130.0	PVC	-12.06	0.08	0.0010	0.000005
P-66	J-52	J-53	460	8.0	130.0	PVC	-12.06	0.08	0.0010	0.000005
P-67	J-53	J-54	357	8.0	130.0	PVC	-25.90	0.17	0.0033	0.000021
P-68	J-54	J-65	151	8.0	130.0	PVC	-25.90	0.17	0.0014	0.000021
P-69	J-8	J-55	532	8.0	130.0	PVC	21.52	0.14	0.0034	0.000015
P-70	J-55	J-50	767	8.0	130.0	PVC	3.92	0.03	0.0002	0.000001
P-71	R-1	J-57	1,643	36.0	110.0	Concrete	0.00	0.00	0.0000	0.000000
P-72	J-61	J-29	2,544	24.0	130.0	Ductile Iron	-2.83	0.00	0.0000	0.000000
P-73	J-29	J-58	2,933	24.0	130.0	Ductile Iron	175.24	0.12	0.0044	0.000003
P-74	J-17	J-58	48	12.0	130.0	Ductile Iron	-6.99	0.02	0.0000	0.000000
P-75	J-59	J-21	38	12.0	130.0	Ductile Iron	127.29	0.36	0.0009	0.000056
P-76	J-59	J-60	276	24.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-77	J-64	J-59	2,880	24.0	130.0	Ductile Iron	153.19	0.11	0.0033	0.000003
P-78	J-57	J-61	37	24.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-79	J-2	J-61	49	12.0	130.0	Ductile Iron	7.38	0.02	0.0000	0.000000
P-80	J-29	J-62	70	12.0	130.0	Ductile Iron	-19.80	0.06	0.0001	0.000002
P-81	J-58	J-64	42	24.0	130.0	Ductile Iron	153.19	0.11	0.0000	0.000003
P-82	J-63	J-64	879	18.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-83	J-65	J-59	65	12.0	130.0	Ductile Iron	-25.90	0.07	0.0001	0.000003

Panhandle Development Maximum Day Demands

ID	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	14.00	39.94	111.87	42.34
J-2	15.60	0.00	111.86	41.65
J-3	16.50	0.00	111.85	41.25
J-4	19.50	38.90	111.80	39.93
J-5	27.40	38.90	111.80	36.52
J-6	21.40	0.00	111.85	39.13
J-7	17.80	0.00	111.78	40.66
J-8	24.00	0.00	111.76	37.97
J-9	15.60	41.08	111.89	41.66
J-10	14.20	1.14	111.96	42.30
J-11	15.20	2.30	111.97	41.87
J-12	14.10	29.20	111.97	42.34
J-13	13.80	41.98	111.95	42.46
J-14	13.40	15.66	112.00	42.66
J-15	14.30	54.46	112.06	42.30
J-16	14.10	94.86	111.85	42.29
J-17	13.50	45.94	111.79	42.53
J-18	14.50	33.58	111.76	42.08
J-19	14.20	0.00	111.73	42.20
J-20	19.40	128.68	111.73	39.95
J-21	29.50	128.68	111.77	35.59
J-22	31.50	0.00	111.77	34.73
J-23	15.50	45.38	111.92	41.72
J-24	14.60	0.00	112.08	42.17
J-25	15.10	45.38	112.17	42.00
J-26	14.30	58.54	112.07	42.30
J-27	16.10	30.24	111.99	41.49
J-28	14.70	29.20	112.00	42.10
J-29	14.50	0.00	111.85	42.12
J-30	16.00	38.90	111.85	41.47
J-31	16.50	0.00	111.87	41.26
J-32	15.50	15.66	111.94	41.72
J-33	15.00	40.38	111.98	41.96
J-34	15.00	30.26	111.99	41.96
J-35	13.40	41.98	112.59	42.92
J-36	14.40	101.66	113.20	42.75
J-37	12.60	43.10	111.79	42.92
J-38	15.50	33.58	111.79	41.66
J-39	16.80	0.00	111.78	41.09
J-40	18.50	0.00	111.78	40.36
J-41	16.00	0.00	111.82	41.45
J-42	16.50	3.12	111.83	41.24
J-43	16.50	4.82	111.87	41.26
J-44	16.00	0.00	111.89	41.48
J-45	12.50	128.68	111.71	42.92
J-46	12.50	45.96	111.72	42.93
J-47	17.00	45.76	111.79	41.01
J-48	15.60	45.76	111.77	41.61

Panhandle Development Maximum Day Demands

ID	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-49	17.50	35.22	111.74	40.77
J-50	17.20	0.00	111.74	40.90
J-51	18.50	27.68	111.73	40.34
J-52	24.50	0.00	111.74	37.74
J-53	26.50	27.68	111.74	36.88
J-54	30.20	0.00	111.76	35.29
J-55	26.00	35.20	111.74	37.09
J-56	17.20	0.00	111.85	40.95
J-57	15.60	0.00	111.85	41.64
J-58	13.63	0.00	111.80	42.47
J-59	29.60	0.00	111.77	35.55
J-60	31.60	0.00	111.77	34.69
J-61	15.60	0.00	111.85	41.64
J-62	14.64	0.00	111.85	42.06
J-63	12.40	0.00	111.80	43.00
J-64	13.82	0.00	111.80	42.39
J-65	29.78	0.00	111.77	35.47

