

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

Project Title/File Number: NCRSP PCL 46 Pearl Creek Apartments/2012PL-029 (RZ-000060, GPA-000063, SPA-000045, DRP-000430, TP-000126, DA-000051)

Project Location: 1298 Antelope Creek Dr.; Roseville; Placer County; APNs: 015-166-009-000

Project Description: The applicant requests approval of entitlements that would allow the construction of a 224 unit apartment complex with associated landscaping, parking lot and lighting improvements. The project will also include a new on-site dial-a-ride transit stop and connections from the project site to the City's regional bicycle and pedestrian trail, which will assist with a reduction in greenhouse gases. Additionally, the project includes a request for the City Council to allocate an additional 13.2 acre feet of water to the project. The requested project entitlements include: A Rezone (RZ) to change the zoning from Business Professional/Special Area – North Central (BP/SA-NC) to Attached Housing/Special Area – North Central (R3/SA-NC); A General Plan Amendment (GPA) to change the land use from Business Professional (BP) to High Density Residential (HDR); A Specific Plan Amendment (SPA) to address the changes in land use and zoning; A Design Review Permit (DRP) for site design, architecture, and landscaping; A Tree Permit (TP) to allow the removal of four protected native oak trees totaling 167 inches and minor encroachment into the protected zone radius of one protected native oak tree; and a Development Agreement (DA) to vest entitlements and define project requirements and responsibilities between the City and the landowner.

Project Applicant: Deana Ellis – Grove Communities, LLC.; (916) 781-6020; 1031 Junction Boulevard Suite 804, Roseville, CA 95678

Property Owner: Tom Wong – Grove Communities, LLC.; (415) 982-1218; 433 California St., Suite 700, San Francisco, CA 94104

Lead Agency Contact Person: Tricia Stewart, Associate Planner - City of Roseville; (916) 774-5276

DECLARATION: The Planning Director has determined that the above project will have no significant effect on the environment and therefore does not require preparation of an Environmental Impact Report. The determination is based on the following findings:

- A. *The project will not have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare or threatened species, reduce the number or restrict the range of rare or endangered plants or animals or eliminate important examples of the major periods of California history or prehistory.*

- B. *The project will not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.*
- C. *The project will not have impacts, which are individually limited, but cumulatively considerable.*
- D. *The project will not have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly.*
- E. *No substantial evidence exists that the project may have a significant effect on the environment.*
- F. *The project incorporates all applicable mitigation measures identified in the attached initial study.*
- G. *This Mitigated Negative Declaration reflects the independent judgment of the lead agency.*

Copies of the proposed Mitigated Negative Declaration and all documents referenced therein are available for review by members of the public at the City of Roseville, Planning Department, 311 Vernon Street, Roseville, CA 95678, during the normal business hours of 8 am to 5 pm, Monday through Friday.

Written comments shall be submitted no later than May 9, 2013 at 5 p.m., which is 30 days from the start of the posting date of April 10, 2013.

POSTING PERIOD: April 10, 2013 to May 9, 2013

SUBMIT COMMENTS TO:

Roseville Planning Department
Attn: Tricia Stewart
311 Vernon Street
Roseville, CA 95678

Initial Study Prepared by:



Tricia Stewart, Associate Planner

The public hearing regarding the project will be held on May 9, 2013 at 7:00 p.m. before the Planning Commission. The hearing will be held in the City of Roseville Council Chambers located at 311 Vernon Street, Roseville, California.

NOTE TO PLACER COUNTY CLERK: Please mail the original of this document back to the Roseville City Clerk at 311 Vernon Street, Roseville, CA 95678.

INITIAL STUDY & ENVIRONMENTAL CHECKLIST

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This initial study has been prepared to identify and assess the anticipated environmental impacts of the above described project application. The document relies on previous environmental documents and site-specific studies prepared to address in detail the effects or impacts associated with the project. Where documents were submitted by consultants working for the applicant, City staff reviewed such documents in order to determine whether, based on their own professional judgment and expertise, staff found such documents to be credible and persuasive. Staff has only relied on documents that

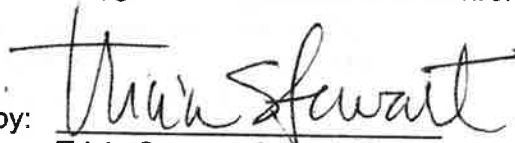
reflect their independent judgment, and has not accepted at face value representations made by consultants for the applicant.

This document has been prepared to satisfy the California Environmental Quality Act (CEQA), (Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (14 CCR 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects.

The initial study is a public document used by the decision-making lead agency to determine whether a project may have a significant effect on the environment. If the lead agency finds substantial evidence that any aspect of the project, either individually or cumulatively, may have a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial, the lead agency is required to prepare an EIR. If the agency finds no substantial evidence that the project or any of its aspects may cause a significant effect on the environment, a negative declaration shall be prepared. If in the course of analysis, the agency recognizes that the project may have a significant impact on the environment, but that by incorporating specific mitigation measures to which the applicant agrees, the impact will be reduced to a less than significant effect, a mitigated negative declaration shall be prepared.

In reviewing the site specific information provided for this project, the City of Roseville Planning Department has analyzed the potential environmental impacts created by this project and determined that with mitigation the impacts are less than significant. As demonstrated in the initial study checklist, there are no "project specific significant effects which are peculiar to the project or site" that cannot be reduced to less than significant effects through mitigation (CEQA Section 15183) and therefore an additional EIR is **not** required. Therefore, **on the basis of the following initial evaluation**, we find that the proposed project **could not** have a significant effect on the environment, and a **Mitigated Negative Declaration** will be prepared.

Prepared by:


Tricia Stewart, Associate Planner

Date:

4/9/13

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PROJECT DESCRIPTION

Project Location

The North Central Roseville Specific Plan (NCRSP) is located in the City of Roseville, Placer County, California (see Figure 1, Regional Location). The NCRSP encompasses approximately 2,330 acres and is situated between Washington Boulevard and Interstate 80. The NCRSP was adopted July 5, 1990 by the City Council. Originally, the specific plan included a large land area to the north of State Route (SR) 65; however, through the specific plan entitlement process, this land area was designated as Urban Reserve, and subsequently a separate Specific Plan (Highland Reserve North) and EIR was prepared for that area and approved by the City in May 1997.

Parcel 46 is located within the NCRSP area east of Creekside Ridge Dr., south of Antelope Creek Drive and directly west of the Union Pacific Railroad and Interstate 80 (see Figure 2, Project Site). The property is 11.61 gross acres in size with a net buildable area of 10.87 acres, which accounts for easements such as overhead electrical lines and required setbacks from the railroad to the east and the closed landfill to the south. The property currently has zoning designation of Business Professional/Special Area - North Central Roseville Specific Plan (BP/SA-NC) and a land use designation of Business Professional (BP).

Background

1990 NCRSP

At the time the specific plan was adopted, the NCRSP anticipated development of Parcel 46 with BP uses. An Environmental Impact Report (EIR SCH#88053010) was prepared to address impacts from development of the plan area and was certified with the NCRSP.

1999 Proposed Rezone

In 1999, an application was submitted by the Grupe Management Company (Grupe), which proposed a Rezone (RZ), General Plan Amendment (GPA), Specific Plan Amendment (SPA), Design Review Permit (DRP), Tree Permit (TP), and Development Agreement Amendment (DAA) much like the currently proposed project to allow for a 224 unit apartment complex on the project site. The project was intended to serve as Phase 2 of the existing 336 unit apartment complex that was located directly

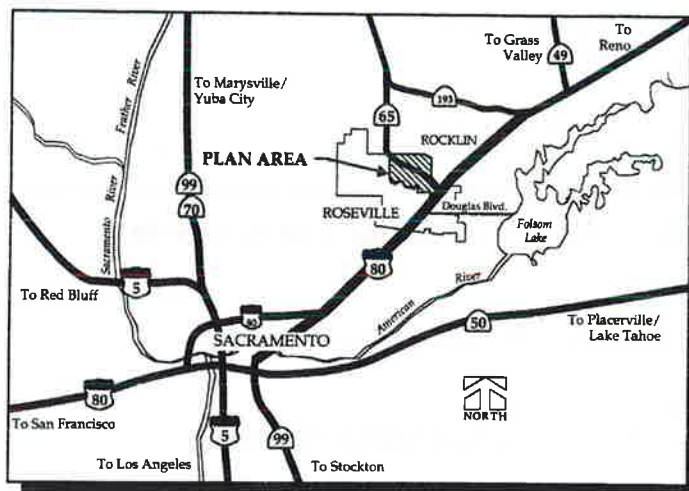


Figure 1: Regional Location



Figure 2: Project Site

to the north at 1299 Antelope Creek Drive which had been completed in March 1999. In November 1999, the Planning Commission approved Grupe's request for a DRP and TP for the apartment complex project and recommended approval to the City Council for a RZ, GPA, SPA, and DAA to allow a change in zoning from BP to Attached Housing (R3) and a change in land use from BP to High Density Residential (HDR). Prior to the City Council hearing, reimbursement agreement issues over infrastructure costs arose between Grupe and a nearby property owner which could not be resolved and therefore the project was subsequently withdrawn.

2007 Proposed Rezone

In 2007, Kobra Properties submitted an application for a RZ, GPA, SPA, DRP, TP, and DAA for a 356 unit condominium project on the subject site, which also included a request to change the zoning and land use from BP to R3 and HDR. The applicant withdrew their application before addressing City comments and the property later went into foreclosure.

Physical or Natural Features On-Site

The project site is currently undeveloped and consists of gently rolling terrain. The high point of the site is located at the northeastern corner of the site at 212 feet above mean sea level with the low point located towards the southwestern end of the site at 175 feet above mean sea level. The southwestern portion of the site includes a portion (approximately 256 square feet) of the 100 year floodplain from Antelope Creek, which encroaches onto the site at 175 feet above mean sea level.

According to the NCRSP EIR and a biological assessment prepared for the project by Analytical Environmental Services (AES), the existing soils on-site are Fiddymont Loam, 1-8 percent slopes, Exchequer very stony loam, 2 to 15 percent slopes, and Cometa Ramona Sandy Loam, 1-5 percent slopes. Additionally, the existing vegetation on-site consists of annual non-native grasses and five protected native Blue oak trees totaling 185 aggregate inches.

As noted in the Background section, this project site was originally considered Phase 2 of the existing apartment project located to the north at 1299 Antelope Creek Dr. At that time, biological assessments were conducted in 1997 for the project site which included 1280, 1298 and 1299 Antelope Creek Drive (Parcel 57 park site and both apartment sites) and again in 2004 on 1280 Antelope Creek Drive (Parcel 57 park site) for the City's bike trail project. As further described in the Biological Resources section of this report, state and federal wetland permitting and mitigation for on-site direct and indirect impacts has been completed. To confirm the current status of on-site wetlands and previous permitting and mitigation efforts a re-verification study is being completed for the proposed project by Analytical Environmental Services (AES) who has been hired by the project applicant. This AES study will confirm current on-site wetland acreages and past mitigation efforts and requests reauthorization of the previously permitted fills via the U.S. Army Corps' Letter of Permission process.

Physical or Natural Features on Adjacent Property (Parcel 46 – Proposed Apartments)

- Directly north and across Antelope Creek Drive is the Preserve at Creekside Apartments (NCRSP Parcel 22).
- Directly south is the closed Roseville Sanitary Landfill which is designated as OS (NCRSP Parcel 98B).
- Directly west of the site is an undeveloped park and open space parcel, which include vernal pools, ephemeral drainages, culverts, and 100 year Floodplain associated with Antelope Creek (NCRSP Parcels 57, 85 and 45 respectively).
- Directly east of the subject parcel is Union Pacific Railroad (Infill Parcel 288).

Proposed Project

The proposed project is located on 11.61 gross acres (10.87 net buildable) and provides for a 224 unit apartment complex with associated parking, lighting and landscaping. Additionally, a new on-site dial-a-ride transit stop and connections from the project site to the City's regional bicycle and pedestrian trail, both of which will assist the City with achieving requirements for a reduction in greenhouse gases will be implemented as a part of this project (See Figure 3, Site Plan). Additionally, the project includes a request for the City Council to allocate an additional 13.2 acre feet of water to the project. The following outlines the requested entitlements for the project:

- **Rezone (RZ)** – The RZ will change the zoning designation from Business Professional/Special Area – North Central (BP/SA-NC) to Attached Housing/Special Area – North Central (R3/SA-NC).
- **General Plan Amendment (GPA)** – The GPA will change the land use designation from Business Professional (BP) to High Density Residential (HDR).
- **Specific Plan Amendment (SPA)** – The SPA will provide for updates to the NCRSP document as it relates to the change in zoning and land use.
- **Design Review Permit (DRP)** – The DRP is for the construction of a 224 unit apartment complex which will provide for overall site design, pedestrian and vehicular circulation, infrastructure, frontage improvements, grading, parking, landscaping, and building design.

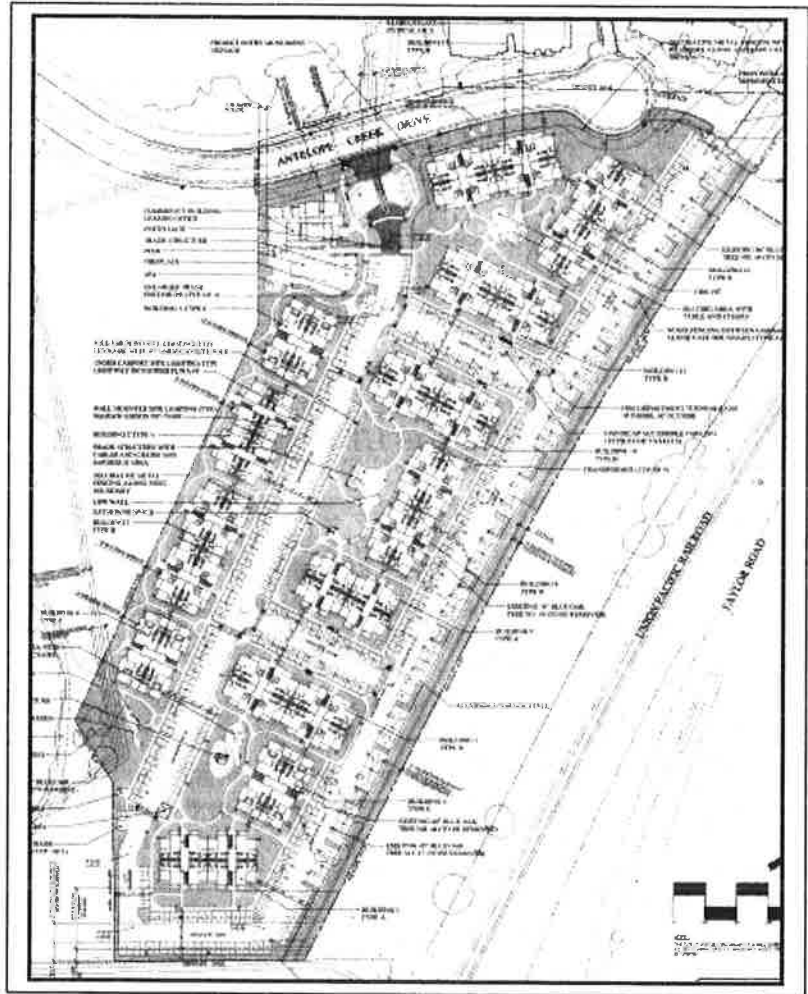


Figure 3: Site Plan – NCRSP Parcel 46

- **Tree Permit (TP)** – The TP will allow for the removal of four native Oak trees (Blue Oak) totaling 167 inches and encroachment of 8.5 percent into the protected zone radius (PZR) of one protected native oak tree (Blue Oak).
- **Development Agreement (DA)** – The DA between the property owner and the City of Roseville will allow for vested entitlements and to outline development and fee obligations.

A copy of the site plan and grading plan are provided in Attachment 1 for reference.

ZONING AND LAND USE

Site and surrounding zoning and land use is as follows:

Location	Zoning	General Plan Land Use	Actual Use of Property
On-Site	Business Professional/Special Area (BP/SA-NC)	BP	Undeveloped
North	Attached Housing (R3)	High Density Residential (HDR 20.3 units per acre)	Preserve at Creekside Apartments
South	Open Space (OS)	OS	Closed Roseville Sanitary Landfill
East	General Industrial (M2)	Industrial (IND)	Union Pacific Railroad and Taylor Road
West	Parks and Recreation (PR); OS; OS/FP	PR; OS; OS/FP	Undeveloped Park; Bike Trail; Antelope Creek

UNIFORMLY APPLIED POLICIES AND STANDARDS

The State CEQA Guidelines allow a lead agency to rely on previously adopted development policies or standards as mitigation for environmental effects, when the standards have been adopted by the City, with findings based on substantial evidence, that the policies or standards will substantially mitigate environmental effects, unless substantial new information shows otherwise (CEQA Guidelines §15183(f)). In April 2008, the City of Roseville adopted Findings of Fact related to the mitigating policies and standards, and adopting the City of Roseville CEQA Implementing Procedures for the preparation, processing, and review of environmental documents (Resolution 08-172). These findings are applicable to the following regulations and ordinances, which include standards and policies that are uniformly applied throughout the City, and will substantially mitigate specified environmental effects of future projects:

- City of Roseville General Plan Policies
- City of Roseville Zoning Ordinance (RMC Title 19)
- Noise Regulation (RMC Ch.9.24)
- Flood Damage Prevention Ordinance (RMC Ch.9.80)
- Traffic Mitigation Fee (RMC Ch.4.44)
- Highway 65 Joint Powers Authority Improvement Fee (Resolution 2008-02)
- South Placer Regional Transportation Authority Transportation and Air Quality Mitigation Fee (Resolution 09-05)
- Drainage Fees (Dry Creek [RMC Ch.4.49] and Pleasant Grove Creek [RMC Ch.4.48])
- City of Roseville Improvement Standards (Resolution 02-37)
- City of Roseville Construction Standards (Resolution 01-208)
- Tree Preservation Ordinance (RMC Ch.19.66)
- Subdivision Ordinance (RMC Title 18)
- Community Design Guidelines (Resolution 95-347)
- Specific Plan Design Guidelines:
 - North Central Roseville Specific Plan and Landscape Design Guidelines (Resolution 90-170)

The City's Mitigating Policies and Standards are referenced, where applicable, in the Initial Study Checklist. The City of Roseville has adopted CEQA Findings that these Mitigating Policies and Standards substantially mitigate specified environmental impacts of the future project.