Panhandle Development Maximum Day Demands

ID	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Hazen-Williams C	Material	Flow (gpm)	Velocity (ft/s)	Pressure Loss (psi)	Headloss Gradient (ft/ft)
P-1	J-1	J-2	835	8.0	130.0	PVC	22.53	0.14	0.01	0.00002
P-2	J-61	J-3	547	12.0	130.0	Ductile Iron	32.35	0.09	0.00	0.00000
P-3	J-3	J-56	447	12.0	130.0	Ductile Iron	32.35	0.09	0.00	0.00000
P-4	J-56	J-4	1,627	8.0	130.0	PVC	32.35	0.21	0.02	0.00003
P-5	J-4	J-5	1,143	8.0	130.0	PVC	-6.55	0.04	0.00	0.00000
P-6	J-5	J-6	840	8.0	130.0	PVC	-45.45	0.29	0.02	0.00006
P-7	J-6	J-7	1,733	8.0	130.0	PVC	37.44	0.24	0.03	0.00004
P-8	J-7	J-8	582	8.0	130.0	PVC	35.19	0.22	0.01	0.00004
P-9	J-2	J-9	419	12.0	130.0	Ductile Iron	-157.23	0.45	0.01	0.00008
P-10	J-9	J-10	561	12.0	130.0	Ductile Iron	-198.31	0.56	0.03	0.00013
P-11	J-10	J-11	359	12.0	130.0	Ductile Iron	-38.54	0.11	0.00	0.00001
P-12	J-11	J-12	362	12.0	130.0	Ductile Iron	-40.84	0.12	0.00	0.00001
P-13	J-12	J-13	821	12.0	130.0	Ductile Iron	79.06	0.22	0.01	0.00002
P-14	J-13	J-14	479	12.0	130.0	Ductile Iron	-181.27	0.51	0.02	0.00011
P-15	J-14	J-15	463	12.0	130.0	Ductile Iron	-196.93	0.56	0.03	0.00013
P-16	J-15	J-16	1,185	12.0	130.0	Ductile Iron	236.01	0.67	0.09	0.00017
P-17	J-16	J-17	844	12.0	130.0	Ductile Iron	141.15	0.40	0.02	0.00007
P-18	J-17	J-18	552	12.0	130.0	Ductile Iron	143.17	0.41	0.02	0.00007
P-19	J-18	J-19	552	12.0	130.0	Ductile Iron	109.59	0.31	0.01	0.00004
P-20	J-19	J-20	738	12.0	130.0	Ductile Iron	22.86	0.06	0.00	0.00000
P-21	J-20	J-21	1,073	12.0	130.0	Ductile Iron	-96.73	0.27	0.02	0.00003
P-22	J-21	J-22	214	12.0	130.0	Ductile Iron	0.00	0.00	0.00	0.00000
P-23	J-1	J-23	438	8.0	130.0	PVC	-62.47	0.40	0.02	0.00011
P-24	J-23	J-24	531	8.0	130.0	PVC	-107.85	0.69	0.07	0.00030
P-25	J-24	J-25	363	12.0	130.0	Ductile Iron	-299.03	0.85	0.04	0.00027
P-26	J-25	R-2	739	12.0	130.0	Ductile Iron	-659.35	1.87	0.37	0.00117
P-27	J-25	J-26	351	12.0	130.0	Ductile Iron	314.94	0.89	0.05	0.00030
P-28	J-26	J-27	719	12.0	130.0	Ductile Iron	179.34	0.51	0.03	0.00011
P-29	J-27	J-12	343	12.0	130.0	Ductile Iron	149.10	0.42	0.01	0.00007
P-30	J-26	J-28	467	8.0	130.0	PVC	77.06	0.49	0.03	0.00016
P-31	J-28	J-13	704	8.0	130.0	PVC	47.86	0.31	0.02	0.00007
P-32	J-13	J-29	65	8.0	130.0	PVC	266.22	1.70	0.04	0.00157
P-33	J-62	J-30	746	8.0	130.0	PVC	-4.41	0.03	0.00	0.00000
P-34	J-30	J-31	364	8.0	130.0	PVC	-43.31	0.28	0.01	0.00005
P-35	J-31	J-6	724	12.0	130.0	Ductile Iron	82.89	0.24	0.01	0.00003
P-36	J-31	J-32	535	12.0	130.0	Ductile Iron	-199.10	0.56	0.03	0.00013
P-37	J-32	J-33	212	12.0	130.0	Ductile Iron	-270.76	0.77	0.02	0.00023
P-38	J-33	J-15	259	12.0	130.0	Ductile Iron	-311.14	0.88	0.03	0.00029
P-39	J-24	J-34	719	12.0	130.0	Ductile Iron	191.17	0.54	0.04	0.00012
P-40	J-34	J-10	314	12.0	130.0	Ductile Iron	160.91	0.46	0.01	0.00009
P-41	J-15	J-35	321	12.0	130.0	Ductile Iron	-798.54	2.27	0.23	0.00167
P-42	J-35	J-36	329	12.0	130.0	Ductile Iron	-840.52	2.38	0.26	0.00184
P-43	J-36	R-3	415	12.0	130.0	Ductile Iron	-942.18	2.67	0.41	0.00227
P-44	R-4	J-37	425	12.0	130.0	Ductile Iron	0.00	0.00	0.00	0.00000
P-45	J-37	J-17	430	12.0	130.0	Ductile Iron	-43.10	0.12	0.00	0.00001
P-46	J-58	J-38	489	12.0	130.0	Ductile Iron	55.74	0.16	0.00	0.00001
P-47	J-38	J-39	729	12.0	130.0	Ductile Iron	70.23	0.20	0.01	0.00002

Panhandle Development Maximum Day Demands

ID	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Hazen-Williams C	Material	Flow (gpm)	Velocity (ft/s)	Pressure Loss (psi)	Headloss Gradient (ft/ft)
P-48	J-39	J-40	395	12.0	130.0	Ductile Iron	-2.26	0.01	0.00	0.00000
P-49	J-40	J-7	355	12.0	130.0	Ductile Iron	-2.26	0.01	0.00	0.00000
P-50	J-38	J-41	381	8.0	130.0	PVC	-48.06	0.31	0.01	0.00007
P-51	J-41	J-42	197	8.0	130.0	PVC	-48.06	0.31	0.01	0.00007
P-52	J-42	J-43	521	8.0	130.0	PVC	-51.18	0.33	0.02	0.00007
P-53	J-43	J-44	206	8.0	130.0	PVC	-56.00	0.36	0.01	0.00009
P-54	J-44	J-32	572	8.0	130.0	PVC	-56.00	0.36	0.02	0.00009
P-55	R-5	J-45	597	12.0	130.0	Ductile Iron	87.91	0.25	0.01	0.00003
P-56	J-45	J-46	331	12.0	130.0	Ductile Iron	-40.77	0.12	0.00	0.00001
P-57	J-46	J-19	646	12.0	130.0	Ductile Iron	-86.73	0.25	0.01	0.00003
P-58	J-31	J-47	549	8.0	130.0	PVC	72.90	0.47	0.03	0.00014
P-59	J-47	J-48	739	8.0	130.0	PVC	27.14	0.17	0.01	0.00002
P-60	J-48	J-39	449	8.0	130.0	PVC	-18.62	0.12	0.00	0.00001
P-61	J-39	J-49	407	8.0	130.0	PVC	53.86	0.34	0.01	0.00008
P-62	J-49	J-50	711	8.0	130.0	PVC	18.64	0.12	0.00	0.00001
P-63	J-50	J-51	250	8.0	130.0	PVC	18.63	0.12	0.00	0.00001
P-64	J-51	J-20	332	8.0	130.0	PVC	9.08	0.06	0.00	0.00000
P-65	J-51	J-52	434	8.0	130.0	PVC	-18.13	0.12	0.00	0.00001
P-66	J-52	J-53	460	8.0	130.0	PVC	-18.13	0.12	0.00	0.00001
P-67	J-53	J-54	357	8.0	130.0	PVC	-45.81	0.29	0.01	0.00006
P-68	J-54	J-65	151	8.0	130.0	PVC	-45.81	0.29	0.00	0.00006
P-69	J-8	J-55	532	8.0	130.0	PVC	35.19	0.22	0.01	0.00004
P-70	J-55	J-50	767	8.0	130.0	PVC	-0.01	0.00	0.00	0.00000
P-71	R-1	J-57	1,637	36.0	110.0	Concrete	0.00	0.00	0.00	0.00000
P-72	J-61	J-29	2,546	24.0	130.0	Ductile Iron	147.41	0.10	0.00	0.00000
P-73	J-29	J-58	2,934	24.0	130.0	Ductile Iron	418.04	0.30	0.02	0.00002
P-74	J-17	J-58	45	12.0	130.0	Ductile Iron	-91.07	0.26	0.00	0.00003
P-75	J-59	J-21	38	12.0	130.0	Ductile Iron	225.41	0.64	0.00	0.00016
P-76	J-59	J-60	276	24.0	130.0	Ductile Iron	0.00	0.00	0.00	0.00000
P-77	J-64	J-59	2,887	24.0	130.0	Ductile Iron	271.23	0.19	0.01	0.00001
P-78	J-57	J-61	35	24.0	130.0	Ductile Iron	0.00	0.00	0.00	0.00000
P-79	J-2	J-61	50	12.0	130.0	Ductile Iron	179.76	0.51	0.00	0.00011
P-80	J-29	J-62	70	8.0	130.0	PVC	-4.41	0.03	0.00	0.00000
P-81	J-58	J-64	35	24.0	130.0	Ductile Iron	271.23	0.19	0.00	0.00001
P-82	J-63	J-64	881	18.0	130.0	Ductile Iron	0.00	0.00	0.00	0.00000
P-83	J-65	J-59	65	12.0	130.0	Ductile Iron	-45.81	0.13	0.00	0.00001

Panhandle Development Peak Hour Demands

ID	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	14.00	51.92	111.54	42.20
J-2	15.60	0.00	111.54	41.51
J-3	16.50	0.00	111.54	41.12
J-4	19.50	50.57	111.44	39.78
J-5	27.40	50.57	111.44	36.36
J-6	21.40	0.00	111.51	38.99
J-7	17.80	0.00	111.45	40.52
J-8	24.00	0.00	111.44	37.83
J-9	15.60	53.40	111.56	41.52
J-10	14.20	1.48	111.61	42.15
J-11	15.20	2.99	111.61	41.71
J-12	14.10	37.96	111.61	42.19
J-13	13.80	54.57	111.56	42.30
J-14	13.40	20.36	111.63	42.50
J-15	14.30	70.80	111.72	42.15
J-16	14.10	123.32	111.52	42.15
J-17	13.50	59.72	111.49	42.40
J-18	14.50	43.65	111.48	41.96
J-19	14.20	0.00	111.48	42.09
J-20	19.40	167.28	111.44	39.82
J-21	29.50	167.28	111.46	35.46
J-22	31.50	0.00	111.46	34.59
J-23	15.50	58.99	111.58	41.57
J-24	14.60	0.00	111.76	42.04
J-25	15.10	58.99	111.88	41.87
J-26	14.30	76.10	111.74	42.16
J-27	16.10	39.31	111.64	41.34
J-28	14.70	37.96	111.63	41.94
J-29	14.50	0.00	111.54	41.98
J-30	16.00	50.57	111.52	41.33
J-31	16.50	0.00	111.53	41.12
J-32	15.50	20.36	111.59	41.58
J-33	15.00	52.49	111.64	41.81
J-34	15.00	39.34	111.65	41.82
J-35	13.40	54.57	112.32	42.80
J-36	14.40	132.16	113.01	42.67
J-37	12.60	56.03	109.31	41.84
J-38	15.50	43.65	111.48	41.52
J-39	16.80	0.00	111.45	40.95
J-40	18.50	0.00	111.45	40.22
J-41	16.00	0.00	111.50	41.32
J-42	16.50	4.06	111.50	41.10
J-43	16.50	6.27	111.54	41.12
J-44	16.00	0.00	111.55	41.34
J-45	12.50	167.28	111.53	42.85
J-46	12.50	59.75	111.50	42.83
J-47	17.00	59.49	111.44	40.86
J-48	15.60	59.49	111.43	41.46

Panhandle Development
Peak Hour Demands

ID	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-49	17.50	45.79	111.43	40.64
J-50	17.20	0.00	111.43	40.77
J-51	18.50	35.98	111.43	40.20
J-52	24.50	0.00	111.43	37.61
J-53	26.50	35.98	111.43	36.75
J-54	30.20	0.00	111.46	35.16
J-55	26.00	45.76	111.42	36.96
J-56	17.20	0.00	111.53	40.81
J-57	15.60	0.00	111.54	41.51
J-58	13.63	0.00	111.49	42.34
J-59	29.60	0.00	111.47	35.42
J-60	31.60	0.00	111.47	34.55
J-61	15.60	0.00	111.54	41.51
J-62	14.62	0.00	111.54	41.93
J-63	12.40	0.00	111.49	42.87
J-64	13.78	0.00	111.49	42.27
J-65	29.76	0.00	111.47	35.35

Panhandle Development Peak Hour Demands

ID	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Hazen-Williams C	Material	Flow (gpm)	Velocity (ft/s)	Pressure Loss (psi)	Headloss Gradient (ft/ft)
P-1	J-1	J-2	835	8.0	130.0	PVC	4.47	0.03	0.0003	0.000001
P-2	J-61	J-3	547	12.0	130.0	Ductile Iron	45.37	0.13	0.0020	0.000008
P-3	J-3	J-56	447	12.0	130.0	Ductile Iron	45.37	0.13	0.0016	0.000008
P-4	J-56	J-4	1,627	8.0	130.0	PVC	45.37	0.29	0.0418	0.000059
P-5	J-4	J-5	1,143	8.0	130.0	PVC	-5.20	0.03	0.0005	0.000001
P-6	J-5	J-6	840	8.0	130.0	PVC	-55.77	0.36	0.0317	0.000087
P-7	J-6	J-7	1,733	8.0	130.0	PVC	32.39	0.21	0.0239	0.000032
P-8	J-7	J-8	582	8.0	130.0	PVC	31.76	0.20	0.0077	0.000031
P-9	J-2	J-9	418	12.0	130.0	Ductile Iron	-115.22	0.33	0.0084	0.000046
P-10	J-9	J-10	556	12.0	130.0	Ductile Iron	-168.62	0.48	0.0226	0.000094
P-11	J-10	J-11	359	12.0	130.0	Ductile Iron	12.43	0.04	0.0001	0.000001
P-12	J-11	J-12	362	12.0	130.0	Ductile Iron	9.44	0.03	0.0001	0.000000
P-13	J-12	J-13	820	12.0	130.0	Ductile Iron	134.95	0.38	0.0220	0.000062
P-14	J-13	J-14	479	12.0	130.0	Ductile Iron	-217.13	0.62	0.0311	0.000150
P-15	J-14	J-15	463	12.0	130.0	Ductile Iron	-237.49	0.67	0.0354	0.000177
P-16	J-15	J-16	1,185	12.0	130.0	Ductile Iron	227.38	0.65	0.0836	0.000163
P-17	J-16	J-17	843	12.0	130.0	Ductile Iron	104.06	0.30	0.0140	0.000038
P-18	J-17	J-18	554	12.0	130.0	Ductile Iron	67.95	0.19	0.0042	0.000017
P-19	J-18	J-19	552	12.0	130.0	Ductile Iron	24.30	0.07	0.0006	0.000003
P-20	J-19	J-20	738	12.0	130.0	Ductile Iron	128.61	0.36	0.0181	0.000057
P-21	J-20	J-21	1,073	12.0	130.0	Ductile Iron	-72.42	0.21	0.0091	0.000020
P-22	J-21	J-22	214	12.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-23	J-1	J-23	441	8.0	130.0	PVC	-56.39	0.36	0.0169	0.000089
P-24	J-23	J-24	531	8.0	130.0	PVC	-115.38	0.74	0.0770	0.000335
P-25	J-24	J-25	363	12.0	130.0	Ductile Iron	-337.25	0.96	0.0532	0.000339
P-26	R-2	J-25	739	12.0	130.0	Ductile Iron	770.90	2.19	0.5003	0.001565
P-27	J-25	J-26	351	12.0	130.0	Ductile Iron	374.66	1.06	0.0624	0.000411
P-28	J-26	J-27	719	12.0	130.0	Ductile Iron	202.78	0.58	0.0411	0.000132
P-29	J-27	J-12	343	12.0	130.0	Ductile Iron	163.47	0.46	0.0131	0.000089
P-30	J-26	J-28	467	8.0	130.0	PVC	95.78	0.61	0.0479	0.000237
P-31	J-28	J-13	704	8.0	130.0	PVC	57.82	0.37	0.0284	0.000093
P-32	J-13	J-29	65	12.0	130.0	Ductile Iron	355.33	1.01	0.0105	0.000373
P-33	J-62	J-30	746	8.0	130.0	PVC	25.50	0.16	0.0066	0.000020
P-34	J-30	J-31	364	8.0	130.0	PVC	-25.07	0.16	0.0031	0.000020
P-35	J-31	J-6	724	12.0	130.0	Ductile Iron	88.16	0.25	0.0088	0.000028
P-36	J-31	J-32	535	12.0	130.0	Ductile Iron	-191.29	0.54	0.0274	0.000118
P-37	J-32	J-33	212	12.0	130.0	Ductile Iron	-263.08	0.75	0.0196	0.000214
P-38	J-33	J-15	259	12.0	130.0	Ductile Iron	-315.57	0.90	0.0336	0.000299
P-39	J-24	J-34	719	12.0	130.0	Ductile Iron	221.87	0.63	0.0485	0.000156
P-40	J-34	J-10	314	12.0	130.0	Ductile Iron	182.53	0.52	0.0148	0.000109
P-41	J-15	J-35	321	12.0	130.0	Ductile Iron	-851.25	2.41	0.2611	0.001881
P-42	J-35	J-36	329	12.0	130.0	Ductile Iron	-905.82	2.57	0.2999	0.002110
P-43	R-3	J-36	415	12.0	130.0	Ductile Iron	1,037.98	2.94	0.4874	0.002716
P-44	R-4	J-37	426	12.0	130.0	Ductile Iron	56.03	0.16	0.0022	0.000012
P-45	J-37	J-17	426	12.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-46	J-58	J-38	496	12.0	130.0	Ductile Iron	92.53	0.26	0.0066	0.000031
P-47	J-38	J-39	719	12.0	130.0	Ductile Iron	89.98	0.26	0.0091	0.000029