The proposed project includes a land use change from Business Professional to High Density Residential. The project site has been anticipated for development by the North Central Roseville Specific Plan since 1990. This change in land use will not have an effect on most CEQA checklist items as development under either land use, Business Professional or High Density Residential, will have the same environmental impact (i.e. Aesthetics, Geology and Soils, etc.). In areas where this is not the case, discussion of the impact related to the land use change is provided in the appropriate checklist section.

EXPLANATION OF INITIAL STUDY CHECKLIST

The California Environmental Quality Act (CEQA) Guidelines recommend that lead agencies use an Initial Study Checklist to determine potential impacts of the proposed project to the physical environment. The Initial Study Checklist provides a list of questions concerning a comprehensive array of environmental issue areas potentially affected by this project. This section of the Initial Study incorporates a portion of Appendix "G" Environmental Checklist Form, contained in the CEQA Guidelines.

There are four (4) possible answers to the Environmental Impacts Checklist on the following pages. Each possible answer is explained herein:

- 1) A "Potentially Significant Impact" is appropriate if there is enough relevant information and reasonable inferences from the information that a fair argument based on substantial evidence can be made to support a conclusion that a substantial, or potentially substantial, adverse change may occur to any of the physical conditions within the area affected by the project. When one or more "Potentially Significant Impact" entries are made, an EIR is required.
- 2) A "Potentially Significant Unless Mitigation Incorporated" answer is appropriate where the applicant has agreed to incorporate a mitigation measure to reduce an impact from "Potentially Significant" to a "Less than Significant." For instance, impacts to flood waters could be reduced from a "potentially significant impact" to a "less than significant impact" by relocating a building to an area outside of the floodway. The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level. Mitigation Measures are identified as MM followed by a number.
- 3) A "Less Than Significant Impact" answer is appropriate if there is evidence that one or more environmental impacts may occur, but the impacts are determined to be less than significant, or that the application of development policies and standards to the project will reduce the impact(s) to a less than significant level. For instance, the application of the City's Improvement Standards reduces potential erosion impacts to a less than significant impact.
- 4) A "No Impact" answer is appropriate where it can be clearly seen that the impact at hand does not have the potential to adversely affect the environment. For instance, a project in the center of an urbanized area will clearly not have an adverse effect on agricultural resources or operations.

All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project level, indirect as well as direct, and construction as well as operational impacts.

A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources cited in the parentheses following each response. A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards.

INITIAL STUDY CHECKLIST

I. Aesthetics

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			X	

Setting:

The project site is located within the North Central Roseville Specific Plan Area (NCRSP). Parcel 46 is one of the last parcels to be developed in the plan area. Two parcels within the immediate area that are also undeveloped are: park Parcel 57 directly adjacent to the project site and Parcel 33, which is a 1.9 acre site zoned Community Commercial (CC) located approximately 400 feet northwest of the project site. Aside from these two properties, the project site is surrounded by development, open space lands, and the Union Pacific Railroad on all sides. The site is within an urbanized area.

Discussion of Checklist Answers:

a-c) The project site does not abut and is not visible from any designated scenic vista or scenic highway. The project will convert a vacant parcel to urban development that has been anticipated for development by both the NCRSP and the General Plan. The General Plan EIR identified that the conversion of an undeveloped parcel to urban development as an unavoidable significant impact for which the City Council also adopted a statement of overriding considerations. The site is currently surrounded by development, a future park, areas designated as open space, and the Union Pacific Railroad. Since the setting is now an urban environment, converting the site from vacant to developed land is considered a less than significant impact.

The City of Roseville has adopted Community Design Guidelines (CDG) with the purpose of minimizing the aesthetic impacts of new development projects. The CDG includes guidelines for building design, site design and landscape design, which have the purpose of improving the aesthetics of the built environment. The NCRSP also contains design policies that promote high standards of architectural design and continuity within the specific plan area. Both the CDG and the NCRSP guidelines were identified as documents that substantially mitigate the environmental effects of future projects in the City's Mitigating Policies and Standards. Staff has evaluated the proposed project for potential impacts to the surrounding properties and determined that the site, building, and landscape designs meet the City's requirements. The City's approving authority on site design and architecture (Planning Commission) will ultimately review the DRP for conformance with City standards and requirements.

Due to the project's location within an urban environment and design being addressed under the DRP entitlement, the project will not substantially damage or degrade the aesthetics of the site or the aesthetics of its surroundings.

d) Light and glare will increase above the existing condition. Light and glare associated with the proposed project will result from parking lot lighting and exterior building lighting. As part of the DRP process, site lighting is reviewed for aesthetic concerns as well as off-site effects. The CDG include lighting standards for pole height, orientation, cut-off lenses and shields to avoid off-site glare, all of which will reduce the potential impacts from new lighting to a less than significant level. The proposed project demonstrates compliance with the CDG.

Based on this information, aesthetic impacts would be less than significant.

II. Agricultural & Forestry Resources

In determining whether impacts to agricultural resources would have significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land				X

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
or conversion of forest land to non-forest use?				
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Discussion of Checklist Answers:

a,e) The subject property contains no prime farmland, unique farmland, or farmland of statewide importance or active agricultural operations. According to the NCRSP EIR and a biological assessment prepared for the project by Analytical Environmental Services (AES), the existing soils on-site are Fiddymont Loam, Exchequer very stony loam, and Cometa Ramona Sandy Loam. According to the NCRSP, none of the soils within the plan area are considered Prime Agricultural Land Soils. Therefore, there will be no impact to farmlands and no mitigation is required.

b) The subject property is not currently under a Williamson Act contract or zoned for agricultural use. Development of the proposed project will not conflict with existing zoning for agriculture use or an active Williamson Act contract and no mitigation is required.

c-e) The project site does not support any forest resources and the land is not zoned for forestry activities or timberland. The project would have no impacts to forest resources. No mitigation is required.

No agricultural or forestry resources are present on the site. Therefore, the proposed project will not have an impact on agricultural or forestry resources.

III. Air Quality and Greenhouse Gases

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
c) Result in a cumulatively considerable net increase of any criteria for which the project region is non-attainment under an applicable federal or state ambient			X	

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?				
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	
f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Setting:

Air quality and Greenhouse Gas (GHG) is monitored through the efforts of various international, federal, State, regional and local government agencies. These agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies and policies regulating the air quality within the Roseville area have been outlined in the Air Quality and Greenhouse Gas Impact Analysis study that was prepared by Raney Planning & Management Inc. (Raney) for the proposed project. A copy of the study is included as Appendix A. The purpose of the study is to evaluate the potential impacts from construction and operation of the proposed project, on both a project and cumulative level, in the context of the existing regional and local air quality conditions and regulations.

Discussion of Checklist Answers:

a, b) The proposed project site is located within the boundaries of the Placer County Air Pollution Control District (PCAPCD), which is within the Sacramento Valley Air Basin (SVAB). The SVAB is designated nonattainment for the federal particulate matter 2.5 microns in diameter (PM_{2.5}) and the State particulate matter 10 microns in diameter (PM₁₀) standards. In addition, Placer County is located within the Sacramento region's severe non-attainment area for federal ozone standards. The PCAPCD along with other local air districts in the Sacramento Valley Air Basin are required to comply with and implement the State Implementation Plan (SIP) to demonstrate when and how the region can attain the federal ozone standards. Accordingly, the Sacramento Metropolitan Air Quality Management District, along with the other air districts in the region, prepared the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* in December 2008. The Sacramento Air District adopted the Plan on January 22, 2009, followed by the Feather River Air District on February 2, the El Dorado County Air District on February 10, the Yolo-Solano Air District on February 11, and the Placer County Air District on February 19, 2009. The California Air Resources Board (CARB) determined that the Plan meets Clean Air Act requirements and approved the Plan on March 26, 2009 as a revision to the SIP. It should be noted that the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was prepared to demonstrate how the Sacramento Region could attain 1997 federal 8-hour ozone standards by 2018. However, the Environmental

Protection Agency has set forth new standards for federal 8-hour ozone based on 2008 data. As such, the current *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* does not address the updated 2008 federal 8-hour ozone standards.

The *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* demonstrates how existing and new control strategies would provide the necessary future emission reductions to meet the federal Clean Air Act requirements, including the National Ambient Air Quality standards (NAAQS). Adoption of all reasonably available control measures is required for attainment. Measures could include, but are not limited to the following: regional mobile incentive programs; urban forest development programs; and local regulatory measures for emission reductions related to architectural coating, automotive refinishing, natural gas production and processing, asphalt concrete, and various others. Although the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was based on the 1997 federal 8-hour ozone standards and not the updated 2008 standards, compliance with the existing plan would still substantially lessen regional emissions.

In order to evaluate ozone and other air pollutant emissions, the PCAPCD recommends significance thresholds for emissions of PM₁₀, carbon monoxide (CO), and ozone precursors – reactive organic gases (ROG) and nitrous oxides (NO_x). The significance thresholds, expressed in pounds per day (lbs/day), listed in Table 1 are the PCAPCD staff recommended CEQA thresholds of significance for use in the evaluation of air quality impacts associated with proposed development projects. While these thresholds are not PCAPCD Board adopted, the City of Roseville, as the CEQA lead agency, accepts the thresholds for CEQA purposes. Thus, if the proposed project's emissions exceed the pollutant thresholds presented in Table 1, the project could have a significant effect on regional air quality and the attainment of federal and State Ambient Air Quality Standards.

Table 1 PCAPCD Recommended CEQA Thresholds of Significance	
Pollutant	Construction/Operational Threshold (lbs/day)
ROG	82
NO _x	82
PM ₁₀	82
CO	550
Source: Placer County Air Pollution Control District, 2012.	

Implementation of the proposed project would contribute to increases of ROG, NO_x, PM₁₀, and CO emissions in the area. The proposed project's short-term construction-related and long-term operational emissions were estimated using the CalEEMod software. CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data was available, that data was input into the model, such as construction phases and timing. It should be noted that the default construction equipment data was modified based on local statistics in order to represent a more accurate estimate for the project location. The applicant would be required to provide verification that the assumptions included in the modeling transpire, pursuant to conditions of approval.

Construction Emissions

Construction of the proposed project would generate air pollutants intermittently within the site, and in the vicinity of the site, until all construction has been completed. The air pollutant emission sources would include the following:

- Dust from grading and any infrastructure improvements;
- ROG emissions from road surfacing;
- Emissions from construction equipment and vehicles; and
- Emissions from architectural coating.

Dust from construction activities can cause impacts both locally and regionally. The dry climate of the area during the summer months, combined with the fine, silty soils of the region, create a high potential for dust generation. Increased dustfall and locally elevated levels of PM₁₀ near construction activities are expected. Depending on the weather, soil conditions and amount of construction activity taking place at any one time, fugitive dust emissions could significantly affect existing land uses near the project site. In addition, ROG and NO_x emissions are expected to increase as construction moves forward.

All projects are required to comply with PCAPCD rules and regulations for construction. As such, the following rules shall be noted on City-approved construction plans:

- Rule 202 related to visible emissions limitations;
- Rule 228 related to fugitive dust limitations;
- Rule 225 related to wood burning devices within multifamily units;
- Regulation 3 regarding open burning; and
- Rule 218 regarding volatile organic compounds.

The PCAPCD's recommended thresholds of significance for construction are 82 pounds per day for ROG, NO_x, and PM₁₀, and 550 pounds per day for CO. Table 2 shows the estimated construction emissions of ROG, NO_x, PM₁₀, and CO for the proposed project.

Table 2 Construction Emissions for the Proposed Project		
Pollutant	Project Emissions (lbs/day)	PCAPCD Significance Threshold (lbs/day)
ROG	20.81	82.0
NO _x	68.98	82.0
PM ₁₀	22.24	82.0
CO	44.78	550.0
Source: CalEEMod, August 2012 (See Raney Study Appendix).		

As Table 2 indicates, the project's emissions would be below the identified thresholds of significance. Therefore, construction activities associated with development of the proposed project would not substantially contribute to the PCAPCD's nonattainment status for ozone. Because the proposed project would not result in emissions above the PCAPCD's recommended thresholds of significance and would comply with PCAPCD rules and regulations for construction, the project would be considered to result in a less than significant impact.

Operational Emissions

Development of the proposed project would result in the generation of ROG and NO_x, which are ozone-precursor pollutants, as well as CO and PM₁₀. The PCAPCD's recommended threshold of significance for operation is 82 pounds per day for ROG, NO_x, and PM₁₀ and 550 pounds per day for CO. The predicted operational emissions for the proposed project are summarized below in Table 3.

Table 3 Operational Emissions for the Proposed Project		
Pollutant	Project Emissions (lbs/day)	PCAPCD Significance Threshold (lbs/day)
ROG	16.69	82.0
NO _x	28.54	82.0
PM ₁₀	16.63	82.0
CO	92.86	550.0
Source: CalEEMod, August 2012 (See Raney Study Appendix).		

As indicated in Table 3, because the project's operational emissions are predicted to be below the PCAPCD's recommended thresholds, the project would not contribute substantially to the PCAPCD's ozone nonattainment status, and related impacts would be considered less than significant.

Conclusion

The proposed project would not exceed the applicable thresholds of significance for air pollutant emissions during construction or operation. Therefore, the project would not conflict with or obstruct implementation of the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* or contribute substantially to the PCAPCD's nonattainment status for ozone. Therefore, implementation of the proposed project would result in a less than significant impact related to air quality.

c) According to the PCAPCD's *CEQA Air Quality Handbook*, the PCAPCD's recommended criteria pollutant cumulative threshold of significance for land use projects is 10 pounds per day for ROG and NO_x. The *CEQA Air Quality Handbook* does not recommend cumulative thresholds for PM₁₀ emissions or address a preferred methodology for cumulative impact determinations made consistent with CEQA Guidelines Section 15064 (h)(3).

The City, as CEQA lead agency, prefers to rely on a two Tier criteria pollutant cumulative analysis methodology similar to that adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD) as outlined in the *SMAQMD Guide to Air Quality Assessment in Sacramento County*. That is, if a project would not result in significant project-level criteria air pollutant emissions for which the region is designated non-attainment (i.e., exceed the PCAPCD recommended project threshold of 82 lbs/day for ROG or NO_x), project emissions would not be considered cumulatively considerable and would result in a less than significant cumulative impact. Should a project exceed the thresholds, a Tier 2 evaluation is conducted to determine SIP consistency in accordance with CEQA Guidelines Section 15064 (h)(3). Under the Tier 2 analysis, projects found consistent with the SIP and which would not conflict with the SIP emissions budget are considered less than cumulatively considerable. The City finds the above methodology appropriate to Roseville projects considering the City is located within the Sacramento Valley Air Basin (SVAB), the same air basin where the above methodology is utilized by numerous CEQA lead agencies with concurrence and support from the SMAQMD.

Tier 1: Cumulative Emissions Threshold

As shown in Table 3 above, the project's operational emissions are predicted to be below the City's recognized project level threshold and therefore would not result in a substantial cumulative contribution of criteria air pollutants. As such, the cumulative impact is found less than significant based on the City's Tier 1 threshold evaluation methodology. Given this finding, a Tier 2 evaluation is not required. Nevertheless a Tier 2 evaluation has been conducted for informational purposes in further support of the less than significant cumulative impact finding.

Tier 2: SIP Consistency

Placer County is classified as a severe non-attainment area for the federal ozone standards. The SVAB, which includes the Roseville portion of Placer County, is designated nonattainment for the federal particulate matter 2.5 microns in diameter (PM_{2.5}) and the State particulate matter 10 microns in diameter (PM₁₀) standards. Therefore the project would contribute to cumulative regional emissions of non-attainment criteria pollutants and consequently a SIP consistency evaluation has been performed.

According to CEQA Section 15064(h)(3), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with the requirements in a previously approved plan or mitigation program, such as an air quality attainment or maintenance plan, that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. As discussed above, the PCAPCD is required to comply with and implement the SIP. In accordance with the SIP, a *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was prepared and adopted by the PCAPCD on February 19, 2009. The *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* demonstrates how existing and new control strategies provide the necessary future emission reductions to meet 1997 federal Clean Air Act requirements.

Although the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was based on the 1997 federal 8-hour ozone standards and not the updated 2008 standards, the control strategies and measures included still substantially lessen regional cumulative emissions. For example, according to Appendix C of the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*, compliance with the control measures set forth by local air districts in the region would substantially lessen the overall ROG and NO_x emissions from stationary and area-wide sources by 3.30 tons per day and 1.98 tons per day, respectively, by 2018. The PCAPCD's regulatory control measures alone (i.e., select PCAPCD rules) would reduce regional ROG and NO_x emissions by 0.26 tons per day and 0.07 tons per day, respectively. Therefore the SIP, which includes the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* is found to be a qualifying plan for cumulative impact analysis under CEQA Section 15064(h)(3).