Panhandle Development Peak Hour Demands

ID	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Hazen-Williams C	Material	Flow (gpm)	Velocity (ft/s)	Pressure Loss (psi)	Headloss Gradient (ft/ft)
P-48	J-39	J-40	395	12.0	130.0	Ductile Iron	-0.63	0.00	0.0000	0.000000
P-49	J-40	J-7	355	12.0	130.0	Ductile Iron	-0.63	0.00	0.0000	0.000000
P-50	J-38	J-41	388	8.0	130.0	PVC	-41.10	0.26	0.0083	0.000049
P-51	J-41	J-42	197	8.0	130.0	PVC	-41.10	0.26	0.0042	0.000049
P-52	J-42	J-43	521	8.0	130.0	PVC	-45.16	0.29	0.0133	0.000059
P-53	J-43	J-44	206	8.0	130.0	PVC	-51.43	0.33	0.0067	0.000075
P-54	J-44	J-32	572	8.0	130.0	PVC	-51.43	0.33	0.0185	0.000075
P-55	R-5	J-45	597	12.0	130.0	Ductile Iron	331.34	0.94	0.0846	0.000328
P-56	J-45	J-46	331	12.0	130.0	Ductile Iron	164.06	0.47	0.0128	0.000089
P-57	J-46	J-19	646	12.0	130.0	Ductile Iron	104.31	0.30	0.0108	0.000039
P-58	J-31	J-47	549	8.0	130.0	PVC	78.07	0.50	0.0386	0.000162
P-59	J-47	J-48	739	8.0	130.0	PVC	18.58	0.12	0.0036	0.000011
P-60	J-48	J-39	449	8.0	130.0	PVC	-40.91	0.26	0.0095	0.000049
P-61	J-39	J-49	407	8.0	130.0	PVC	49.69	0.32	0.0124	0.000070
P-62	J-49	J-50	711	8.0	130.0	PVC	3.90	0.02	0.0002	0.000001
P-63	J-50	J-51	250	8.0	130.0	PVC	-10.10	0.06	0.0004	0.000004
P-64	J-51	J-20	332	8.0	130.0	PVC	-33.75	0.22	0.0049	0.000034
P-65	J-51	J-52	434	8.0	130.0	PVC	-12.33	0.08	0.0010	0.000005
P-66	J-52	J-53	460	8.0	130.0	PVC	-12.33	0.08	0.0011	0.000005
P-67	J-53	J-54	357	8.0	130.0	PVC	-48.31	0.31	0.0103	0.000067
P-68	J-54	J-65	151	8.0	130.0	PVC	-48.31	0.31	0.0044	0.000067
P-69	J-8	J-55	532	8.0	130.0	PVC	31.76	0.20	0.0071	0.000031
P-70	J-55	J-50	767	8.0	130.0	PVC	-14.00	0.09	0.0022	0.000007
P-71	R-1	J-57	1,643	36.0	110.0	Concrete	0.00	0.00	0.0000	0.000000
P-72	J-61	J-29	2,544	24.0	130.0	Ductile Iron	74.32	0.05	0.0008	0.000001
P-73	J-29	J-58	2,933	24.0	130.0	Ductile Iron	404.15	0.29	0.0205	0.000016
P-74	J-17	J-58	48	12.0	130.0	Ductile Iron	-23.61	0.07	0.0001	0.000003
P-75	J-59	J-21	38	12.0	130.0	Ductile Iron	239.70	0.68	0.0029	0.000180
P-76	J-59	J-60	276	24.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-77	J-64	J-59	2,880	24.0	130.0	Ductile Iron	288.01	0.20	0.0108	0.000009
P-78	J-57	J-61	37	24.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-79	J-2	J-61	49	12.0	130.0	Ductile Iron	119.69	0.34	0.0011	0.000050
P-80	J-29	J-62	70	12.0	130.0	Ductile Iron	25.50	0.07	0.0001	0.000003
P-81	J-58	J-64	42	24.0	130.0	Ductile Iron	288.01	0.20	0.0002	0.000009
P-82	J-63	J-64	879	18.0	130.0	Ductile Iron	0.00	0.00	0.0000	0.000000
P-83	J-65	J-59	65	12.0	130.0	Ductile Iron	-48.31	0.14	0.0003	0.000009

Panhandle Development

Fire Flow w/ Maximum Day Demands

Label	Elevation (ft)	Demand (gpm)	Fire Flow (Needed) (gpm)	Flow (Total Needed) (gpm)	Is Fire Flow Run Balanced?	Pressure (Calculated Residual @ Total Flow Needed) (psi)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
J-5	27.40	38.90	1,500.00	1,538.90	True	27.96	P-6	6.45
J-4	19.50	38.90	1,500.00	1,538.90	True	29.48	P-4	5.19
J-55	26.00	35.20	1,500.00	1,535.20	True	30.65	P-70	5.25
J-21	29.50	128.68	4,000.00	4,128.68	True	31.83	P-75	9.40
J-8	24.00	0.00	1,500.00	1,500.00	True	32.06	P-8	5.85
J-53	26.50	27.68	1,500.00	1,527.68	True	32.40	P-68	5.77
J-54	30.20	0.00	1,500.00	1,500.00	True	32.51	P-68	7.38
J-22	31.50	0.00	1,500.00	1,500.00	True	33.02	P-22	4.26
J-52	24.50	0.00	1,500.00	1,500.00	True	33.21	P-65	5.52
J-60	31.60	0.00	1,500.00	1,500.00	True	33.50	P-43	3.67
J-65	29.78	0.00	1,500.00	1,500.00	True	34.19	P-83	3.98
J-59	29.60	0.00	1,500.00	1,500.00	True	34.39	P-43	3.67
J-20	19.40	128.68	4,000.00	4,128.68	True	34.62	P-20	5.27
J-3	16.50	0.00	3,000.00	3,000.00	True	35.41	P-2	7.62
J-47	17.00	45.76	1,500.00	1,545.76	True	35.79	P-58	6.00
J-43	16.50	4.82	1,500.00	1,504.82	True	35.81	P-53	5.26
J-27	16.10	30.24	4,000.00	4,030.24	True	35.91	P-29	6.50
J-42	16.50	3.12	1,500.00	1,503.12	True	36.20	P-51	5.78
J-34	15.00	30.26	4,000.00	4,030.26	True	36.39	P-40	6.55
J-49	17.50	35.22	1,500.00	1,535.22	True	36.45	P-61	5.82
J-44	16.00	0.00	1,500.00	1,500.00	True	36.46	P-54	5.85
J-48	15.60	45.76	1,500.00	1,545.76	True	36.67	P-60	6.27
J-6	21.40	0.00	1,500.00	1,500.00	True	36.72	P-43	3.78
J-23	15.50	45.38	1,500.00	1,545.38	True	36.82	P-24	6.17
J-1	14.00	39.94	1,500.00	1,539.94	True	36.93	P-1	5.18
J-41	16.00	0.00	1,500.00	1,500.00	True	37.14	P-50	6.41
J-24	14.60	0.00	4,000.00	4,000.00	True	37.30	P-25	6.77
J-26	14.30	58.54	4,000.00	4,058.54	True	37.54	P-27	6.69
J-50	17.20	0.00	1,500.00	1,500.00	True	37.72	P-63	4.97
J-30	16.00	38.90	1,500.00	1,538.90	True	37.76	P-34	5.78
J-51	18.50	27.68	1,500.00	1,527.68	True	37.79	P-64	4.54
J-40	18.50	0.00	1,500.00	1,500.00	True	38.11	P-43	3.72
J-19	14.20	0.00	4,000.00	4,000.00	True	38.11	P-55	4.79
J-46	12.50	45.96	4,000.00	4,045.96	True	38.13	P-55	6.68
J-56	17.20	0.00	1,500.00	1,500.00	True	38.13	P-2	3.70
J-7	17.80	0.00	1,500.00	1,500.00	True	38.16	P-43	3.73
J-9	15.60	41.08	3,000.00	3,041.08	True	38.39	P-9	4.79
J-28	14.70	29.20	1,500.00	1,529.20	True	38.43	P-30	5.41
J-25	15.10	45.38	4,000.00	4,045.38	True	38.50	P-26	6.60
J-45	12.50	128.68	4,000.00	4,128.68	True	38.77	P-55	7.70
J-39	16.80	0.00	1,500.00	1,500.00	True	39.24	P-43	3.72
J-2	15.60	0.00	3,000.00	3,000.00	True	39.29	P-79	5.85
J-10	14.20	1.14	3,000.00	3,001.14	True	39.35	P-26	4.62
J-31	16.50	0.00	1,500.00	1,500.00	True	39.59	P-43	3.79
J-38	15.50	33.58	1,500.00	1,533.58	True	40.18	P-43	3.71

Panhandle Development
Fire Flow w/ Maximum Day Demands

Label	Elevation (ft)	Demand (gpm)	Fire Flow (Needed) (gpm)	Flow (Total Needed) (gpm)	Is Fire Flow Run Balanced?	Pressure (Calculated Residual @ Total Flow Needed) (psi)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
J-62	14.64	0.00	1,500.00	1,500.00	True	40.26	P-80	7.88
J-32	15.50	15.66	1,500.00	1,515.66	True	40.31	P-43	3.82
J-11	15.20	2.30	1,500.00	1,502.30	True	40.57	P-43	3.63
J-57	15.60	0.00	1,500.00	1,500.00	True	40.58	P-43	3.68
J-61	15.60	0.00	1,500.00	1,500.00	True	40.58	P-43	3.68
J-33	15.00	40.38	1,500.00	1,540.38	True	40.67	P-43	3.84
J-16	14.10	94.86	1,500.00	1,594.86	True	40.69	P-43	3.78
J-18	14.50	33.58	1,500.00	1,533.58	True	40.75	P-43	3.63
J-29	14.50	0.00	1,500.00	1,500.00	True	41.12	P-43	3.69
J-12	14.10	29.20	1,500.00	1,529.20	True	41.16	P-43	3.64
J-15	14.30	54.46	1,500.00	1,554.46	True	41.30	P-43	3.89
J-64	13.82	0.00	1,500.00	1,500.00	True	41.37	P-43	3.69
J-13	13.80	41.98	1,500.00	1,541.98	True	41.40	P-43	3.72
J-14	13.40	15.66	1,500.00	1,515.66	True	41.42	P-43	3.82
J-58	13.63	0.00	1,500.00	1,500.00	True	41.46	P-43	3.69
J-17	13.50	45.94	1,500.00	1,545.94	True	41.49	P-43	3.69
J-63	12.40	0.00	1,500.00	1,500.00	True	41.71	P-43	3.69
J-37	12.60	43.10	1,500.00	1,543.10	True	41.74	P-43	3.32
J-36	14.40	101.66	1,500.00	1,601.66	True	41.80	P-43	5.11
J-35	13.40	41.98	1,500.00	1,541.98	True	41.89	P-43	4.34

Water Supply Assessment Checklist

City of Sacramento
SB 610/SB 221 Water Supply Assessment and Certification Form

This form may be used to complete water supply assessments for projects located in an area covered by the City's most recent Urban Water Management Plan.

Note: Please do not use this form if the projected water demand for your project area was not included in the City's latest Urban Water Management Plan. To review the City's Urban Water Management Plan, please visit:
<http://www.cityofsacramento.org/utilities/urbanwater/index.html>

Project: Panhandle Annexation and Planned Unit Development

Date: March 2, 2017

Project Applicant (Name of Company): The Hodgson Company

Applicant Contact (Name of Individual): John Hodgson

Phone Number:(916) 548-8554

E-mail:jhodgson@thehodgsoncompany.com

Address: 2514 Chinatown Alley, Sacramento, CA 95816

Project Applicant to fill in the following:

- Does the project include:

Type of Development	Yes	No
A proposed residential development of 500 or more dwelling units	X	
A shopping Center employing more than 1,000 persons or having more than 500,000 square feet?		X
A Commercial Office building employing more than 1,000 persons or having more than 250,000 square feet?		X
A proposed hotel or motel, or both, having more than 500 rooms		X
A proposed industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area		X
A mixed use project that includes one or more of the projects specified above	X	
A project that would demand an amount of water equivalent to, or greater than, the water required by a 500 dwelling unit project	X	

If the answer is no to all of the above, a water supply assessment is not required for the project.

2. Is the projected water demand for the project location included in the City's 2015 Urban Water Management Plan, adopted June 2016?

Yes: X

No:

If the answer is no, you cannot use this form. Please refer to the requirements of SB 610 for preparing a water supply assessment.

3. Please fill in the project demands below:

Type of Development	Land Use Category	Demand Factor		Proposed Development			Current Zoning		
		Residential Water Use Factor, afy/dwelling unit	Non-Residential Water Use Factor, afy/employee	Number Dwelling Units	Number Employees	Total Demand	Number Dwelling Units	Number Employees	Total Demand
Residential - Low	Rural Residential (RR)	.61	.09						
	Suburban Neighborhood Low Density (SNLD)			2,660		1,622.60			
	Traditional Neighborhood Low Density (TLDR)								
Residential - Medium	Suburban Neighborhood Medium Density (SMDR)	.39	.09						
	Urban Neighborhood Low Density (ULDR)								
Residential - High	Suburban Neighborhood High Density (SHDR)	.12	.04						
	Traditional Neighborhood Medium Density (TMDR)								
	Urban Neighborhood Medium Density (UMDR)								
	Traditional Neighborhood High Density (THDR)								
Mixed Use	Employment Center Mid Rise (ECMR)	.19	.09						
	Suburban Center (SCnt)				272	24.48			
	Suburban Corridor (Scor)								
	Traditional Center (TCnt)								
Mixed Use - Higher Density	Urban Center High (UCntHigh)	.15	.04						
	Urban Center Low (UcntLow)								
	Urban Corridor High (UCorHigh)								
	Urban Corridor Low (UCorLow)								
Central Business District	Central Business District (CBD)	.15	.02						

	Urban Neighborhood High Density (UHDR)								
Commercial	Regional Commercial (RC)	.15	.09						
	Employment Center Low Rise (ECLR)								
Industrial	Industrial (IND)		.14						
Public	Public/Quasi-Public (PUB)	.37	.17						
Park	Parks and Recreation (PRK)	.37	.17			67.50			
Open Space	Open Space (OS)	0	0						
Other	Elementary School and Middle/High School (East Natomas Education Complex) ¹					226.40			
Other									
Other									
Total Demand (AFY)						1,940.98			

¹ Water demand was estimated based on the Panhandle 2006 Water Supply Assessment.