The SIP consistency analysis determined that the proposed land use is inconsistent with the land use originally anticipated for the site in the SIP. However, according to the preliminary traffic analysis prepared for the proposed project, the proposed land use results in an overall decrease in vehicle trips from that assumed under SIP. Thus, the proposed project would result in less intensive air quality impacts than assumed under the SIP. In addition, the proposed project would comply with the PCAPCD's permits, rules, and regulations including the SIP and the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. This includes, but is not limited to, implementing PCAPCD adopted rules pertaining to architectural coatings, asphalt concrete, and water heaters. Consequently SIP implementation substantially reduces project emissions and the project is found to be consistent with the SIP.

According to the emissions inventory of the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*, the region's total ROG emissions at the time of preparation were 160 tons per day (320,000 lbs/day), and the region's total NO_x emissions were 196 tons per day (392,000 lbs/day). The project's ROG and NO_x emissions, as presented in Table 3 above, are 16.69 lbs/day and 28.54 lbs/day, respectively, which comprise only 0.005 and 0.007 percent, respectively, of the region's total emissions. This shows that the project would not result in a substantial increase in emissions compared to cumulative emissions in the region.

Consequently, the City as lead agency has determined that the project would not result in emissions that exceed the City's recognized cumulative impact significance criteria. Furthermore, because the proposed project is consistent and would not conflict with or obstruct implementation of the SIP or the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*, and because the SIP has been shown to substantially lessen cumulative emissions from land use projects, according

to CEQA Section 15064(h)(3), the project's incremental contribution to regional emissions would not be cumulatively considerable. Therefore under either analysis scenario, the proposed project would result in a less than significant cumulative impact to air quality.

d) The proposed project includes the creation of high density, multi-family housing; thus, the project would introduce sensitive receptors to the area. Construction and operational criteria air pollutant and fugitive dust emissions associated with the proposed project would not exceed thresholds. In addition, CO emissions were determined to be below thresholds during both construction and operation of the proposed project. Emissions of CO result from the incomplete combustion of carbon-containing fuels such as gasoline or wood and are particularly related to traffic levels. As older, more polluting vehicles are retired and replaced with newer, cleaner vehicles, the overall rate of emission of CO for vehicle fleet throughout the State has been, and is expected to continue, decreasing. Therefore, emissions of CO would likely decrease from the levels presented above over the lifetime of the project. As such, surrounding roadways would be expected to be adequate for project traffic and would not result in unacceptable levels of service. Thus, substantial levels of CO at surrounding intersections are not expected to occur.

Toxic Air Contaminants (TACs) are also a category of environmental concern. The CARB has identified particulate matter from diesel-fueled engines (diesel particulate matter or DPM) as a TAC. High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from diesel particulate matter (DPM). Health risks from TACs are a function of both the concentration of emissions and the duration of exposure. Health-related risks associated with DPM in particular are primarily associated with long-term exposure and associated risk of contracting cancer. Due to the nature of the project, long-term operation of any major on-site stationary sources of TACs would not occur. Vehicle trips associated with the proposed housing units would not be expected to be composed of diesel-fueled engines. In addition, emissions of DPM resulting from construction-related equipment and vehicles are minimal and temporary, affecting a specific receptor for a period of days or weeks. However, the project site is located near Interstate 80 (I-80) and Union Pacific Railroad (UPRR) tracks. It should be noted that the UPRR tracks are not a significant source of TAC emissions, and the rail yards, which are considered a significant source of TACs due to idling, are located approximately two miles from the project site. Accordingly, the project site is outside of the DPM isotopes associated with the rail yard emissions. Therefore, this analysis focuses on the major source in the vicinity, which is the freeway traffic along I-80. The project would not create, but may be subjected to, high levels of DPM associated with freeway traffic.

In order to evaluate the risks associated with exposure of on-site sensitive receptors to DPM from nearby traffic, the Sacramento Metropolitan Air Quality Management District (SMAQMD) screening methods for DPM cancer risk (potential incremental cancer chances per million people) in their *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* were utilized. The SMAQMD considers any project placing sensitive receptors within 500 feet of a major roadway or freeway to have the potential to expose residents to toxic air pollutants. For residential land uses, the calculation of cancer risk associated with exposure to TACs is typically calculated based on a 70-year period of exposure. SMAQMD has established a screening threshold for DPM of 276 per million, which is based on the level of increased individual risk corresponding to a 70 percent reduction from the highest risk calculated at 50 feet downwind from the edge of the nearest travel lane for the highest peak hour volume reported by Caltrans for Sacramento County (24,000 vehicles per hour). The highest risk represents the worst-case conditions.

The proposed project is located north (downwind) of I-80. Although a buffer of approximately 650 feet exists from I-80 to the nearest building proposed for the project, the project border would be within 500 feet. Extrapolating data for 650 feet from SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* screening table for incremental DPM cancer risk per million associated with an east-west roadway, and utilizing the traffic volumes on the segment of I-80 nearest the proposed project site reported by Caltrans (12,300 vehicles per hour), the

resultant DPM cancer risk at the project site from I-80 was determined. According to the *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* screening table, and based on a highest peak traffic volume of 12,300, the potential DPM cancer risk for a sensitive receptor located roughly 650 feet from I-80 would be approximately 77 per million, which is less than the 296 per million screening threshold set forth by SMAQMD for such a condition. Even under a worst-case scenario where the project site would be located within 500 feet of a section of I-80 with peak hour traffic of 16,000 vehicles per hour, the associated cancer risk would be 137, which would still be below the 296 per million screening threshold. Therefore, a full health risk assessment is not warranted and the proposed project would not expose new sensitive receptors to substantial DPM emissions.

As a result, because the proposed project would not produce substantial emissions of criteria air pollutants, CO, or TACs, new residents would not be exposed to significant levels of pollutant concentrations during construction or operation. Therefore, impacts related to substantial pollutant exposure to sensitive receptors would be less than significant.

e) Typical odor sources include industrial or intensive agricultural uses. However, the proposed project's residential uses are not typically associated with the creation of objectionable odors. Diesel fumes from construction equipment and delivery trucks are often found to be objectionable; however, construction is temporary and diesel emissions would be minimal and regulated. Emissions of DPM from the nearby freeway could result in objectionable odor; however, as presented above, the buffer between the project site and the freeway would be sufficient to avoid high concentrations of DPM. As stated previously, the nearby UPRR tracks are not a significance source of DPM, and the rail yards, which are considered a significant source of TACs due to idling, are located approximately two miles from the project site. Accordingly, odors due to DPM from the rail yards would not affect any persons at the project site. Thus, odors related to DPM would not be expected to be considerable or affect a substantial number of people. The project site is directly north of a closed landfill site. The landfill was closed in 1994, is in compliance with State requirements, and is regulated by the Placer County Health Department. Accordingly, any potential odors from the closed landfill site would be controlled and the proposed project would not be subject to substantial objectionable odors associated with the closed landfill. For the aforementioned reasons, construction and operation of the proposed project would not be expected to result in the creation of objectionable odors affecting a substantial number of people, and the project would not be subject to substantial objectionable odors, and a less than significant impact related to objectionable odors would result.

f) In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Climate Solutions Act of 2006 (Stats. 2006, ch. 488) (Health & Saf. Code, § 38500 et seq.). AB 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. AB 32 delegated the authority for its implementation to the California Air Resources Board (CARB) and directs CARB to enforce the statewide cap. In accordance with AB 32, CARB prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008. The Scoping Plan provides the outline for actions to reduce California's GHG emissions. Based on the reduction goals called for in the 2008 Scoping Plan, a 29 percent reduction in GHG levels relative to a Business As Usual (BAU) scenario would be required to meet 1990 levels by 2020. The reduction goals are based on 2005 emissions projections. In 2011, the baseline or projected 2020 BAU level for the Scoping Plan was revised to account for the economic downturn and State regulation emission reductions (i.e., Pavley, Low Carbon Fuel Standard [LCFS], and Renewable Portfolio Standard [RPS]). Accordingly, the emission reduction target of the Scoping Plan was modified from 29 percent to 21 percent. The amended Scoping Plan was re-approved August 24, 2011.

The PCAPCD recommends that the threshold of significance for GHG emissions selected by lead agencies be related to compliance with AB 32. In accordance with CARB and PCAPCD recommendations, the City of Roseville, as lead agency, requires a quantitative GHG analysis for development projects in order to demonstrate a project would promote sustainability and implement

operational GHG emission reduction strategies that would reduce GHG emissions according to the emission reduction targets of the Scoping Plan. For the proposed project, the City has chosen to utilize a threshold of a 21 percent reduction, in compliance with AB 32 and the Scoping Plan, from projected 2020 BAU levels (i.e., 2005 levels) compared to 2020 levels. Therefore, if the proposed project does not show a 21 percent reduction of project-related GHG emissions between projected 2020 BAU levels and 2020 levels, the project would be considered to result in a cumulatively considerable contribution to global climate change. GHG emission reduction measures could include, but are not limited to, compliance with local, State, or federal plans or strategies for GHG reductions, on-site and off-site mitigation recommendations from the Office of the Attorney General, and project design features. It should be noted that the proposed project would be required to comply with the minimum mandated measures of the 2010 California Green Building Standards Code (CalGreen Code), which includes such measures as a 20 percent mandatory reduction in indoor water use and diversion of 50 percent of construction waste from landfills. A variety of voluntary CalGreen Code measures also exists that would further reduce GHG emissions, but are not mandatory.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

Implementation of the proposed project would contribute to increases of GHG emissions that are associated with global climate change. Estimated GHG emissions attributable to future development would be primarily associated with increases of CO₂ and other GHG pollutants, such as methane (CH₄) and nitrous oxide (N₂O), from mobile sources and utility usage. The proposed project's short-term construction-related and long-term operational GHG emissions were estimated using the CalEEMod software. CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Emissions are expressed in annual metric tons of CO₂ equivalent units of measure (i.e., MTCO₂e), based on the global warming potential of the individual pollutants.

Short-Term GHG Emissions

Estimated increases in GHG emissions associated with construction of the proposed project are summarized in Table 4.

Table 4 Unmitigated Construction GHG Emissions	
	CO ₂ emissions (MTCO ₂ e)
Total Construction GHG Emissions	1,465.85
Note: Includes mitigation from Section III, Air Quality, above. Source: CalEEMod, March 2013 (See Raney Study Appendix).	

As presented in the table, short-term emissions of GHG associated with construction of the proposed project are estimated to be 1,465.85 MTCO₂e. Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Due to the size of the proposed project, the project's estimated construction-related GHG contribution to global climate change would be considered negligible on the overall global emissions scale and, therefore, less than significant. However, the proposed project's construction GHG emissions have

been amortized over the lifetime of the project, which is assumed to be 40 years for this analysis, and included in the annual operational GHG emissions for disclosure purposes¹. Amortizing the construction GHG emissions (a one-time release that would occur only during construction of the project) and including them in the annual operational emissions (which would occur every year over the lifetime of the entire project) would represent a worst-case scenario for the annual operational emissions.

Long-Term GHG Emissions

The long-term operational GHG emissions estimate for the proposed project incorporates the project's potential area source and vehicle emissions, emissions associated with utility and water usage, and the generation of wastewater and solid waste. It should be noted that the project site's proximity to the large retail center and Galleria at Roseville located to the northwest were taken into consideration during modeling. In addition, as stated above, the one-time release of construction GHG emissions has been included in the annual operational GHG emissions estimate in order to provide a worst-case scenario. Furthermore, the project's environmental design features, including the new on-site bus stop and the new connection from the site to the City's regional bicycle and pedestrian trail system, were applied to the modeling for the proposed project in the year 2020. The applied environmental features are included in the project design voluntarily and would otherwise not be implemented under BAU conditions.

Estimated GHG emissions associated with the proposed project at operational year 2020 are summarized in Table 5. As shown in the table, the annual GHG emissions associated with the proposed project by year 2020, including construction GHG emissions, would be 2,641.57 MTCO₂e.

Table 5 Proposed Project (2020) Operational GHG Emissions	
	CO ₂ emissions (MTCO ₂ e)
Annual Operational GHG Emissions	2,604.92
Construction GHG Emissions ¹	36.65
ANNUAL GHG EMISSIONS	2,641.57
¹ See Table 5; Amortized over the estimated 40-year project lifetime. Source: CalEEMod, March 2013 (See Raney Study Appendix).	

Consistent with the PCAPD's recommendation that significance thresholds for GHG emissions be related to compliance with AB 32, the City threshold requires a minimum GHG emission reduction of 21 percent from projected 2020 BAU levels (i.e., 2005 levels) by 2020, based on the CARB's 2011 Scoping Plan. Thus, the project's 2005 levels were evaluated in order to determine the net decrease in the proposed project's GHG emissions over time. The same land use, trip generation rates, and other assumptions for the project were applied to the projected 2020 BAU modeling, with the exception of the environmental features incorporated into the proposed project's design, which would otherwise not be implemented under BAU conditions. As presented in Table 6 below, the projected 2020 BAU GHG emissions were estimated to be approximately 3,354.78 MTCO₂e.

Table 6 Projected 2020 BAU (2005) Operational GHG Emissions (MTCO ₂ e)
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¹ The PCAPCD does not recommend any specific operational lifetimes for use in amortizing construction-related GHG emissions; however, the SMAQMD, per their *Guide to Air Quality Assessment in Sacramento County*, suggests an operational life for a new residential building of 40 years. The estimates are derived from the State of California Executive Order D-16-00 and US Green Building Council's October 2003 report on *The Costs and Financial Benefits of Green Buildings*.

	CO ₂ emissions (MTCO ₂ e)
Annual Operational GHG Emissions	3,318.13
Construction GHG Emissions ¹	36.65
ANNUAL GHG EMISSIONS	3,354.78
¹ See Table 5; Amortized over the estimated 40-year project lifetime. Source: CalEEMod, March 2013 (See Raney Appendix).	

Consequently, the proposed project would result in approximately a 21.26 percent reduction in annual GHG emissions from the projected 2020 BAU level by 2020 ($[3,354.78 \text{ MTCO}_2\text{e} - 2,641.57 \text{ MTCO}_2\text{e}] / 3,354.78 \text{ MTCO}_2\text{e} \times 100\% = 21.26\%$). The reduction in GHG emissions over the years would be substantially attributable to the advancement of vehicle and equipment efficiency as well as more stringent standards and regulations as time progresses. It should be noted that although a reduction related to such attributes would occur for every development project, CalEEMod takes into consideration how much of each attribute is applied for each specific project based on the size of the project and associated land uses.

As stated previously, the proposed project would be required to comply with the minimum mandatory measures of the CalGreen Code, which would result in an estimated 1.8 percent reduction. The total reduction in GHG emissions is presented below in Table 7. As shown in the table, the proposed project would reduce operational GHG emissions from BAU levels by approximately 23.06 percent by the year 2020, which exceeds the threshold employed by the City of a 21 percent minimum GHG emission reduction.

Table 7 GHG Reductions (%)	
Feature	Percent Reduction (%)
Compliance with CalGreen Code ¹	1.80
Reduction from Projected 2020 BAU by 2020 ²	21.26
TOTAL Percent Reduction	23.06
¹ CARB estimates a three MMTCO ₂ e reduction by 2020 due to the CalGreen Code, which is approximately 1.8 percent of the State's reduction goal; thus, compliance with the Code would result in an approximate 1.8 percent reduction.	
² Percent reduction of project GHG emissions from projected 2020 BAU levels by 2020 (see calculation in text above).	

Conclusion

As stated previously, short-term construction GHG emissions are a one-time release of GHGs and are not expected to significantly contribute to global climate change over the lifetime of the proposed project. Even under a worst-case scenario, where construction GHG emissions are amortized over the lifetime of the project and incorporated into the estimated annual operational GHG emissions, the overall annual GHG emissions associated with the project would still be reduced by over 21 percent by the year 2020. It should be noted that the actual annual emissions over the lifetime of the project would be less than presented above, due to the one-time release of construction-related GHG emissions. Because the project would meet the City's 21 percent minimum reduction threshold, per the 2011 Scoping Plan, the project would not be expected to hinder the State's ability to reach the GHG reduction target or conflict with an applicable plan, policy, or regulation related to GHG reduction. Therefore, impacts related to GHG emissions and global climate change would be considered less than significant.

g) As discussed under response f) above, because the project would meet the City's 21 percent minimum reduction threshold which is consistent with the 2011 Scoping Plan, the project would not be expected to hinder the State's ability to reach the GHG reduction target or conflict with an applicable plan, policy, or regulation related to GHG reduction. Related impacts would be considered less than significant.

IV. Biological Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan,			X	

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				

Setting:

The property is located in the North Central Roseville Specific Plan (NCRSP) area. The biological resources within the specific plan area were previously evaluated in the NCRSP EIR. The loss of biological resources was considered to be significant and mitigation measures were adopted. Consistent with the Roseville General Plan, which has a no net loss of wetlands policy, preserve areas were identified within the NCRSP to allow avoidance and or the opportunity for creation of additional wetlands resulting in a no net loss of wetlands. It should be noted that NCRSP final EIR Mitigation Measure 3.4-24 also allows for the securing of off-site mitigation bank credits as an alternative to ensuring on-site no net loss of wetlands.

The project site is undeveloped but partially disturbed from previous rough grading activities associated with Phase 1 of the apartment project. The site is also mostly surrounded with urban development and is anticipated for development. Several potential biological resources have been identified on-site including wetlands, drainage channels, oak trees and non-native annual grasslands. The project would require the discharge of dredged or fill material into approximately 0.218 acres of waters of the United States in addition to the removal of four Blue oak trees and non-native annual grasslands. As described further below, because the original wetland permit has expired, the applicant is re-verifying the extent of on-site wetlands and pursuing a Letter of Permission from the U.S. Army Corps of Engineers (USACE) to re-authorize the previously permitted wetland fills.

Grading and drainage improvements are also necessary and may require drainage outfalls that are designed to discharge into the adjacent open space. Swales between outfalls and creeks are not automatically allowed in Preserves but they can be installed if they meet certain design criteria and are approved by the open space manager. During the improvement plan stage, the Public Works Department and Open Space Manager will review the proposed design to ensure that the design of the drainage outfalls/swales is consistent with design details contained in Appendix 15 of the Open Space Preserve Overarching Management Plan (OSPOMP).

As described in the Background Section, in 1997 the subject site was considered the second phase of the apartment project located directly to the north. At that time, a jurisdictional determination was granted by the USACE for Phases 1 and 2 of the Antelope Creek Apartments project site. As part of the original permit process, formal consultation with the U.S. Fish and Wildlife Service (USFWS) was completed and a Biological Opinion (BO) was issued under Section 7 of the federal Endangered Species Act (ESA). A USACE permit was obtained in 1997 for Phases I and II under Nationwide Permit #26 for direct impacts to waters of the U.S., including the fill of wetlands, within the project site. The landowner has stated that mitigation for wetland and vernal pool impacts was completed for both project Phases in 1997 consistent with both USACE and USFWS requirements.

A second jurisdictional delineation was conducted in 2004 for the development of a bike trail adjacent to the Phase 2 area of the project site by the City of Roseville. The area surveyed in the 2004 delineation covered a large portion of the Phase 2 area of the Antelope Creek Apartments project. Subsequently, the USFWS issued a BO in 2005 for the bike trail project and mitigation for indirect impacts to certain wetlands as a result of the bike trail project was completed in early 2006, consistent with USFWS requirements.

Because the original 1997 NWP 26 authorization has expired, the applicant Cresleigh Homes LLC (a.k.a. Grove Communities LLC) is taking steps to reauthorize proposed on-site wetland fills. This includes re-verifying the extent of on-site wetlands, comparing impacts of the original permit with those of the currently proposed project, confirming that mitigation has been implemented consistent with the original permit, and requesting that the USACE process the project via a Letter of Permission. To support this effort, in August 2012 Analytical Environmental Services (AES) biologists re-delineated project site wetlands and found the wetland features and proposed project impacts to be largely consistent with the results of the 2004 delineation. According to the Biological Resources Technical Memo (Technical Memo) prepared for the project by AES (Appendix B) the existing re-delineated on-site wetlands are highly disturbed, of poor quality, and have been fully mitigated consistent with the 1997 NWP 26 and related USFWS Biological Opinion. As such, the project applicant submitted an updated delineation to the USACE for verification. The submittal package included a request for project processing via a Letter of Permission to re-authorize the wetland fills formerly approved under the original NWP 26 and confirm related mitigation requirements.

Discussion of Checklist Answers:

a) According to the AES Biological Resources Technical Memo there are no occurrence records for special status species within or directly adjacent to the project site. The following discussion addresses sensitive and/or special status species that have potential to occur on the project site.

Vernal Pool Crustaceans, Special Status Plants and Western Spadefoot

The project site contains marginal vernal pool habitat that has a low potential to support three federally listed crustacean species: vernal pool tadpole shrimp (VPTS) (*Lepidurus packardii*), vernal pool fairy shrimp (VPFS) (*Branchinecta lynchi*), and conservancy fairy shrimp (CFS) (*Branchinecta conservatio*). According to the Biological Study prepared for this project by AES, there are no records of these vernal pool species within the project site. The vernal pools present within the study area are shown on Figure 4 below.

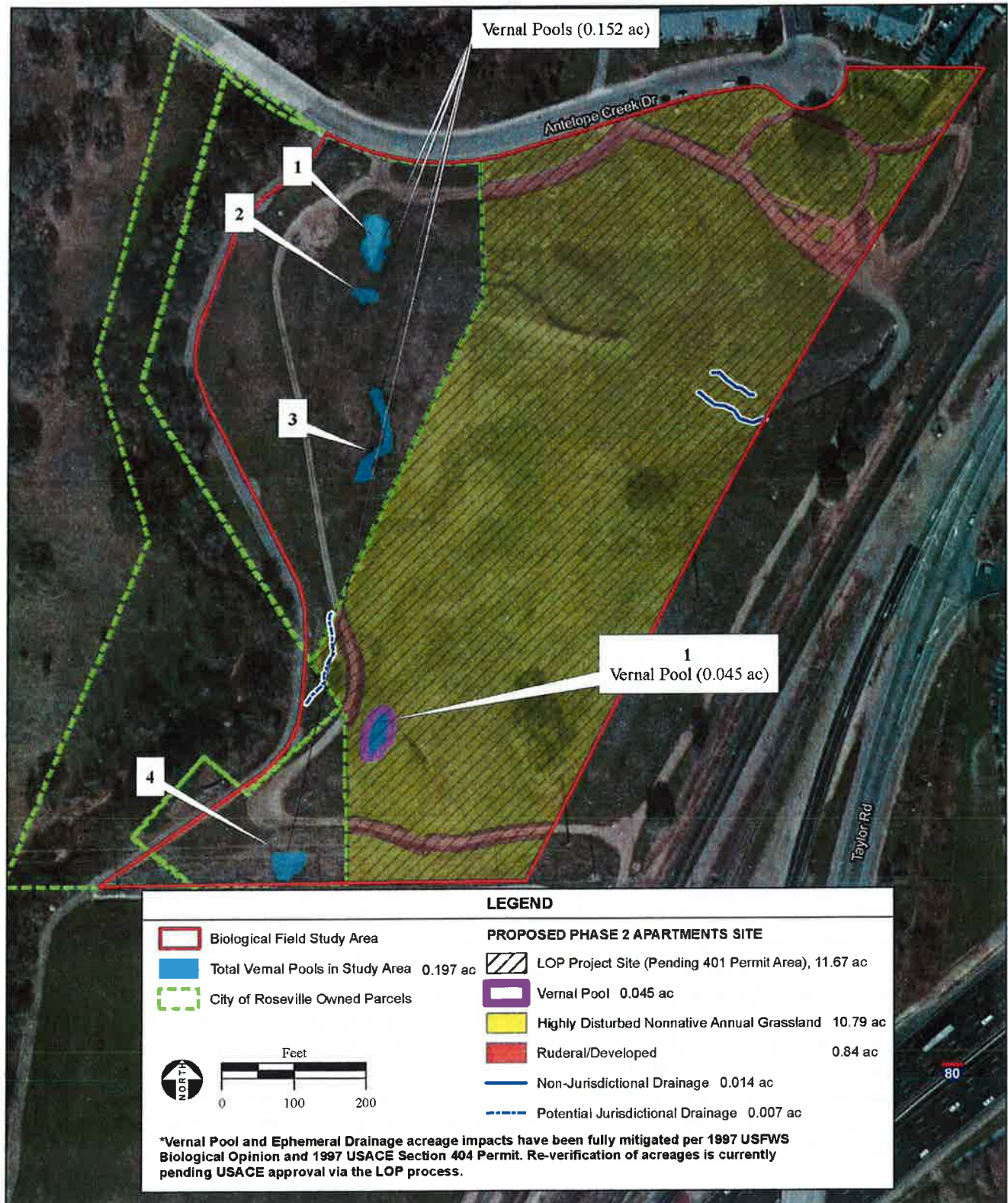


Figure 4: Habitat Types

According to the AES Technical Memo, Study Area vernal pools were observed to be of marginal quality and highly disturbed by truck traffic, partial grading of the site by equipment, and soil piling from past activities (See Appendix B, Attachment 2 – Photos). Although Study Area pools are also considered to be of marginal quality, protocol level surveys to determine shrimp presence have not

been performed. Furthermore, according to the USFWS BO issued for the Antelope Creek Bike Trail, all Study Area pools were considered potential crustacean habitat and indirect impact ESA mitigation was required for pools located within 250 feet of the 2004 bike trail project. Vernal pools are also considered potential habitat for certain special status plants and western spadefoots. Therefore, because the USFWS considered on-site vernal pools potential crustacean habitat and these pools would be directly impacted by project development, potential impacts to special status species, including vernal pool crustaceans, special status plants and western spadefoot, is considered potentially significant. This impact can be reduced to less than significant with implementation of Mitigation Measure BIO-1:

BIO-1: Ensure No Net Loss of Wetlands and Endangered Species Act Compliance. The Clean Water Act Section 404 permit process is the standard method for developing mitigation consistent with the Federal Endangered Species Act and no net loss policies for projects that affect wetlands and vernal pool species such as special status plants, vernal pool crustaceans, and western spadefoots. The City shall not issue a grading permit for the project until a current Clean Water Act Section 404 permit has been obtained from the USACE. The Section 404 Permit may be in the form of an Individual Permit, Nation Wide Permit, Letter of Permission or equivalent approval. Prior to issuance of a grading permit, copies of the approved Section 404 Clean Water Act Permit (or equivalent) shall be provided to the City. The permit submittal package shall demonstrate successful implementation of all related mitigation requirements (i.e., provide copies of mitigation credit purchase receipts and/or monitoring reports that demonstrate mitigation success criteria has been met).

Raptors and Migratory Birds

According to the AES Technical Memo, the non-native annual grasslands on the project site are highly disturbed and of marginal quality; although this area may be used by raptor species, such as Swainson's hawk (*Buteo swainsonii*) for foraging. Swainson's hawk is recognized as a state threatened species. Swainson's hawk was not observed utilizing the project site during the biological survey performed in August of 2012 by AES biologists. The loss of a relatively small amount of low quality, highly disturbed on-site foraging habitat does not represent a significant impact to Swainson's hawk foraging habitat according to the AES biologist.

There are five Blue oak trees (*Quercus douglasii*) on the project site, four of which will be removed as part of this project. These oak trees may be used by raptors or other migratory birds for nesting. According to the study prepared by AES, the nearest occurrence record for a Swainson's hawk nest occurs 4.5 miles to the west on the other side of the downtown City of Roseville area from the project site. Construction activities, including localized increases in ambient noise levels could result in the disturbance of nesting Swainson's hawks or other migratory birds if these activities occur during the breeding season (generally between February 15 and August 30) and nests are present in or adjacent to the construction area. These disturbances could cause nest abandonment and/or death of young or loss of reproductive potential at active nests located on or near the project site. Because Swainson's hawk is a state-listed species and is protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFG) Section 3503.5, related nesting impacts are potentially significant. Implementation of Mitigation Measure #BIO-2 would reduce impacts to raptor and migratory bird nesting to less than significant.

BIO-2: If project activities are scheduled between February 1 and August 31, CDFW recommends surveys and avoidance measures for nesting raptors and migratory birds. With respect to surveys for nesting bird and raptor species, CDFW recommends that the project specifies: 1) nest surveys be conducted no earlier than 14 days prior to tree removal and/or breaking ground (surveys should be conducted a minimum of 3 separate days during the 14 days prior to disturbance), 2) in the event that nesting birds are found, the project applicant should consult with CDFW and obtain approval for nest-

protection buffers prior to tree removal and/or ground disturbing activities, and 3) nest protection buffers will remain in effect until the young have fledged. All nest protection measures should apply to off-site impacts and within 500 feet of project activities. If a lapse in project-related work of 15 days or longer occurs, another focused survey and, if required, consultation with CDFW, will be required before project work can be reinitiated.

b) The project would not have a substantial adverse effect on riparian habitat because the project site is located outside of the riparian corridor of Antelope Creek. Consequently there would be no impact to riparian resources. The project would impact on-site vernal pools; however, related impacts would be mitigated in accordance with Mitigation Measure #2 above. Consequently, with mitigation there would be no impact to riparian habitat or any other sensitive natural community identified in local or regional plans, policies or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. This impact is less than significant and no additional mitigation is required.

c) Project site wetlands subject to regulation under Section 404 of the Clean Water Act were delineated by AES in 2012 and are shown in Figure 4 above. As shown, on-site wetlands include 0.045 acres of vernal pool and 0.007 acres of ephemeral drainage for a total of 0.052 acres. The AES delineation has been submitted to the USACE for verification including a request for processing proposed wetland fills via a Letter of Permission.

As discussed above in the background section and in response a) above, the project site is Phase 2 of the apartment project located directly to the north. On September 15, 1997 the USACE issued a NWP 26 under Section 404 of the Clean Water Act authorizing the fill of 0.64 acres of wetlands in both project phases. The landowner has indicated that mitigation for all wetland impacts (Phases 1 and 2) was completed in 1997 consistent with the original NWP 26.

The filling 0.052 acre of wetlands subject to regulation by the USACE is considered a potentially significant impact. This impact can be mitigated to less than significant by implementing Mitigation Measure #BIO-1 above.

d) The project site consists primarily of non-native annual grassland which supports a single vernal pool and three ephemeral drainages. Vernal pools and each of the on-site ephemeral drainages lack the habitat characteristics to support fish. Based on the study provided by AES, no wildlife corridors or nursery sites are present within the project site. The nearest migratory corridor in the project vicinity is along Antelope Creek which follows a meandering alignment approximately 40 to 400 feet west of the project site. Antelope Creek and its associated riparian zone do function as a fish and wildlife migratory corridor. However, this corridor is located off-site and its migratory functions would not be impacted by the proposed project. Related impacts are less than significant and no mitigation is required.

e) Five Blue oak (*Quercus douglasii*) trees are located on site totaling 185 inches diameter at breast height (dbh). Oak trees are considered protected trees in the City of Roseville and are governed by the City's Tree Preservation Ordinance (Chapter 19.66 of the Zoning Ordinance). The project is required to comply with the City's Tree Preservation Ordinance.

Four oak trees totaling 167 inches are proposed for removal. Consistent with the City's Tree Preservation Ordinance, the applicant can mitigate for the oak trees being removed either through payment of in lieu fees, site plantings, or a combination of both. One oak tree, Tree #45, will remain and will sustain minor encroachment of 8.5 percent into the protected root zone from construction activities. The Native Oak Tree Impact Assessment (see Appendix C) prepared for Tree #45 by Sierra Nevada Arborists indicates the tree is in poor to fair condition; however, the encroachment into the protected root zone will be minor. The project includes conditions of approval, consistent with the City's Tree Preservation Ordinance, which are intended to minimize impacts of encroachment. As discussed in the Uniformly Applied Policies and Standards section above, the Tree Preservation Ordinance is

uniformly applied to development projects and the City has adopted findings that the Ordinance substantially mitigates impacts to native oak trees. Therefore, related impacts are considered less than significant.

f) The project will not conflict with any conservation plans because there are no adopted plans that apply to the project site; therefore, the impact is less than significant.

V. Cultural Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historic resource as defined in Section 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?			X	
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d) Disturb any human remains, including those interred outside of formal cemeteries?			X	

Discussion of Checklist Answers:

a-d) Archaeological surveys were performed for the entire NCRSP area and the findings were used to support the NCRSP EIR. The evaluation utilized field surveys of the Specific Plan area and a record search with the North Central Information Center of the California Archaeological Inventory. These surveys revealed recorded sites of archaeological significance within the NCRSP; however, no cultural resources were identified on Parcel 46. Sites within the NCRSP that were deemed valuable were incorporated into open space within the plan area as mitigation. City staff walked the site in March 2013 and did not identify any cultural resources on-site or within the vicinity of the project site.

Although no archaeological resources are known to be present on the project site, there is a possibility that activities during construction could disturb unknown archeological or paleontological resources beneath the surface. The City of Roseville Construction Standards (Resolution 01-208) requires that “[i]n the event that previously unidentified cultural resources are present on a project site, impacts to those resources would be prevented by the requirements of the City’s 2013 Design/Construction Standards. The Construction Standards require that “If signs of an archeological site, such as any unusual amounts of stone, bone, or shell are uncovered during grading or other construction activities, work shall be halted within 100 feet of the find and the City’s Environmental Coordinator shall be notified immediately. A qualified archaeologist shall be consulted for an on-site evaluation. Additional mitigation may be required by the archaeologist.” As discussed in the Uniformly Applied Policies and Standards section, the City’s Construction Standards are uniformly applied to development projects throughout the City and consequently mitigates potential impacts to unknown buried archaeological and/or paleontological resources. Therefore, related impacts are considered less than significant and no mitigation is required.

VI. Geology and Soils

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			X	
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located in a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X

Discussion of Checklist Answers:

a) The project will not expose people or structures to potential substantial adverse effects involving seismic shaking, ground failure or landslides.

i-iii) The project site is located in Roseville, which is within Placer County. The California Department of Mines and Geology classifies the South Placer area as a low severity earthquake zone. No active faults are known to exist within the County. The project site is considered to have low seismic risk with respect to faulting, ground shaking, seismically related ground failure and liquefaction. Therefore, less than significant impacts would

occur in association with rupture of a known earthquake fault or seismic related ground failure.

- iv) Landslides typically occur where soils on steep slopes become saturated or where natural or manmade conditions have taken away supporting structures and vegetation. The existing and proposed slopes are not steep enough to present a hazard during development or upon completion of the project. In addition, during construction, measures would be incorporated to shore slopes and prevent potential earth movement. Therefore, impacts associated with landslides are considered less than significant.

b) Grading activities require approval of a grading permit from the Engineering Division of the Public Works Department. The grading plan will be reviewed for compliance with the City's Improvement Standards, including the provision of proper drainage, appropriate dust control and erosion control measures. Grading and erosion control measures will be incorporated into the required grading plans. A geotechnical study will also be required prior to building permit issuance to more fully address other erosion hazards. As conditioned, the project will be consistent with the City's Improvement Standards. Therefore, the impacts associated with disruption, displacement, and compaction of soils associated with the development is considered less than significant.

c-d) As noted above, the project site is not located in a sensitive geologic area and does not expose people to potential geologic impacts. Additionally, such impacts are considered to be less than significant since new buildings and structures are required to comply with all applicable building codes. The City of Roseville Building Department will review construction plans before a building permit is issued and the Engineering Division will review and approve all grading plans to insure that all grading and structures would withstand shrink-swell potentials and earthquake activity in this area.

e) No septic tanks are proposed as part of the project. All wastewater generated by the project will be required to be collected in a piped system and conveyed to the Dry Creek Wastewater Treatment Plant. Therefore, no impact to soils relative to supporting the use of septic tanks would occur.