4. Required Elements of Water Supply Assessment (Water Code § 10910)

A. Water supply entitlements, water rights or water service contracts (Water Code § 10910(d)):

The City's water supply entitlements, water rights and water service contract are identified and discussed in the Urban Water Management Plan, Chapter 6.

All infrastructure necessary to deliver a water supply to the project is in place, excepting any distribution facilities required to be constructed and financed by the project applicant: Yes: X No: _____

B. Identification of other sources of water supply if no water has been received under City's existing entitlements, water rights or water service contracts (Water Code § 10910(e)):

Distribution:

Applicant

Development Services Department (Org: 4913) – Assigned Planner: _____

Utilities Department (Org: 3334) - Development Review (Tony Bertrand)

Utilities Department (Org: 3332) - Capital Improvements (Brett Ewart)

Appendix J

Energy Calculations

Energy Calculations Summary

Operational Fuel Use Summary

Vehicle Class	Diesel Gallons	Gasoline Gallons
Passenger	5,925	566,018
Truck	328,115	584,746
Bus	15,182	12,994
Other	598	3,026
Total	349,820	1,166,783

1. Fleet mix calculated from CalEEMod default values.
2. Gallons per mile calculated from EMFAC 2014.
3. Annual VMT obtained from CalEEMod output file.

Energy Calculations Summary

Construction Fuel Usage Summary

	Diesel	Gasoline	Diesel	Diesel
Construction Phase	Off-road Equipment (gallons)	On-road (gallons)	On-road (gallons)	Total
1	15,246	10,429,017	577,284	592,530
2	14,358	14,961,712	476,557	490,915
3	15,144	8,947,915	471,615	486,759
4	15,097	8,905,781	469,337	484,434
5	15,050	8,863,648	467,058	482,109
6	15,050	8,863,648	467,058	482,109
7	15,144	8,947,915	471,615	486,759
TOTAL	105,090	69,919,636	3,400,525	3,505,615

Total Gasoline	69,919,636	gallons
Total Diesel	3,505,615	gallons

Phase 1 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	7	0.6	498
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	7	0.6	241
Grading	Excavators	2	8.00	158	0.38	21	0.6	605
Grading	Rubber Tired Dozers	2	8.00	247	0.40	21	0.6	996
Grading	Scrapers	3	8.00	367	0.48	21	0.6	2,664
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	21	0.6	362
Building Construction	Cranes	1	7.00	231	0.29	206	0.6	2,898
Building Construction	Forklifts	3	8.00	89	0.20	206	0.6	2,640
Building Construction	Generator Sets	1	8.00	84	0.74	206	0.6	3,073
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	206	0.6	
Building Construction	Welders	1	8.00	46	0.45	206	0.6	1,023
Paving	Pavers	2	8.00	130	0.42	14	0.6	367
Paving	Paving Equipment	2	8.00	132	0.36	14	0.6	319
Paving	Rollers	2	8.00	80	0.38	14	0.6	204
Architectural Coating	Air Compressors	1	6.00	78	0.48	14	0.6	94
TOTAL								15,246

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Average Daily Factor (worker and vendor)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18	0	7	126	0	10.00	6.50	1260	0	0.6	0	0
Architectural Coating	28	0	14	392	0	10.00	6.50	3,920.00	0.00	0.6	57,348	0
Building Construction	338	123	206	69,628	25,338	10.00	6.50	696,280.00	164,697.00	0.6	10,186,312	577,284
Grading	15	0	21	315	0	10.00	6.50	3,150.00	0.00	0.6	46,083	0
Paving	68	0	14	952	0	10.00	6.50	9,520.00	0.00	0.6	139,274	0
										TOTAL	10,429,017	577,284

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Phase 2 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	7	0.6	498
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	7	0.6	241
Grading	Excavators	2	8.00	158	0.38	21	0.6	605
Grading	Rubber Tired Dozers	2	8.00	247	0.40	21	0.6	996
Grading	Scrapers	2	8.00	367	0.48	21	0.6	1,776
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	21	0.6	362
Building Construction	Cranes	1	7.00	231	0.29	206	0.6	2,898
Building Construction	Forklifts	3	8.00	89	0.20	206	0.6	2,640
Building Construction	Generator Sets	1	8.00	84	0.74	206	0.6	3,073
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	206	0.6	
Building Construction	Welders	1	8.00	46	0.45	206	0.6	1,023
Paving	Pavers	2	8.00	130	0.42	14	0.6	367
Paving	Paving Equipment	2	8.00	132	0.36	14	0.6	319
Paving	Rollers	2	8.00	80	0.38	14	0.6	204
Architectural Coating	Air Compressors	1	6.00	78	0.48	14	0.6	94
TOTAL								14,358

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Average Daily Factor (worker and vendor)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18	0	7	126	0	10.00	6.50	1260	0	0.6	0	0
Architectural Coating	58	0	14	812	0	16.80	6.60	13,641.60	0.00	0.6	199,571	0
Building Construction	288	100	206	59,328	20,600	16.80	6.60	996,710.40	135,960.00	0.6	14,581,495	476,557
Grading	25	0	21	525	0	16.80	6.60	8,820.00	0.00	0.6	129,033	0
Paving	15	0	14	210	0	16.80	6.60	3,528.00	0.00	0.6	51,613	0
										TOTAL	14,961,712	476,557

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Phase 3 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	7	0.6	498
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	7	0.6	241
Grading	Excavators	2	8.00	158	0.38	21	0.6	605
Grading	Rubber Tired Dozers	2	8.00	247	0.40	21	0.6	996
Grading	Scrapers	2	8.00	367	0.48	21	0.6	1,776
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	21	0.6	362
Building Construction	Cranes	1	7.00	231	0.29	207	0.6	2,912
Building Construction	Forklifts	3	8.00	89	0.20	207	0.6	2,653
Building Construction	Generator Sets	1	8.00	84	0.74	207	0.6	3,088
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	207	0.6	
Building Construction	Welders	1	8.00	46	0.45	207	0.6	1,028
Paving	Pavers	2	8.00	130	0.42	14	0.6	367
Paving	Paving Equipment	2	8.00	132	0.36	14	0.6	319
Paving	Rollers	2	8.00	80	0.38	14	0.6	204
Architectural Coating	Air Compressors	1	6.00	78	0.48	14	0.6	94
TOTAL								15,144

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Average Daily Factor (worker and vendor)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18	0	7	126	0	10.00	6.50	1260	0	0.6	0	0
Architectural Coating	58	0	14	812	0	10.00	6.50	8,120.00	0.00	0.6	118,793	0
Building Construction	288	100	207	59,616	20,700	10.00	6.50	596,160.00	134,550.00	0.6	8,721,594	471,615
Grading	25	0	21	525	0	10.00	6.50	5,250.00	0.00	0.6	76,806	0
Paving	15	0	14	210	0	10.00	6.50	2,100.00	0.00	0.6	30,722	0
										TOTAL	8,947,915	471,615