VII. Hazards and Hazardous Materials

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing in the project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	

Discussion of Checklist Answers:

a-c) The California Health and Safety Code and local City Ordinances regulate the handling, storage, and transportation of hazardous and toxic materials. The California Health and Safety Codes require a Risk Management and Prevention Program (RMPP) for those uses that handle specified quantities of toxic and/or hazardous materials. Typically, multifamily residential communities do not store or generate hazardous materials in quantities that require a RMPP and it is not anticipated that this project will exceed these quantities; however, in the case that they did a RMPP would be required.

As this is a multifamily development, the handling of toxic or hazardous materials in amounts greater than typical household use is not anticipated within each of the apartment units. For the business operations side of the apartment community (pool and grounds maintenance) where toxic or hazardous materials are handled, a Hazardous Materials Management Program (HMMP) will be required if quantities exceed specified thresholds. Furthermore, if a HMMP is triggered, business owners must file a site-specific business plan with the City Fire Department before a new building is occupied. All plans would specify what to do in the event of an accident, and which transportation routes would be used. It is not known at this time if any hazardous materials will be used or stored on-site that exceed specified quantities. However, any potential impacts as a result of the use or storage of hazardous materials are reduced to less than significant levels with implementation of the RMPP, HMMP and business plan requirements.

The nearest schools to the project site are Catherine Gates Elementary on Trehowell Drive and Independence High School on Berry Street, both approximately a mile and a half away. No new schools are proposed within a quarter mile of the site. Any potential impacts as a result of the use or storage of hazardous materials are reduced to less than significant levels with implementation of the RMPP, HMMP and business plan requirements.

d) The project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, and therefore would not create a significant hazard to the public or the environment. Therefore, the project would have no impact.

While the project site is not located on a list of hazardous materials pursuant to Government Code Section 65962.5, the project site is located directly north and adjacent to a closed landfill owned by the City of Roseville. The landfill is approximately 100 acres and was closed in 1994. Landfills produce methane gas and therefore require monitoring in accordance with requirements in Title 27 of the California Code of Regulations. In particular, owners of landfills are required to implement monitoring and if necessary, subsurface gas migration control programs to ensure that methane levels in soils at the landfill property boundary do not exceed specified thresholds that would result in a public safety hazard at adjacent (non-landfill) properties.

In 1999 the City hired CH2MHILL to study the site and recommend mitigation. CH2MHILL is currently under contract to monitor the landfill on behalf of the City. CH2MHILL conducts all the required ground water and air quality sampling and reporting.

Title 27 requires that any building constructed on a landfill property and within 1,000 feet of buried wastes include provisions to mitigate against and monitor for methane intrusion into those structures. The City has the authority to impose restrictions on adjacent non-landfill properties through the land use permitting process to protect the public health and safety.

As buildings are proposed to be located within 1,000 feet of the boundary of a landfill, the project applicant has been notified that they must hire an engineering consultant to design measures to address public health and safety due to proximity to the closed landfill and that prior to issuance of improvement plans or building permits, the project requires review and approval by Placer County Health. Furthermore, the project applicant is required to disclose to residents the presence of the adjacent closed landfill to ensure residents are informed of its proximity. Therefore, with mitigation, the project's impacts to hazards and hazardous materials are less than significant.

HAZ-1: Due to the fact that the project is located adjacent to a closed landfill, the possibility of gas migration to the property exists. The applicant is therefore required to investigate and develop a plan to mitigate potential gas migration to the site, in accordance with prudent engineering practice and if necessary as determined by investigation, applicable standards for construction within 1,000 feet of the boundary of any disposal area. The purpose of this plan is to protect the future residents from possible future gas migration. The applicant's plan will be reviewed and approved by the city and its consultants prior to issuance of improvement plans or building permits.

HAZ-2: The project applicant shall disclose to residents within the lease agreement the proximity of the closed landfill south of the project site.

e-f) The project site is not located within an airport land use plan or within two miles of a public or private airport or airstrip. Therefore, the project would have no impact.

g) This project is located within an area currently receiving City emergency services. Fire Station 6 is located approximately 1.5 miles away and would be able to serve the site within the City's standard response time. The project will increase the demand for emergency services but that demand has been

incorporated into the existing emergency response plans, and therefore will have a less than significant impact to the City's Emergency Response or Management Plans. With the addition of the Pearl Creek Project, Appendix D identifies compliance with City standards for response time.

h) The project site is surrounded by existing and planned urban development and open space areas. Although the project site is adjacent to City owned open space, the properties are not considered wildlands. The City of Roseville maintains the open space and preforms annual weed abatement through the City's Open Space Operations and Maintenance Program. These weed control measures reduce the potential occurrence of wildfires in the vicinity of the project site to less than significant impact levels.

VIII. Hydrology and Water Quality

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted water?			X	

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?			X	
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?			X	
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j) Inundation by seiche, tsunami, or mudflow?			X	

Setting:

Placer County Flood Control and Water Conservation District (District) and the Placer County Water Agency (PCWA) have proposed a regional flood control improvement project called Antelope Creek Flood Control Project which is in proximity to the project site. The project is located along Antelope Creek, downstream of the Highway 65 overcrossing, upstream of the Atlantic Street overcrossing, and adjacent to the west side of the Pearl Creek Apartments site. The project will provide flood control and flood damage reduction benefits to repeatedly damaged areas of downtown Roseville through the design and construction of several on-channel weirs along the reach of Antelope Creek. The project will reduce peak flood flows over a wide range of flood events, enhance existing riparian corridor ecosystems, and improve water quality through groundwater recharge and natural treatment of temporarily stored flood waters within the floodplain.

The Antelope Creek Flood Control Project's design includes two in-channel weirs on Antelope Creek, which will detain flood flows in order to reduce downstream flow rates. The weirs will cause an increase in water surface elevation upstream of the weirs during large storm events. In order to maintain the City's freeboard requirements of 2 feet between the 100 year water surface elevation of the future, fully-developed condition of the watershed and the proposed building pad elevations, the Pearl Creek Apartments building pad elevations adjacent to the creek will be elevated to 181.94 feet (NGVD 29). This condition affects the building pads near the southwest corner of the property, and will require the project applicant to import approximately 4,500 cubic yards of earthen material to raise the building pads to the required elevation. Separate environmental review per CEQA will be conducted by the County as it relates to this Flood Control Project.

Discussion of Checklist Answers:

a, c-f) The proposed project will result in over-covering of soils with impervious surfaces such as asphalt paving and structures. This will result in a reduced rate of absorption of surface water runoff and will increase water being directed into the City's drainage system. The City evaluated the potential impacts related to increased runoff in the General Plan EIR. The General Plan EIR assumed full build-out of the site and other properties in the City and evaluated downstream flooding impacts resulting from increased surface water runoff. The General Plan EIR found that, with the implementation of City standards and programs, the potential flooding impacts would be less than significant.

The project is subject to the Clean Water Act (CWA) with regards to the discharge of pollutants into waters of the U.S. Should it be determined the project will result in direct discharges into surface waters, the developer will be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. As a condition of approval, all drainage will be collected through an on-site storm drain system and directed to the City's storm drain system. Prior to discharge from the site, the storm water shall be treated with appropriate storm water pollution treatment device(s) as required by the City's Stormwater Quality Design Manual.

The City's March 2003 Stormwater Management Plan (SWMP) contains a comprehensive set of priorities, activities, and strategies that comprise the City's minimum control measures and best management practices (BMPs) intended to address Phase II requirements. The goal is to reduce pollutants in stormwater to the maximum extent practicable. The SWMP identifies activities to implement the following six minimum control measures required under the City's General Stormwater Permit: public outreach, public involvement, illicit discharge detection and elimination, construction site runoff, new development and redevelopment, and municipal operations. The SWMP includes minimum required control measures for new development, such as structural and non-structural control strategies, and long-term operation and maintenance of controls. It also includes specific guidance for volume and flow control design parameters for structural controls such as detention ponds, vegetative areas, and runoff pretreatment.

The City adopted the "Urban Stormwater Quality Management and Discharge Control Ordinance" (Stormwater Ordinance) (Ord. 4395 § 2 (part), 2006.) in order to establish a regulatory framework to implement construction and post-construction stormwater controls. This Ordinance is a uniformly applied development policy or standard applicable to this project. In March 2007, the City adopted the Stormwater BMP Guidance Manual for Construction, and in May 2007, the City adopted the Stormwater Quality Design manual. The City has the authority during plan checks, as well as site inspections, to enforce the Stormwater Management Plan. Prior to final approval, the owner of any stormwater control structure will be required to submit an operations and maintenance manual and a proposed maintenance schedule. Additional detail on post construction controls is provided in the SWMP which is available on the City's website (www.roseville.ca.us).

The City also maintains policies and guidelines regarding grading, erosion control, inspection, and permitting. Section 16.20.040 of the Roseville Municipal Code regulates stockpiling and grading, and addresses conditions under which permits and grading plans are required. Section 16.20.070 identifies grading plan performance standards. These policies and guidelines, as set forth in the City Code, constitute uniformly applied development policies or standards applicable to this project.

A grading plan shall comply with the following criteria:

- A. Fill or cut slopes with a height exceeding five feet shall not exceed a slope of 4:1.

Section 16.20.020 requires that all grading be performed in accordance with either City of Roseville Improvement Standards or Title 16 of the Roseville Municipal Code, whichever is more restrictive. The Public Works Department requires that a grading permit be obtained prior to grading activities. At that time, the applicant must submit, for review and approval, Improvement and/or Grading Plans along with a site-specific Stormwater Pollution Prevention Plan (SWPPP). Slopes or banks along creek channels must be designed with proper slope protection to prevent soil erosion and channel-bank undercutting. The City has also adopted standards that would apply to projects within public right-of-way or easements.

Section 10 of the City's Improvement Standards identifies hydrologic and hydraulic methods to determine peak flow rates and criteria for identifying appropriate design and capacity for storm drainage infrastructure. Design criteria include requirements for channels and outfall design, cross culverts, inlet and outlet structures, and piping materials.

Because the site would disturb more than one acre, a Storm Water Pollution Prevention Plan (SWPPP) from the Regional Water Quality Control Board is required. Implementation of the SWPPP would ensure that the project will not result in the release of materials that could affect water quality. The SWPPP, combined with grading permit best management practices (BMP's) like erosion controls with hydro-seeding and mulching, and sediment control with fiber rolls and sediment basins, would serve to mitigate storm water erosion and related water quality impacts. Residual effects would be less than significant and no additional CEQA requirements would be required.

b) The project will rely on domestic water from the Roseville municipal system and no groundwater withdraw is proposed. The development of the site with impervious surfaces will reduce the area available for infiltration of surface water. Ground water occurs between 70 and 100 feet below the surface. As analyzed in the NCRSP EIR, due to the limited permeability of the clay soil over hardpan, surface water will have limited permeability to the ground water depth and therefore the impact from the project on groundwater recharge will be less than significant.

g-i) A small portion of the project site totaling approximately 256 square feet is currently located in the 100 year Special Flood Hazard Area. This area is located along the property's western boundary line south of building 4 and west of the serenity garden. The area is called out as a Floodplain easement on the site plan and is entirely outside of any building footprint. Some grading may occur within this area; however, the site and grading plans have been reviewed by Public Works Engineering staff and determined that neither the flood hazard area nor the proposed grading will have any adverse impacts. People and structures would not be exposed to hazards resulting from a 100-year flood event and build out of the project site would not significantly increase flood elevations beyond the existing condition. Impacts related to the 100 year Special Flood Hazard Area are considered less than significant.

j) The project site is not located in the vicinity of a large body of water that could generate a seiche or tsunami. The project site and immediately adjacent properties generally have flat topography that would not be expected to be subject to substantial risk of mudflow; however, an open space corridor with slopes in excess of 20 percent (covered by a slope easement) is located within the general vicinity. Therefore, this is considered to have a less than significant impact on the proposed project.

IX. Land Use and Planning

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
c) Conflict with any applicable habitat conservation plan or				X

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
natural community conservation plan?				

Discussion of Checklist Answers:

a) The project will not divide an existing community; therefore, no impact would occur.

b) Land use conflicts can arise when new development or land use causes impacts on persons or the physical environment in the vicinity of the project site, or conditions on or near the project site could have impacts on the persons or development introduced onto the site by the new project. Both of these circumstances are evaluated when considering land use compatibility.

The project site has a zoning designation of BP/SA-NC and a land use designation of BP. Subject to approval of this project, the site would be rezoned to R3/SA-NC and would have a land use designation of High Density Residential (HDR). Per the City's General Plan, R3 is an implementing zone of HDR.

The site has been zoned BP/SA-NC since the establishment of the plan area in 1990. Since that time no development applications have been submitted for uses permitted under the existing zoning. The site's location at the terminus of Antelope Creek Drive, which has no through traffic, may be a contributing factor. The General Plan indicates that HDR land use designations should be applied to lands that are adjacent to transit linkages and in close proximity to commercial services. As part of this project a dial-a-ride transit stop will be located on-site along Antelope Creek Drive providing public transit services to all residents on-site as well as the apartment community across the street. Additionally, the Creekside Ridge Shopping Center, which provides regional shopping opportunities, is located less than a quarter mile to the west from the project site which residents can walk to. For these reasons, this project site is well suited for multifamily use.

The site's gross acreage is 11.61 acres; however, as permitted by the General plan, gross developable acreage can account for netting out land not designated for residential uses (i.e. overhead power lines and easements). This site is encumbered by a number of easements and required setbacks such as a floodplain easement, various utility easements as well as required setbacks from Union Pacific Railroad and the closed Roseville Landfill, which affect the buildable area. Therefore, the developable acreage for the site results in 10.87 net acres, which provides for 20.6 dwelling units per acre.

The site's proximity to multifamily residential to the north and parkland and open space to the west and south provides for compatible land use per the General Plan's Land Use Element. To the east is the UPPR. The potential noise impacts were evaluated as described in the Noise Section of this report and were determined to be in compliance with the General Plan Noise standards. The landfill to the south has a general plan designation of Open Space. As evaluated under the Hazards and Hazardous Materials Section of this report, the applicant is required to investigate and develop a plan to mitigate potential gas migration to the site in accordance with all applicable standards for construction within 1,000 feet of the boundary of the closed landfill to the south. Based on these reasons, conflicts with land use plans or policy remains less than significant.

c) There are no Habitat Conservation Plans or Natural Community Conservation Plans covering the project site. Therefore, no impact would occur.

X. Mineral Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X	
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			X	

Discussion of Checklist Answers:

a-b) The NCRSP EIR document identifies the project site as being located within the MRZ-3 zone based on the California Department of Mines and Geology survey lists. The survey indicates that most lands located east of Antelope Creek within the plan area are within the MRZ-3 zone. This designation means that the significance of mineral deposits within this area cannot be determined based on available data. The specific plan indicates that an agency may choose to further evaluate a property with a MRZ-3 designation to determine the significances of mineral deposits within the area; however, this is typically undertaken by an owner who is interested in developing the potential resource.

Impacts to mineral resources due to buildout of the NCRSP, including the project site, were found to be less than significant by the NCRSP final EIR and no mitigation was required. Mineral resource conditions of the project site have not changed since preparation of the NCRSP EIR and consequently the impact remains less than significant. No mitigation is required.

XI. Noise

Would the project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) A substantial temporary or periodic			X	

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
increase in ambient noise levels in the project vicinity above levels existing without the project?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

Discussion of Checklist Answers:

a-d) A noise study was prepared for this project dated July 10, 2012 along with two supplemental letters dated July 11, 2012 and August 20, 2012 providing clarification on the report which are provided as Appendix E to this Initial Study. The noise study evaluated the potential long-term impacts from noise generated from activities occurring adjacent to the project site (Taylor Road, Interstate 80, and train activity on the Union Pacific Railroad (UPRR)). City staff has reviewed the Noise Study, which was prepared by j. c. brennan and associates and accepts the conclusions in the noise study.

As noted above, the primary long-term activities that could generate noise are from Taylor Road, Interstate 80, and train activity on the UPRR. The UPRR is located in closest proximity to the project site and is approximately 150 feet from the project site's eastern property line. Taylor Rd. runs parallel to UPRR approximately 260 feet from the project site and Interstate 80 is located beyond that approximately 660 feet away.

The General Plan Noise Element contains standards related to transportation-related noise sources. The standard for outdoor activity areas for residential uses is 60 dB Ldn. Up to 75 dB Ldn would also be acceptable if interior noise levels can be met and application of the best-available noise reduction measures has been applied to the project. The project contains two types of outdoor areas, common areas such as the pool, BBQ areas, patio space, turf areas, serenity garden and playground and each individual patio unit. For purposes of the noise study, and as allowed by the General Plan, the common outdoor activity areas are used in the evaluation of exterior noise. While the individual patios do meet the 75 dB Ldn threshold for exterior noise, as shown in Table 4 of the noise study, the common activity areas were the focus of the study. The results of the common outdoor areas ranged from 50 to 59 dB Ldn, which meets the General Plan standards.

The General Plan standard for interior noise level is 45 dB Ldn. The study indicates that interior noise levels comply with General Plan standards with first story units not exceeding 40 dB Ldn and second/third story units not exceeding 44 dB Ldn. These values are based on standard construction practices, which provides for an exterior-to-interior noise level reduction of 25dB.

The General Plan also requires an evaluation of sleep disturbance when a noise source consists of intermittent single events, such as a train. While this evaluation for sleep disturbance is required, no standard for acceptable levels has been adopted. The noise study indicates that extensive studies on sleep disturbance related to single intermittent effects, have been conducted; however, the range in test subjects is wide ranging which makes establishing a significance threshold challenging. The noise study indicates that while there are two means of analysis available (the

American National Standards Institute and the Federal Interagency Committee on Noise), the results of the methodologies vary significantly. While the level of sleep disturbance for this project based on ANSI and FICAN range from 5 percent to 33%, the interior noise level was still shown to be in compliance during the train events. Based on the noise analysis, long term noise impacts are considered less than significant.

During the construction phase of the project, noise from construction activities would add to the noise environment in the immediate vicinity. Typically, construction noise levels are higher than on-going project operation noise levels. The closest residential use is the Preserves Apartments directly across Antelope Creek Dr. approximately 40 feet away. However, Noise Ordinance regulations allow for private construction between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and 8:00 a.m. and 8:00 p.m. Saturday and Sunday provided that all construction equipment shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order. With adherence to the Noise Ordinance, which is a uniformly applied development policy or standard within the meaning of CEQA Guidelines section 15183, impacts from construction noise are found to be less than significant.

e-f) The project site is not located within two miles of an airport, or within an airport land use plan and therefore would have no impact.

XII. Population and Housing

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Discussion of Checklist Answers:

a) The project will provide for 224 new residential units within the City. Based on the current 2.61 persons per household factor, the project will generate an additional 585 new residents. The introduction of population to the area is not a significant impact by itself, but can have an impact on other factors such as traffic, air quality, public services, and land use. These impacts have been analyzed in the respective sections of this study.

The project will generate short-term construction jobs and a few long term jobs. The General Plan Land Use Element and the Housing Element include goals and policies to address the City's jobs/housing balance. The General Plan assumed Roseville to be a regional importer of jobs and that there would be more jobs than housing.

The Housing Element addresses the need for housing and includes measures to add housing units in the City. The Housing Element identified this project site as a rezone site from BP/SA-NC to R3/SA-NC which would aid in increasing the housing supply within the City. The Housing Element is current, has been deemed to comply with State housing regulations by the California Department of Housing and Community Development, and has been adopted by the Roseville City Council. The addition of 224 units to the housing stock in the City of Roseville will increase the supply of housing within the City of Roseville which furthers the goal of balancing the jobs to housing ratio. The addition of these units will improve the supply of housing (including affordable housing) and will not have an adverse impact on the population and housing within the City. Based on these findings, the project will have a less than significant impact on population and housing.

b-c) The project site is currently undeveloped and therefore will not cause displacement of any existing housing or people. Therefore, there will be no impact.

XIII. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Fire protection?			X	
b) Police protection?			X	
c) Schools?			X	
d) Parks?			X	
e) Other public facilities?			X	

Discussion of Checklist Answers:

a) Residents of the development may require the services of the Roseville Fire Department (RFD) in the event of an emergency. The RFD operates eight fire stations within the City of Roseville and a ninth is under construction in West Roseville. The closest station to the project site is Fire Station 6 at 1430 E. Roseville Pw., which is 1.5 miles away. RFD has reviewed the project and mapped Fire's response times to the area over the last two years and determined that the average response time is 3.89 minutes. The Fire Department has verified that the project site is well within the area for a four minute or less response time which is consistent with the General Plan's standard of four minutes or less response time 80 percent of the time. Based on this, it is determined that there is adequate service available to meet the anticipated demand for services to the project site and the impact to fire services will be less than significant.

The project site is located within an area that is mostly built out which already has a Fire Station. This site was anticipated by the General Plan to have a demand for services under BP uses and therefore capacity for services has been assumed by the General Plan. The change in land use from BP to HDR does not change the response time for services as described above. Furthermore, the General Plan indicates that "there are no established standards for population served by a fire station" and "increased population does not necessarily affect demand for new fire stations". In this case, Fire Station 6 provides emergency services to the site and as noted above response times are consistent with

General Plan standards; therefore, the proposed project will not necessitate the construction of a new facility.

The development of this project would require adequate water pressure in the water lines and must comply with the Uniform Fire and Building Codes used by the City of Roseville to ensure fire protection measures are in place and lessen the demand on Fire service. Additionally, adherence to the uniformly applied fees and construction standards as well as annexation into Community Facilities District (CFD) #3 for fire, police and library services per the Development Agreement between the City and the landowner are adequate to mitigate potential impacts to fire services.

b) Residents of the project may also require the services of the Roseville Police Department in the event of an emergency. The site is within an area of the City that is currently receiving police services. As noted above this site was anticipated by the General Plan to have a demand for services under BP uses and therefore capacity for services has been assumed by the General Plan. The change in land use from BP to HDR does not change the availability of police services as described above. Also as described above, this project will be required to annex into an existing CFD for services and therefore the property will be assessed to cover the cost of police services for residential uses. Lastly, as part of the DRP evaluation the project will be required to incorporate the City identified Crime Prevention through Environmental Design (CPTED) elements identified in the uniformly applied Community Design Guidelines, which will assist in reducing the need for police services. With adherence to these guidelines, any potential impacts to police services will be reduced to less than significant.

c) Residential developments have direct impacts to local schools by inducing growth. The project site is located in the Roseville City School District and the Roseville Joint Union High School District and students would attend Stone Ridge Elementary, Eich Intermediate or Roseville High Schools. Based on the current generation rates for these districts the following number of students would be anticipated as a result of this project:

Grade	Student Generation Rate	Students Generated
K - 6 th	0.166	37 students
7 th - 8 th	0.036	8 students
9 th - 12 th	0.054	12 students

The applicant for this project is required to pay school impact fess at a rate determined by state law and as adopted by local school districts. School fees will be collected prior to the issuance of building permits. Pursuant to state law, the payment of these fees is deemed to mitigate the school-related impacts of the project to a less than significant level.

d) The City's General Plan Parks and Recreation policies calculate the need for park facilities based on the residential population. Because this is a residential development, the project generates a park requirement of 5.12 acres of developed parkland for city-wide parks, neighborhood parks and open space. The developer will be required to provide for the 5.12 acres of parkland (land dedication and park construction) that this project generates through payment of fees. The fees collected will be used to construct new park improvements or to rehabilitate existing park facilities within the plan area to accommodate the increase in population. Based on this, the potential impact to parks is considered less than significant.

e) This property has been identified for development since the NCRSP was established in 1990. While the development was assumed as BP and not residential, the site was anticipated to receive city services. Aside from the discussion provided above related to fire, police, schools and parks, no other public services have been identified. The impacts associated with this project upon public services are considered less than significant.

XIV. Recreation

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

Discussion of Checklist Answers:

a) The proposed project will provide for an additional 585 new residents based on a population factor of 2.61 persons per unit. The increase in the population within this area would increase the use of existing park and recreation facilities. General Plan standards are in place to mitigate the impact that an increase in population can have on park and recreation facilities. Parks and Recreation staff have reviewed the proposed project and determined that this project will generate a need for an additional 5.12 acres of parkland (1.7 acres each of neighborhood, citywide, and open space). The applicant will provide for this through fees. The fees collected will be used to construct new park improvements or to rehabilitate existing park facilities within the plan area to accommodate the increase in population. Therefore impacts to recreation facilities are considered less than significant.

b) The project includes on-site recreational amenities which include a swimming pool, indoor gym, outdoor patio space, BBQ areas, turf area, serenity garden and children's playground. This is consistent with the City's Community Design Guidelines which require site amenities such as these to support the project and encourage community activity and use. These amenities are located throughout the project site, are customarily associated with multi-family developments and serve to provide recreation opportunities for residents so they are not solely reliant on City facilities.

As noted in section a) above, the project generates the need for an additional 5.12 acres of parkland (land dedication and park construction). The applicant will pay in lieu fees for these park areas. When a park site is identified for development the process will include environmental review in accordance with CEQA at that time. Therefore, impacts related to new recreational facilities is considered less than significant.

XV. Transportation/Traffic

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
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Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?			X	
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads and highways?			X	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?			X	
f) Result in inadequate parking capacity?			X	
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?			X	

Discussion of Checklist Answers:

a-b) The City of Roseville Public Works Engineering Division prepared a traffic assessment to determine the CEQA impacts of the proposed project. The P.M. peak level of service at adjacent intersections was analyzed using existing plus project conditions. The adjacent intersections that were evaluated included: Galleria Bl./Antelope Creek Dr., Roseville Pw./Galleria Bl. and Roseville Pw./Creekside Ridge Dr. The results of the assessment indicated that the addition of the proposed project to the existing conditions (existing development currently on the ground) would not adversely impact the level of service of any of the adjacent intersections. A copy of the analysis is provided as Appendix F.

Furthermore, another scenario was analyzed by the Engineering Division that evaluated the impact of the proposed project in comparison to the City's Buildout/2025 CIP Model which takes into account anticipated development that is not currently existing ("on the ground"). Under this model the analysis takes into account anticipated future development to provide for a realistic forecast of level of service conditions within the City. Based on this analysis, the project will result in 83 fewer p.m. peak trips than

previously assumed under development with BP uses. A copy of this analysis is provided in Appendix G.

In both scenarios, impacts to roadways are considered less than significant.

c) No airports are located in proximity to the project site. The project will not result in a change to air traffic patterns. No impact would occur.

d) The design of on-site circulation is reviewed as part of the DRP application. The City has adopted standards for site circulation, parking lot designs, and vehicular queuing. PW Engineering has evaluated the project design as it relates to driveway design and location to ensure City standards have been met and no hazardous conditions will be present. Based on this, the impact is considered less than significant.

e) The City's Fire Department reviewed the project and determined that the design will provide adequate emergency access and meets their design criteria and code requirements. With adherence to the City of Roseville Design and Construction Standards (January 2010), the project will have a less than significant impact to emergency access.

f) The City's Zoning Ordinance outlines the parking requirements for multi-family apartment uses based on the number of bedrooms within each unit. The proposed project will have 60 one-bedroom units, 140 two-bedroom units, and 24 three-bedroom units. Based on this, the project has a parking requirement of 440 parking spaces which takes into account required guest parking of one space per every ten units. The proposed number of parking spaces is 440 and therefore adequate parking is provided based on City standards. Nevertheless, the project will be incorporating measures to reduce the anticipated parking demand. Measures include, but are not limited to the following: providing a pedestrian connection to the City's existing pedestrian paths that connect to adjacent residential and commercial projects as well as open space lands, providing connections to bicycle paths and providing on-site bicycle racks, and providing a dial-a-ride transit stop along Antelope Creek in front of the project site. The project will provide adequate parking based on the Zoning Ordinance and therefore, the project is anticipated to have a less than significant impact on parking.

g) The project will provide bicycle parking consistent with the requirements in the Green Building Code. The installation of sidewalks, connection to the existing Class 1 bicycle path as anticipated in the City's Bicycle Master Plan, and installation of a bus shelter along the existing bus route on Antelope Creek Dr., will encourage alternative transportation methods, which have the potential to further reduce the amount of vehicle trips generated from the project. The Alternative Transportation division has reviewed the project to ensure that it will not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. As such, the project is anticipated to have a less than significant impact on alternative transportation.

XVI. Utilities and Service Systems

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X	

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?		X		
e) Result in a determination by the wastewater treatment provider which serves the project that it has adequate capacity to serve the project's projected demand in addition of the provider's existing commitments?			X	
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			X	

Discussion of Checklist Answers:

a-b, e) Development of the project site has been anticipated since the 1990 adoption of the NCRSP. As part of the NCRSP EIR, impacts to utility and service systems were evaluated based on the site developing with BP uses. Approval of the project will result in a land use and zoning change from BP to R3. Water and sewer services will be provided by the City of Roseville. The developer will be responsible for extending new lines onto the site in order to serve the project. The change in land use will increase the anticipated demand for wastewater treatment from 0.04 MGD to 0.14 MGD. Environmental Utilities Department staff has reviewed the plans and determined that the additional 0.1 MGD required by the proposed project is minor and sufficient capacity is available for the minimal increase in sewer demand. The additional 224 residential units will not trigger the need for new wastewater treatment facilities. Based on this information, the project will have a less than significant impact as it relates to wastewater treatment.

c) Storm water will be collected on-site and transferred via pipe into an off-site storm drain system. The project will not result in the need for new drainage facilities or the expansion of existing facilities.

f, g) Solid waste will be collected by the City of Roseville's Refuse Department. Environmental Utilities Department staff has verified that the additional solid waste created by this project will be minor and

that the project will not adversely affect the City's landfill as it relates to capacity. All aspects of the project as it relates to solid waste will be required to comply with federal, state and local statutes and regulations. Project compliance with these rules will be overseen by the City's Environmental Utilities Department staff. Therefore, the project will have a less than significant impact as it relates to solid waste.

d) Water is provided by the City of Roseville. City generation rates for water are based on zoning. For development of BP uses, the Environmental Utilities Department assumes a 30% floor area ratio. The generation rate for water for BP uses is 2,598 gallons per day (gpd) per acre. Therefore, development of the site with BP uses would generate the need for 31,721 gpd or 35.6 acre-feet per year. In contrast, the generation rate for a residential development depends on the density of the development. This project proposes a density of 20.6 dwelling units per acre which has a generation rate of 177 gpd per dwelling unit. This results in 39,648 gpd or 48.8 acre-feet per year.

The City of Roseville maintains a reserve of water of 46 acre feet to be allocated to projects within the City subject to City Council approval. A portion of this reserve can be allocated to the project to compensate for the higher water demand. Consistent with the City's Water Efficient Landscape Ordinance (WELO), the Environmental Utilities Department requires the project to include water conservation measures for both landscaping and residential units to minimize the amount of water needed for the project, which with implementation will result in a slightly lower demand for water. While the change in land use will result in a higher demand for water, Council approval of 13.2 acre feet of water from City reserves reduces this impact to a less than significant level.

XVII. Mandatory Findings of Significance

Environmental Issue	Potentially Significant	Less Than Significant With Mitigation	Less Than Significant	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, threatened or rare species, or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects			X	

Environmental Issue	Potentially Significant	Less Than Significant With Mitigation	Less Than Significant	No Impact
of past projects, the effects of other current projects, and the effects of probable future projects).				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Discussion of Checklist Answers:

All of the biological and cultural resource issues raised in question (a) above are described and evaluated under the Biological Resources and Cultural Resources sections of this report and include mitigation measures to reduce impacts to less than significant. The cumulative impacts, the focus of question (b), have been addressed in each section throughout this document where applicable. Potentially substantial adverse effects on human beings, the concern of question (c), are dealt with in chapters addressing potential health-related impacts (e.g., Air Quality, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Traffic/Transportation). With implementation of the proposed mitigation measures the project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of any wildlife species or create substantial adverse effects on human beings.

ENVIRONMENTAL DETERMINATION:

As shown in the checklist prepared as part of this Initial Study, City staff has not identified any impacts that are not peculiar to the parcel that cannot be mitigated to less than significant levels, whether offsite or cumulative in nature, and the City's Mitigating Policies and Standards, have been undertaken.

On the basis of this initial evaluation:

[X] I find that the proposed project COULD, but with mitigation agreed to by the applicant clearly will not, have a significant effect on the environment and a MITIGATED NEGATIVE DECLARATION will be prepared.