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Phase 4 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	7	0.6	498
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	7	0.6	241
Grading	Excavators	2	8.00	158	0.38	21	0.6	605
Grading	Rubber Tired Dozers	2	8.00	247	0.40	21	0.6	996
Grading	Scrapers	2	8.00	367	0.48	21	0.6	1,776
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	21	0.6	362
Building Construction	Cranes	1	7.00	231	0.29	206	0.6	2,898
Building Construction	Forklifts	3	8.00	89	0.20	206	0.6	2,640
Building Construction	Generator Sets	1	8.00	84	0.74	206	0.6	3,073
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	206	0.6	
Building Construction	Welders	1	8.00	46	0.45	206	0.6	1,023
Paving	Pavers	2	8.00	130	0.42	14	0.6	367
Paving	Paving Equipment	2	8.00	132	0.36	14	0.6	319
Paving	Rollers	2	8.00	80	0.38	14	0.6	204
Architectural Coating	Air Compressors	1	6.00	78	0.48	14	0.6	94
TOTAL								15,097

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Average Daily Factor (worker and vendor)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18	0	7	126	0	10.00	6.50	1260	0	0.6	0	0
Architectural Coating	58	0	14	812	0	10.00	6.50	8,120.00	0.00	0.6	118,793	0
Building Construction	288	100	206	59,328	20,600	10.00	6.50	593,280.00	133,900.00	0.6	8,679,461	469,337
Grading	25	0	21	525	0	10.00	6.50	5,250.00	0.00	0.6	76,806	0
Paving	15	0	14	210	0	10.00	6.50	2,100.00	0.00	0.6	30,722	0
										TOTAL	8,905,781	469,337

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Phase 5 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	7	0.6	498
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	7	0.6	241
Grading	Excavators	2	8.00	158	0.38	21	0.6	605
Grading	Rubber Tired Dozers	2	8.00	247	0.40	21	0.6	996
Grading	Scrapers	2	8.00	367	0.48	21	0.6	1,776
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	21	0.6	362
Building Construction	Cranes	1	7.00	231	0.29	205	0.6	2,884
Building Construction	Forklifts	3	8.00	89	0.20	205	0.6	2,627
Building Construction	Generator Sets	1	8.00	84	0.74	205	0.6	3,058
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	205	0.6	
Building Construction	Welders	1	8.00	46	0.45	205	0.6	1,018
Paving	Pavers	2	8.00	130	0.42	14	0.6	367
Paving	Paving Equipment	2	8.00	132	0.36	14	0.6	319
Paving	Rollers	2	8.00	80	0.38	14	0.6	204
Architectural Coating	Air Compressors	1	6.00	78	0.48	14	0.6	94
TOTAL								15,050

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Average Daily Factor (worker and vendor)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18	0	7	126	0	10.00	6.50	1260	0	0.6	0	0
Architectural Coating	58	0	14	812	0	10.00	6.50	8,120.00	0.00	0.6	118,793	0
Building Construction	288	100	205	59,040	20,500	10.00	6.50	590,400.00	133,250.00	0.6	8,637,328	467,058
Grading	25	0	21	525	0	10.00	6.50	5,250.00	0.00	0.6	76,806	0
Paving	15	0	14	210	0	10.00	6.50	2,100.00	0.00	0.6	30,722	0
										TOTAL	8,863,648	467,058

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Phase 6 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	7	0.6	498
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	7	0.6	241
Grading	Excavators	2	8.00	158	0.38	21	0.6	605
Grading	Rubber Tired Dozers	2	8.00	247	0.40	21	0.6	996
Grading	Scrapers	2	8.00	367	0.48	21	0.6	1,776
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	21	0.6	362
Building Construction	Cranes	1	7.00	231	0.29	205	0.6	2,884
Building Construction	Forklifts	3	8.00	89	0.20	205	0.6	2,627
Building Construction	Generator Sets	1	8.00	84	0.74	205	0.6	3,058
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	205	0.6	
Building Construction	Welders	1	8.00	46	0.45	205	0.6	1,018
Paving	Pavers	2	8.00	130	0.42	14	0.6	367
Paving	Paving Equipment	2	8.00	132	0.36	14	0.6	319
Paving	Rollers	2	8.00	80	0.38	14	0.6	204
Architectural Coating	Air Compressors	1	6.00	78	0.48	14	0.6	94
TOTAL								15,050

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-31

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Average Daily Factor (worker and vendor)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18	0	7	126	0	10.00	6.50	1260	0	0.6	0	0
Architectural Coating	58	0	14	812	0	10.00	6.50	8,120.00	0.00	0.6	118,793	0
Building Construction	288	100	205	59,040	20,500	10.00	6.50	590,400.00	133,250.00	0.6	8,637,328	467,058
Grading	25	0	21	525	0	10.00	6.50	5,250.00	0.00	0.6	76,806	0
Paving	15	0	14	210	0	10.00	6.50	2,100.00	0.00	0.6	30,722	0
										TOTAL	8,863,648	467,058

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Phase 6 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	7	0.6	498
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	7	0.6	241
Grading	Excavators	2	8.00	158	0.38	21	0.6	605
Grading	Rubber Tired Dozers	2	8.00	247	0.40	21	0.6	996
Grading	Scrapers	2	8.00	367	0.48	21	0.6	1,776
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	21	0.6	362
Building Construction	Cranes	1	7.00	231	0.29	207	0.6	2,912
Building Construction	Forklifts	3	8.00	89	0.20	207	0.6	2,653
Building Construction	Generator Sets	1	8.00	84	0.74	207	0.6	3,088
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	207	0.6	
Building Construction	Welders	1	8.00	46	0.45	207	0.6	1,028
Paving	Pavers	2	8.00	130	0.42	14	0.6	367
Paving	Paving Equipment	2	8.00	132	0.36	14	0.6	319
Paving	Rollers	2	8.00	80	0.38	14	0.6	204
Architectural Coating	Air Compressors	1	6.00	78	0.48	14	0.6	94
TOTAL								15,144

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-31

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Average Daily Factor (worker and vendor)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18	0	7	126	0	10.00	6.50	1260	0	0.6	0	0
Architectural Coating	58	0	14	812	0	10.00	6.50	8,120.00	0.00	0.6	118,793	0
Building Construction	288	100	207	59,616	20,700	10.00	6.50	596,160.00	134,550.00	0.6	8,721,594	471,615
Grading	25	0	21	525	0	10.00	6.50	5,250.00	0.00	0.6	76,806	0
Paving	15	0	14	210	0	10.00	6.50	2,100.00	0.00	0.6	30,722	0
										TOTAL	8,947,915	471,615

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County

Region: Sacramento

Calendar Year: 2018

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacramento	2018	LDA	Aggregated	Aggregated	GAS	534,423	19,389,304	3,354,318	713.1	0.00	27.19	24.38	5.84
Sacramento	2018	LDT1	Aggregated	Aggregated	GAS	48,969	1,599,959	294,575	69.9	0.00	22.89		
Sacramento	2018	LDT2	Aggregated	Aggregated	GAS	192,934	7,333,600	1,209,109	362.1	0.00	20.26		
Sacramento	2018	T7 tractor construction	Aggregated	Aggregated	DSL	124	10,857	0	0.00	1.86	5.84		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County