Initial Study Prepared by:

Tricia Stewart, Associate Planner
City of Roseville Planning Department

Attachments:

1. Project Plans (Site Plan and Grading Plan)

Appendices:

- A. Air Quality Impact and Greenhouse Gas Analysis, Raney Planning & Management Inc., March 2013
- B. Biological Resources Technical Memo, AES, March 27, 2013
- C. Native Oak Tree Impact Assessment, Sierra Nevada Arborists, July 22, 2012
- D. Fire Response Map: Station#6 4-6 Minute Travel Time, November 28, 2012
- E. Environmental Noise Assessment and Memos, jc brennan & associates, July 10, 2012, July 11, 2012 and August 20, 2012
- F. Traffic Study, City of Roseville, July 19, 2012
- G. Traffic Area Zone Analysis -City Buildout 2025, June 2012

October 15, 2012

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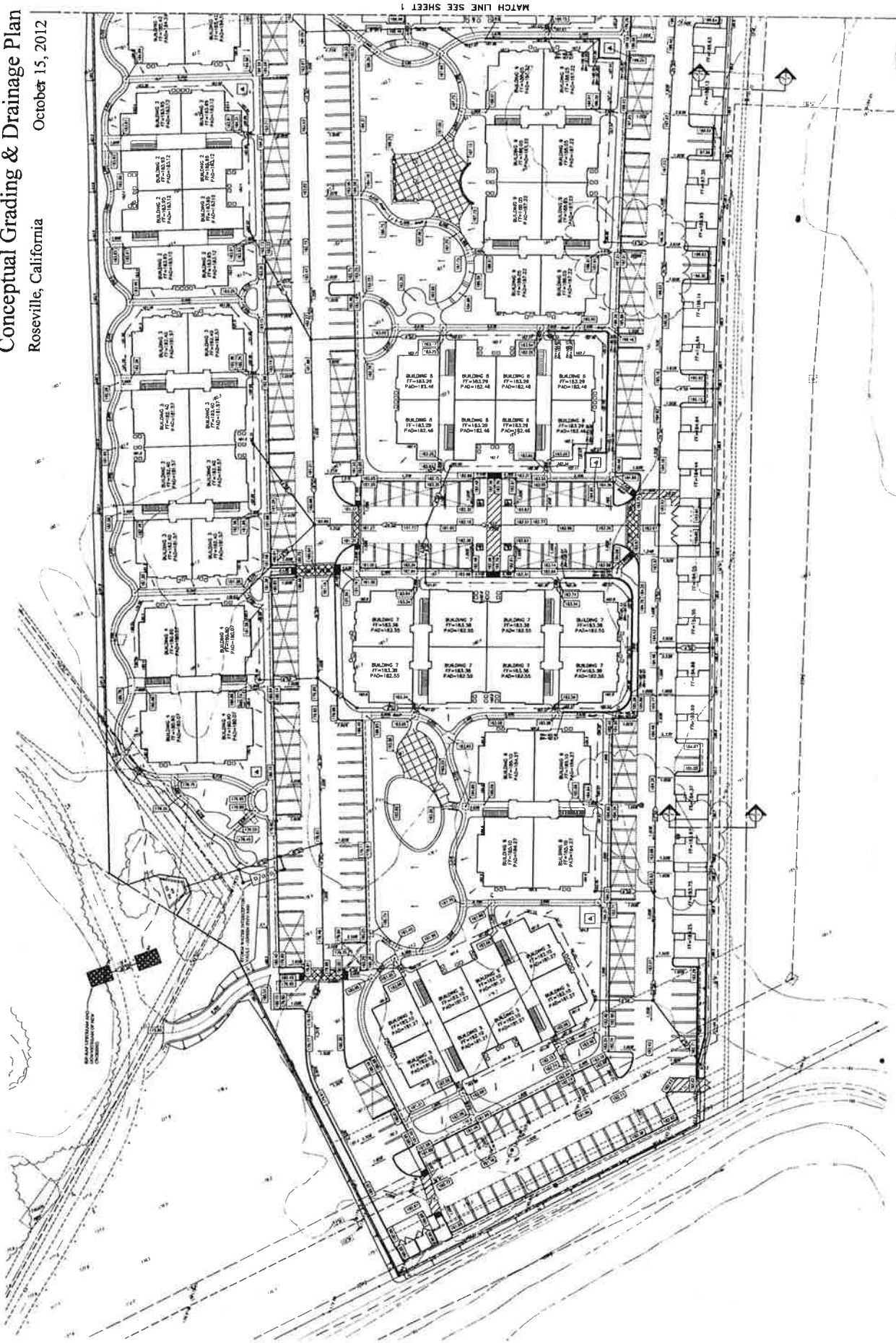
Pearl Creek Apartments

1298 Antelope Creek Drive

Conceptual Grading & Drainage Plan

Roseville, California

October 15, 2012



MATCH LINE SEE SHEET 1

Air Quality Impact and Greenhouse Gas Analysis

Pearl Creek Apartments Project

Prepared for:

CRESLEIGH HOMES INCORPORATED

MARCH 2013

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Introduction

This Air Quality Impact and Greenhouse Gas Analysis identifies and analyzes the potential environmental impacts from the Pearl Creek Apartments project (proposed project) related to air quality and greenhouse gas (GHG) emissions. The information and analysis in this document is organized in accordance with the checklist in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. If the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures that should be applied to the project are prescribed. All modeling results are included as an appendix to this document.

Project Summary

Cresleigh Homes Incorporated (applicant) is proposing to construct a multi-family residential development with approximately 224 units on a vacant 12.21-acre parcel located at 1298 Antelope Creek Drive in the City of Roseville, California (See Figure 1, Project Location Map). The site, which consists of Assessor's Parcel Numbers (APNs) 015-166-009 and -010, is currently zoned Business Professional (BP) and is being proposed as part of the project for High Density Residential (HDR). The site is bordered to the north by an existing multi-family residential development, directly to the west by an undeveloped park site, to the east by Union Pacific Railroad (UPRR) tracks and Taylor Road, and to the south by a closed landfill (See Figure 2, Preliminary Site Plan). Approximately 0.2-mile northwest of the project site is a large retail center and a regional shopping mall known as the Galleria at Roseville.

It should be noted that the project does not include any wood-burning stoves or fireplaces in accordance with the local air pollution control district rules and regulations. In addition, the project includes a variety of environmental features in the project design, such as, but not limited to, the installation and maintenance of a new on-site bus stop along Antelope Creek Drive, a new connection and access gate from the project site to the City of Roseville's regional bicycle and pedestrian trail system, and a new connector bike trail from the project site to the regional trail system.

Construction of the proposed project is estimated to commence May of 2013 and proceed in one phase, which is estimated to be accomplished in approximately two years (i.e., June 2015).

Figure 1
Project Location Map

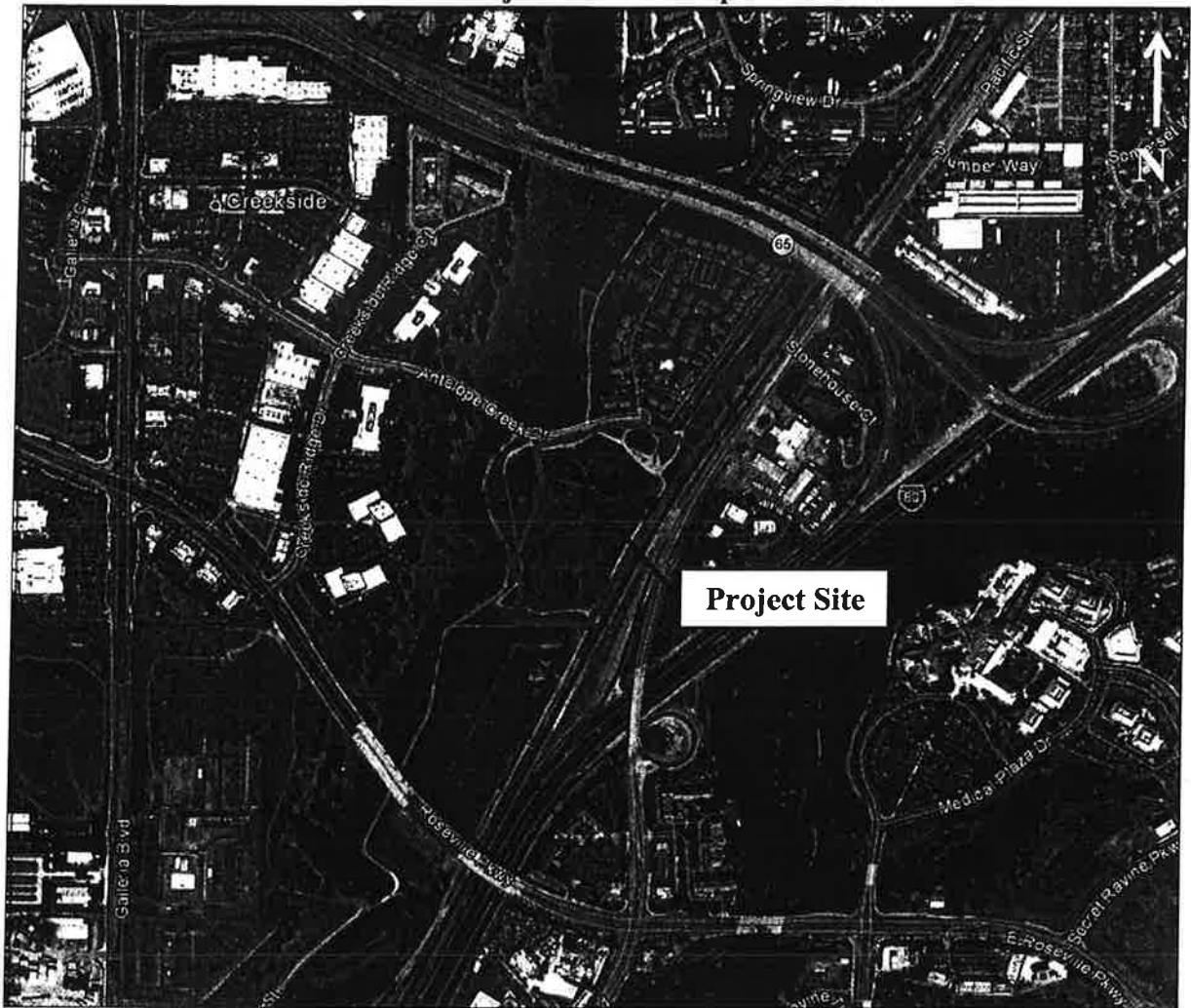


Figure 2



Sources

1. California Air Resources Board. *Ambient Air Quality Standards*. Available at: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. September 8, 2010.
2. California Air Resources Board. *Climate Change Scoping Plan*. December 2008.
3. California Air Resources Board. *Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document*. August 19, 2011.
4. ENVIRON International Corporation. *California Emissions Estimator Model User's Guide Version 2011.1*. February 2011.
5. Jones & Stokes Associates. *Software User's Guide: URBEMIS2007 for Windows*. November 2007.
6. Placer County Air Pollution Control District. Available at: <http://www.placer.ca.gov/Departments/Air.aspx>. Accessed May 2012.
7. Placer County Air Pollution Control District. Personal communications with Angel Green. May 29, 2012 and July 18, 2012.
8. Sacramento Metropolitan Air Quality Management District. *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways*. March 2011.
9. Sacramento Metropolitan Air Quality Management District. *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. December 19, 2008.
10. State of California, Department of Transportation, Traffic Operations Division. Traffic and Vehicle Data Systems Unit, 2010 All Traffic Volumes on CSHS. Available at: traffic-counts.dot.ca.gov/2010all/Route71-80.html. 2011.

III. AIR QUALITY.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	✖	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	✖	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	✖	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	✖	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	✖	☐

Discussion

- a, b. The proposed project site is located within the boundaries of the Placer County Air Pollution Control District (PCAPCD), which is within the Sacramento Valley Air Basin (SVAB). The SVAB is designated nonattainment for the federal particulate matter 2.5 microns in diameter (PM_{2.5}) and the State particulate matter 10 microns in diameter (PM₁₀) standards. In addition, Placer County is located within the Sacramento region's severe non-attainment area for federal ozone standards. The PCAPCD along with other local air districts in the Sacramento Valley Air Basin are required to comply with and implement the State Implementation Plan (SIP) to demonstrate when and how the region can attain the federal ozone standards. Accordingly, the Sacramento Metropolitan Air Quality Management District, along with the other air districts in the region, prepared the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* in December 2008. The Sacramento Air District adopted the Plan on January 22, 2009, followed by the Feather River Air District on February 2, the El Dorado County Air District on February 10, the Yolo-Solano Air District on February 11, and the Placer County Air District on February 19, 2009. The California Air Resources Board (CARB) determined that the Plan meets Clean Air Act requirements and approved the Plan on March 26, 2009 as a revision to the SIP. It should be noted that the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was prepared to demonstrate how the Sacramento Region could attain 1997 federal 8-hour ozone standards by 2018. However, the Environmental Protection Agency has set forth new standards for federal 8-hour ozone based on 2008 data. As such, the current *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* does not address the updated 2008 federal 8-hour ozone standards.

The *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* demonstrates how existing and new control strategies would provide the necessary

future emission reductions to meet the federal Clean Air Act requirements, including the National Ambient Air Quality standards (NAAQS). Adoption of all reasonably available control measures is required for attainment. Measures could include, but are not limited to the following: regional mobile incentive programs; urban forest development programs; and local regulatory measures for emission reductions related to architectural coating, automotive refinishing, natural gas production and processing, asphalt concrete, and various others. Although the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was based on the 1997 federal 8-hour ozone standards and not the updated 2008 standards, compliance with the existing plan would still substantially lessen regional emissions.

In order to evaluate ozone and other air pollutant emissions, the PCAPCD recommends significance thresholds for emissions of PM₁₀, carbon monoxide (CO), and ozone precursors – reactive organic gases (ROG) and nitrous oxides (NO_x). The significance thresholds, expressed in pounds per day (lbs/day), listed in Table 1 are the PCAPCD staff recommended CEQA thresholds of significance for use in the evaluation of air quality impacts associated with proposed development projects. While these thresholds are not PCAPCD Board adopted, the City of Roseville, as the CEQA lead agency, accepts the thresholds for CEQA purposes. Thus, if the proposed project's emissions exceed the pollutant thresholds presented in Table 1, the project could have a significant effect on regional air quality and the attainment of federal and State Ambient Air Quality Standards.

Table 1 PCAPCD Recommended CEQA Thresholds of Significance	
Pollutant	Construction/Operational Threshold (lbs/day)
ROG	82
NO _x	82
PM ₁₀	82
CO	550
<i>Source: Placer County Air Pollution Control District, 2012.</i>	

Implementation of the proposed project would contribute to increases of ROG, NO_x, PM₁₀, and CO emissions in the area. The proposed project's short-term construction-related and long-term operational emissions were estimated using the CalEEMod software. CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data was available, that data was input into the model, such as construction phases and timing. It should be noted that the default construction equipment data was modified based on local statistics in order to represent a more accurate estimate for the project location. The applicant would be required to provide verification that the assumptions included in the modeling transpire, pursuant to conditions of approval.

Construction Emissions

Construction of the proposed project would generate air pollutants intermittently within the site, and the vicinity of the site, until all construction has been completed. The air pollutant emission sources would include the following:

- Dust from grading and any infrastructure improvements;
- ROG emissions from road surfacing;
- Emissions from construction equipment and vehicles; and
- Emissions from architectural coating.

Dust from construction activities can cause impacts both locally and regionally. The dry climate of the area during the summer months, combined with the fine, silty soils of the region, create a high potential for dust generation. Increased dustfall and locally elevated levels of PM₁₀ near construction activities are expected. Depending on the weather, soil conditions and amount of construction activity taking place at any one time, fugitive dust emissions could significantly affect existing land uses near the project site. In addition, ROG and NO_x emissions are expected to increase as construction moves forward.

All projects are required to comply with PCAPCD rules and regulations for construction. As such, the following rules shall be noted on City-approved construction plans:

- Rule 202 related to visible emissions limitations;
- Rule 228 related to fugitive dust limitations;
- Rule 225 related to wood burning devices within multifamily units;
- Regulation 3 regarding open burning; and
- Rule 218 regarding volatile organic compounds.

The PCAPCD's recommended thresholds of significance for construction are 82 pounds per day for ROG, NO_x, and PM₁₀, and 550 pounds per day for CO. Table 2 shows the estimated construction emissions of ROG, NO_x, PM₁₀, and CO for the proposed project.

Table 2		
Construction Emissions for the Proposed Project		
Pollutant	Project Emissions (lbs/day)	PCAPCD Significance Threshold (lbs/day)
ROG	20.81	82.0
NO_x	68.98	82.0
PM₁₀	22.24	82.0
CO	44.78	550.0

Source: CalEEMod, August 2012 (See Appendix).

As Table 2 indicates, the project's emissions would be below the identified thresholds of significance. Therefore, construction activities associated with development of the proposed project would not substantially contribute to the PCAPCD's nonattainment status for ozone. Because the proposed project would not result in emissions above the

PCAPCD's recommended thresholds of significance and would comply with PCAPCD rules and regulations for construction, the project would be considered to result in a less-than-significant impact.

Operational Emissions

Development of the proposed project would result in the generation of ROG and NO_x, which are ozone-precursor pollutants, as well as CO and PM₁₀. The PCAPCD's recommended threshold of significance for operation is 82 pounds per day for ROG, NO_x, and PM₁₀ and 550 pounds per day for CO. The predicted operational emissions for the proposed project are summarized below in Table 3.

Table 3 Operational Emissions for the Proposed Project		
Pollutant	Project Emissions (lbs/day)	PCAPCD Significance Threshold (lbs/day)
ROG	16.69	82.0
NO_x	28.54	82.0
PM₁₀	16.63	82.0
CO	92.86	550.0
Source: CalEEMod, August 2012 (See Appendix).		

As indicated in Table 3, because the project's operational emissions are predicted to be below the PCAPCD's recommended thresholds, the project would not contribute substantially to the PCAPCD's ozone nonattainment status, and related impacts would be considered less-than-significant.

Conclusion

The proposed project would not exceed the applicable thresholds of significance for air pollutant emissions during construction or operation. Therefore, the project would not conflict with or obstruct implementation of the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* or contribute substantially to the PCAPCD's nonattainment status for ozone. Therefore, implementation of the proposed project would result in a **less-than-significant** impact related to air quality.

- c. According to the PCAPCD's *CEQA Air Quality Handbook*, the PCAPCD's recommended criteria pollutant cumulative threshold of significance for land use projects is 10 pounds per day for ROG and NO_x. The *CEQA Air Quality Handbook* does not recommend cumulative thresholds for PM₁₀ emissions or address a preferred methodology for cumulative impact determinations made consistent with CEQA Guidelines Section 15064 (h)(3).

The City, as CEQA lead agency, prefers to rely on a two Tier criteria pollutant cumulative analysis methodology similar to that adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD) as outlined in the *SMAQMD Guide to Air Quality Assessment in Sacramento County*. That is, if a project would not result in

significant project-level criteria air pollutant emissions for which the region is designated non-attainment (i.e., exceed the PCAPCD recommended project threshold of 82 lbs/day for ROG or NOx), project emissions would not be considered cumulatively considerable and would result in a less-than-significant cumulative impact. Should a project exceed the thresholds, a Tier 2 evaluation is conducted to determine SIP consistency in accordance with CEQA Guidelines Section 15064 (h)(3). Under the Tier 2 analysis, projects found consistent with the SIP and which would not conflict with the SIP emissions budget are considered less than cumulatively considerable. The City finds the above methodology appropriate to Roseville projects considering the City is located within the Sacramento Valley Air Basin (SVAB), the same air basin where the above methodology is utilized by numerous CEQA lead agencies with concurrence and support from the SMAQMD.