Region: Sacramento

Calendar Year: 2036

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	Class	MdIYr	Speed	Fuel	Population
Sacramento		2036 HHDT	Truck	Aggregatec	Aggregatec	GAS	78.47299
Sacramento		2036 HHDT	Truck	Aggregatec	Aggregatec	DSL	12577.03
Sacramento		2036 LDA	Passenger	Aggregatec	Aggregatec	GAS	659784.1
Sacramento		2036 LDA	Passenger	Aggregatec	Aggregatec	DSL	8872.656
Sacramento		2036 LDA	Passenger	Aggregatec	Aggregatec	ELEC	105729.1
Sacramento		2036 LDT1	Truck	Aggregatec	Aggregatec	GAS	44312.88
Sacramento		2036 LDT1	Truck	Aggregatec	Aggregatec	DSL	38.78393
Sacramento		2036 LDT1	Truck	Aggregatec	Aggregatec	ELEC	24.80728
Sacramento		2036 LDT2	Truck	Aggregatec	Aggregatec	GAS	274465.5
Sacramento		2036 LDT2	Truck	Aggregatec	Aggregatec	DSL	586.2352
Sacramento		2036 LHDT1	Truck	Aggregatec	Aggregatec	GAS	6003.125
Sacramento		2036 LHDT1	Truck	Aggregatec	Aggregatec	DSL	9057.954
Sacramento		2036 LHDT2	Truck	Aggregatec	Aggregatec	GAS	1517.63
Sacramento		2036 LHDT2	Truck	Aggregatec	Aggregatec	DSL	3706.015
Sacramento		2036 MCY	Passenger	Aggregatec	Aggregatec	GAS	39534.96
Sacramento		2036 MDV	Truck	Aggregatec	Aggregatec	GAS	145271.8
Sacramento		2036 MDV	Truck	Aggregatec	Aggregatec	DSL	3717.704
Sacramento		2036 MH	Other	Aggregatec	Aggregatec	GAS	2276.979
Sacramento		2036 MH	Other	Aggregatec	Aggregatec	DSL	643.1399
Sacramento		2036 MHDT	Truck	Aggregatec	Aggregatec	GAS	1510.083
Sacramento		2036 MHDT	Truck	Aggregatec	Aggregatec	DSL	19517.86
Sacramento		2036 OBUS	Bus	Aggregatec	Aggregatec	GAS	755.6866
Sacramento		2036 OBUS	Bus	Aggregatec	Aggregatec	DSL	641.4504
Sacramento		2036 SBUS	Bus	Aggregatec	Aggregatec	GAS	231.586
Sacramento		2036 SBUS	Bus	Aggregatec	Aggregatec	DSL	440.5753
Sacramento		2036 UBUS	Bus	Aggregatec	Aggregatec	GAS	220.2617
Sacramento		2036 UBUS	Bus	Aggregatec	Aggregatec	DSL	229.5186

Project VMT (mi/yr) 47,608,853

Project Mobile Emissions (MT/yr) 14,776

	Gas (gal)	Diesel (gal)
Passenger	566,018	5,925
Truck	584,746	328,115
Bus	12,994	15,182
Other	3,026	598
Total	1,166,783	349,820

VMT (mi/day)	% of vehicle class EN	% CalEEMod vehicle	% project vehicle cla
9344.149874	0.007938421	0.026318	0.000208923
1167734.986	0.992061579	0.026318	0.026109077
21782805.69	0.844239006	0.578893	0.488724051
298487.5681	0.011568521	0.578893	0.006696936
3720411.639	0.144192473	0.578893	0.083472013
1509805.469	0.998828424	0.033999	0.033959168
1021.672339	0.000675899	0.033999	2.29799E-05
749.2540533	0.000495677	0.033999	1.68525E-05
9471111.058	0.997828421	0.21284	0.212377801
20612.03075	0.002171579	0.21284	0.000462199
175144.6211	0.376960215	0.010628	0.004006333
289479.0027	0.623039785	0.010628	0.006621667
55601.0751	0.289258653	0.004325	0.001251044
136618.1534	0.710741347	0.004325	0.003073956
239927.7405	1	0.005392	0.005392
4526866.966	0.973279013	0.104491	0.101698897
124283.3266	0.026720987	0.104491	0.002792103
19475.40271	0.779926097	0.000566	0.000441438
5495.428215	0.220073903	0.000566	0.000124562
71241.97426	0.085309834	0.018736	0.001598365
763854.8826	0.914690166	0.018736	0.017137635
37732.41944	0.457432455	0.001852	0.000847165
44754.99267	0.542567545	0.001852	0.001004835
10400.96132	0.391874416	0.000598	0.000234341
16140.60635	0.608125584	0.000598	0.000363659
29381.04965	0.489821271	0.001362	0.000667137
30602.15526	0.510178729	0.001362	0.000694863

VTM by project vehicle class (mi, Gallons of fuel)		Trips	CO2_RUNEX (tons/day)
9946.601871	1975.023873	1570.088	16.59246886
1243023.191	203382.7849	0	1990.661794
23267591.49	559102.4406	4157303	4698.34077
318833.4367	5924.709483	56294.66	61.62925778
3974006.812	0	676297.8	0
1616757.018	42588.38384	274159.2	357.2881739
1094.04553	25.823884	212.3906	0.267950941
802.3296867	0	145.3795	0
10111063.51	306672.8838	1719640	2582.057239
22004.76277	513.7730247	3707.569	5.347279435
190736.9267	18690.55873	89437.61	154.2357704
315249.963	16540.3433	113937.7	167.4805113
59560.75436	6374.685021	22610.42	53.9294546
146347.5349	8465.633221	46617.01	86.99217775
256706.9354	6915.32309	79062.01	45.54226875
4841767.854	197023.0402	883945.9	1649.017151
132928.8049	4064.540621	23394.38	42.22432619
21016.365	3025.982661	227.789	26.30372442
5930.245803	598.3083796	64.31399	6.160435573
76096.32673	11421.47996	30213.74	95.5323637
815903.1431	95122.14936	0	975.8979506
40332.54952	5942.445666	15119.78	50.55768279
47839.04624	6814.091509	0	68.62972086
11156.70149	920.113095	926.3441	7.268729376
17313.39261	2305.348916	0	22.20145177
31761.60693	6131.101687	881.0468	52.8572398
33081.65086	6062.66494	918.0743	62.31403846
			13279.32993

Gasoline Sum	1,166,783
Diesel Sum	349,820

CO2 (lb/day)	Fuel_Consumption (1000 gal/day)	Fuel (gal/day)	mi/gal
33,185	1.855399393	1855.399393	5.036193236
3,981,324	191.0641693	191064.1693	6.111742407
9,396,682	523.4241726	523424.1726	41.61597196
123,259	5.5466332	5546.6332	53.81418914
0	0	0	#DIV/0!
714,576	39.77108132	39771.08132	37.96239425
536	0.024115585	24.115585	42.36564607
0	0	0	#DIV/0!
5,164,114	287.262852	287262.852	32.97019086
10,695	0.481255149	481.255149	42.82973552
308,472	17.16264849	17162.64849	10.20498795
334,961	15.18820823	15188.20823	19.05945707
107,859	5.950887365	5950.887365	9.343325069
173,984	7.902826509	7902.826509	17.287252
91,085	6.463315225	6463.315225	37.12146664
3,298,034	184.2089747	184208.9747	24.57462767
84,449	3.800189357	3800.189357	32.70450889
52,607	2.804111507	2804.111507	6.945302518
12,321	0.554439202	554.439202	9.911687693
191,065	10.69287857	10692.87857	6.662562732
1,951,796	89.05409772	89054.09772	8.577425432
101,115	5.559352311	5559.352311	6.78719702
137,259	6.37480551	6374.80551	7.020605193
14,537	0.857785854	857.785854	12.12535888
44,403	2.149187637	2149.187637	7.510096407
105,714	5.671570821	5671.570821	5.180407788
124,628	5.608263462	5608.263462	5.456618696