Tier 1: Cumulative Emissions Threshold

As shown in Table 3 above, the project's operational emissions are predicted to be below the City's recognized project level threshold and therefore would not result in a substantial cumulative contribution of criteria air pollutants. As such, the cumulative impact is found *less than significant* based on the City's Tier 1 threshold evaluation methodology. Given this finding, a Tier 2 evaluation is not required. Nevertheless a Tier 2 evaluation has been conducted for informational purposes in further support of the less-than-significant cumulative impact finding.

Tier 2: SIP Consistency

Placer County is classified as a severe non-attainment area for the federal ozone standards. The SVAB, which includes the Roseville portion of Placer County, is designated nonattainment for the federal particulate matter 2.5 microns in diameter (PM_{2.5}) and the State particulate matter 10 microns in diameter (PM₁₀) standards. Therefore the project would contribute to cumulative regional emissions of non-attainment criteria pollutants and consequently a SIP consistency evaluation has been performed.

According to CEQA Section 15064(h)(3), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with the requirements in a previously approved plan or mitigation program, such as an air quality attainment or maintenance plan, that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. As discussed above, the PCAPCD is required to comply with and implement the SIP. In accordance with the SIP, a *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was prepared and adopted by the PCAPCD on February 19, 2009. The *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* demonstrates how existing and new control strategies provide the necessary future emission reductions to meet federal Clean Air Act requirements.

Although the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was based on the 1997 federal 8-hour ozone standards and not the updated 2008 standards, the control strategies and measures included still substantially lessen regional cumulative emissions. For example, according to Appendix C of the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*, compliance with the control measures set forth by local air districts in the region would substantially lessen the overall ROG and NOx emissions from stationary and area-wide sources by 3.30 tons per day and 1.98 tons per day, respectively, by 2018. The PCAPCD's regulatory control measures alone (i.e., select PCAPCD rules) would reduce regional ROG and NOx emissions by 0.26 tons per day and 0.07 tons per day, respectively. Therefore the SIP, which includes the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* is found to be a qualifying plan for cumulative impact analysis under CEQA Section 15064(h)(3).

The SIP consistency analysis determined that the proposed land use is inconsistent with the land use originally anticipated for the site in the SIP. However, according to the preliminary traffic analysis prepared for the proposed project, the proposed land use results in an overall decrease in vehicle trips from that assumed under SIP. Thus, the proposed project would result in less intensive air quality impacts than assumed under the SIP. In addition, the proposed project would comply with the PCAPCD's permits, rules, and regulations including the SIP and the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. This includes, but is not limited to, implementing PCAPCD adopted rules pertaining to architectural coatings, asphalt concrete, and water heaters. Consequently SIP implementation reduces project emissions and the project is found to be consistent with the SIP.

According to the emissions inventory of the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*, the region's total ROG emissions at the time of preparation were 160 tons per day (320,000 lbs/day), and the region's total NOx emissions were 196 tons per day (392,000 lbs/day). The project's ROG and NOx emissions, as presented in Table 3 above, are 16.69 lbs/day and 28.54 lbs/day, respectively, which comprise only 0.005 and 0.007 percent, respectively, of the region's total emissions. This shows that the project would not result in a substantial increase in emissions compared to cumulative emissions in the region.

Consequently, the City as lead agency has determined that the project would not result in emissions that exceed the City's recognized cumulative impact significance criteria. Furthermore, because the proposed project is consistent and would not conflict with or obstruct implementation of the SIP or the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*, and because the SIP has been shown to substantially lessen cumulative emissions from land use projects, according to CEQA Section 15064(h)(3), the project's incremental contribution to regional emissions would not be cumulatively considerable. Therefore under either analysis scenario, the proposed project would result in a ***less-than-significant*** cumulative impact to air quality.

- d. The proposed project includes the creation of high density, multi-family housing; thus, the project would introduce sensitive receptors to the area. Construction and operational criteria air pollutant and fugitive dust emissions associated with the proposed project would not exceed thresholds. In addition, CO emissions were determined to be below thresholds during both construction and operation of the proposed project. Emissions of CO result from the incomplete combustion of carbon-containing fuels such as gasoline or wood and are particularly related to traffic levels. As older, more polluting vehicles are retired and replaced with newer, cleaner vehicles, the overall rate of emission of CO for vehicle fleet throughout the State has been, and is expected to continue, decreasing. Therefore, emissions of CO would likely decrease from the levels presented above over the lifetime of the project. As such, surrounding roadways would be expected to be adequate for project traffic and would not result in unacceptable levels of service. Thus, substantial levels of CO at surrounding intersections are not expected to occur.

Toxic Air Contaminants (TACs) are also a category of environmental concern. The CARB has identified particulate matter from diesel-fueled engines (diesel particulate matter or DPM) as a TAC. High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from diesel particulate matter (DPM). Health risks from TACs are a function of both the concentration of emissions and the duration of exposure. Health-related risks associated with DPM in particular are primarily associated with long-term exposure and associated risk of contracting cancer. Due to the nature of the project, long-term operation of any major on-site stationary sources of TACs would not occur. Vehicle trips associated with the proposed housing units would not be expected to be composed of diesel-fueled engines. In addition, emissions of DPM resulting from construction-related equipment and vehicles are minimal and temporary, affecting a specific receptor for a period of days or weeks. However, the project site is located near Interstate 80 (I-80) and Union Pacific Railroad (UPRR) tracks. It should be noted that the UPRR tracks are not a significant source of TAC emissions, and the rail yards, which are considered a significant source of TACs due to idling, are located approximately two miles from the project site. Accordingly, the project site is outside of the DPM isotopes associated with the rail yard emissions. Therefore, this analysis focuses on the major source in the vicinity, which is the freeway traffic along I-80. The project would not create, but may be subjected to, high levels of DPM associated with freeway traffic.

In order to evaluate the risks associated with exposure of on-site sensitive receptors to DPM from nearby traffic, the Sacramento Metropolitan Air Quality Management District (SMAQMD) screening methods for DPM cancer risk (potential incremental cancer chances per million people) in their *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* were utilized. The SMAQMD considers any project placing sensitive receptors within 500 feet of a major roadway or freeway to have the potential to expose residents to toxic air pollutants. For residential land uses, the calculation of cancer risk associated with exposure to TACs is typically calculated based on a 70-year period of exposure. SMAQMD has established a screening threshold for DPM of 276 per million, which is based on the level of increased individual risk corresponding to a 70 percent reduction from the highest risk calculated at 50 feet

downwind from the edge of the nearest travel lane for the highest peak hour volume reported by Caltrans for Sacramento County (24,000 vehicles per hour). The highest risk represents the worst-case conditions.

The proposed project is located north (downwind) of I-80. Although a buffer of approximately 650 feet exists from I-80 to the nearest building proposed for the project, the project border would be within 500 feet. Extrapolating data for 650 feet from SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* screening table for incremental DPM cancer risk per million associated with an east-west roadway, and utilizing the traffic volumes on the segment of I-80 nearest the proposed project site reported by Caltrans (12,300 vehicles per hour), the resultant DPM cancer risk at the project site from I-80 was determined. According to the *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* screening table, and based on a highest peak traffic volume of 12,300, the potential DPM cancer risk for a sensitive receptor located roughly 650 feet from I-80 would be approximately 77 per million, which is less than the 296 per million screening threshold set forth by SMAQMD for such a condition. Even under a worst-case scenario where the project site would be located within 500 feet of a section of I-80 with peak hour traffic of 16,000 vehicles per hour, the associated cancer risk would be 137, which would still be below the 296 per million screening threshold. Therefore, a full health risk assessment is not warranted and the proposed project would not expose new sensitive receptors to substantial DPM emissions.

As a result, because the proposed project would not produce substantial emissions of criteria air pollutants, CO, or TACs, new residents would not be exposed to significant levels of pollutant concentrations during construction or operation. Therefore, impacts related to substantial pollutant exposure to sensitive receptors would be *less-than-significant*.

- e. Typical odor sources include industrial or intensive agricultural uses. However, the proposed project's residential uses are not typically associated with the creation of objectionable odors. Diesel fumes from construction equipment and delivery trucks are often found to be objectionable; however, construction is temporary and diesel emissions would be minimal and regulated. Emissions of DPM from the nearby freeway could result in objectionable odor; however, as presented above, the buffer between the project site and the freeway would be sufficient to avoid high concentrations of DPM. As stated previously, the nearby UPRR tracks are not a significance source of DPM, and the rail yards, which are considered a significant source of TACs due to idling, are located approximately two miles from the project site. Accordingly, odors due to DPM from the rail yards would not affect any persons at the project site. Thus, odors related to DPM would not be expected to be considerable or affect a substantial number of people. The project site is directly north of a closed landfill site. The landfill was closed in 1994, is in compliance with State requirements, and is regulated by the Placer County Health Department. Accordingly, any potential odors from the closed landfill site would be controlled and the proposed project would not be subject to substantial objectionable odors associated with the closed landfill. For the aforementioned reasons, construction

and operation of the proposed project would not be expected to result in the creation of objectionable odors affecting a substantial number of people, and the project would not be subject to substantial objectionable odors, and a *less-than-significant* impact related to objectionable odors would result.

VII. GREENHOUSE GAS EMISSIONS.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	✗	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	✗	☐

Discussion

- a,b. In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Climate Solutions Act of 2006 (Stats. 2006, ch. 488) (Health & Saf. Code, § 38500 et seq.). AB 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. AB 32 delegated the authority for its implementation to the California Air Resources Board (CARB) and directs CARB to enforce the statewide cap. In accordance with AB 32, CARB prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008. The Scoping Plan provides the outline for actions to reduce California's GHG emissions. Based on the reduction goals called for in the 2008 Scoping Plan, a 29 percent reduction in GHG levels relative to a Business As Usual (BAU) scenario would be required to meet 1990 levels by 2020. The reduction goals are based on 2005 emissions projections. In 2011, the baseline or projected 2020 BAU level for the Scoping Plan was revised to account for the economic downturn and State regulation emission reductions (i.e., Pavley, Low Carbon Fuel Standard [LCFS], and Renewable Portfolio Standard [RPS]). Accordingly, the emission reduction target of the Scoping Plan was modified from 29 percent to 21 percent. The amended Scoping Plan was re-approved August 24, 2011.

The PCAPCD recommends that the threshold of significance for GHG emissions selected by lead agencies be related to compliance with AB 32. In accordance with CARB and PCAPCD recommendations, the City of Roseville, as lead agency, requires a quantitative GHG analysis for development projects in order to demonstrate a project would promote sustainability and implement operational GHG emission reduction strategies that would reduce GHG emissions according to the emission reduction targets of the Scoping Plan. For the proposed project, the City has chosen to utilize a threshold of a 21 percent reduction, in compliance with AB 32 and the Scoping Plan, from projected 2020 BAU levels (i.e., 2005 levels) compared to 2020 levels. Therefore, if the proposed project does not show a 21 percent reduction of project-related GHG emissions between projected 2020 BAU levels and 2020 levels, the project would be considered to result in a cumulatively considerable contribution to global climate change. GHG emission reduction measures could include, but are not limited to, compliance with local, State, or federal plans or strategies for GHG reductions, on-site and off-site mitigation recommendations from the Office of the Attorney General, and project design features. It should be noted that the proposed project would be required to comply with the minimum mandated measures of the 2010 California Green Building Standards Code (CalGreen

Code), which includes such measures as a 20 percent mandatory reduction in indoor water use and diversion of 50 percent of construction waste from landfills. A variety of voluntary CalGreen Code measures also exists that would further reduce GHG emissions, but are not mandatory.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

Implementation of the proposed project would contribute to increases of GHG emissions that are associated with global climate change. Estimated GHG emissions attributable to future development would be primarily associated with increases of CO₂ and other GHG pollutants, such as methane (CH₄) and nitrous oxide (N₂O), from mobile sources and utility usage. The proposed project's short-term construction-related and long-term operational GHG emissions were estimated using the CalEEMod software. CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Emissions are expressed in annual metric tons of CO₂ equivalent units of measure (i.e., MTCO_{2e}), based on the global warming potential of the individual pollutants.

Short-Term GHG Emissions

Estimated increases in GHG emissions associated with construction of the proposed project are summarized in Table 4.

Table 4	
Unmitigated Construction GHG Emissions	
	CO₂ emissions (MTCO_{2e})
Total Construction GHG Emissions	1,465.85
Note: Includes mitigation from Section III, Air Quality, above.	
Source: CalEEMod, March 2013 (See Appendix).	

As presented in the table, short-term emissions of GHG associated with construction of the proposed project are estimated to be 1,465.85 MTCO_{2e}. Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Due to the size of the proposed project, the project's estimated construction-related GHG contribution to global climate change would be considered negligible on the overall global emissions scale and, therefore, less-than-significant. However, the proposed project's construction GHG emissions have been

amortized over the lifetime of the project, which is assumed to be 40 years for this analysis, and included in the annual operational GHG emissions for disclosure purposes.¹ Amortizing the construction GHG emissions (a one-time release that would occur only during construction of the project) and including them in the annual operational emissions (which would occur every year over the lifetime of the entire project) would represent a worst-case scenario for the annual operational emissions.

Long-Term GHG Emissions

The long-term operational GHG emissions estimate for the proposed project incorporates the project's potential area source and vehicle emissions, emissions associated with utility and water usage, and the generation of wastewater and solid waste. It should be noted that the project site's proximity to the large retail center and Galleria at Roseville located to the northwest were taken into consideration during modeling. In addition, as stated above, the one-time release of construction GHG emissions has been included in the annual operational GHG emissions estimate in order to provide a worst-case scenario. Furthermore, the project's environmental design features, including the new on-site bus stop and the new connection from the site to the City's regional bicycle and pedestrian trail system, were applied to the modeling for the proposed project in the year 2020. The applied environmental features are included in the project design and would otherwise not be implemented under BAU conditions.

Estimated GHG emissions associated with the proposed project at operational year 2020 are summarized in Table 6. As shown in the table, the annual GHG emissions associated with the proposed project by year 2020, including construction GHG emissions, would be 2,641.57 MTCO_{2e}.

Table 5	
Proposed Project (2020) Operational GHG Emissions	
	CO₂ emissions (MTCO_{2e})
Annual Operational GHG Emissions	2,604.92
Construction GHG Emissions ¹	36.65
ANNUAL GHG EMISSIONS	2,641.57
¹ See Table 5; Amortized over the estimated 40-year project lifetime.	
Source: CalEEMod, March 2013 (See Appendix).	

Consistent with the PCAPD's recommendation that significance thresholds for GHG emissions be related to compliance with AB 32, the City threshold requires a minimum GHG emission reduction of 21 percent from projected 2020 BAU levels (i.e., 2005

¹ The PCAPCD does not recommend any specific operational lifetimes for use in amortizing construction-related GHG emissions; however, the SMAQMD, per their *Guide to Air Quality Assessment in Sacramento County*, suggests an operational life for a new residential building of 40 years. The estimates are derived from the State of California Executive Order D-16-00 and US Green Building Council's October 2003 report on *The Costs and Financial Benefits of Green Buildings*.

levels) by 2020, based on the CARB's 2011 Scoping Plan. Thus, the project's 2005 levels were evaluated in order to determine the net decrease in the proposed project's GHG emissions over time. The same land use, trip generation rates, and other assumptions for the project were applied to the projected 2020 BAU modeling, with the exception of the environmental features incorporated into the proposed project's design, which would otherwise not be implemented under BAU conditions. As presented in Table 6 below, the projected 2020 BAU GHG emissions were estimated to be approximately 3,354.78 MTCO_{2e}.

Table 6	
Projected 2020 BAU (2005) Operational GHG Emissions (MTCO_{2e})	
	CO₂ emissions (MTCO_{2e})
Annual Operational GHG Emissions	3,318.13
Construction GHG Emissions ¹	36.65
ANNUAL GHG EMISSIONS	3,354.78
¹ See Table 5; Amortized over the estimated 40-year project lifetime.	
<i>Source: CalEEMod, March 2013 (See Appendix).</i>	

Consequently, the proposed project would result in approximately a 21.26 percent reduction in annual GHG emissions from the projected 2020 BAU level by 2020 $([3,354.78 \text{ MTCO}_2e - 2,641.57 \text{ MTCO}_2e] / 3,354.78 \text{ MTCO}_2e \times 100\% = 21.26\%)$. The reduction in GHG emissions over the years would be substantially attributable to the advancement of vehicle and equipment efficiency as well as more stringent standards and regulations as time progresses. It should be noted that although a reduction related to such attributes would occur for every development project, CalEEMod takes into consideration how much of each attribute is applied for each specific project based on the size of the project and associated land uses.

As stated previously, the proposed project would be required to comply with the minimum mandatory measures of the CalGreen Code, which would result in an estimated 1.8 percent reduction. The total reduction in GHG emissions is presented below in Table 7. As shown in the table, the proposed project would reduce operational GHG emissions from BAU levels by approximately 23.06 percent by the year 2020, which exceeds the threshold employed by the City of a 21 percent minimum GHG emission reduction.

Conclusion

As stated previously, short-term construction GHG emissions are a one-time release of GHGs and are not expected to significantly contribute to global climate change over the lifetime of the proposed project. Even under a worst-case scenario, where construction GHG emissions are amortized over the lifetime of the project and incorporated into the estimated annual operational GHG emissions, the overall annual GHG emissions associated with the project would still be reduced by over 21 percent by the year 2020. It should be noted that the actual annual emissions over the lifetime of the project would be less than presented above, due to the one-time release of construction-related GHG emissions. Because the project would meet the City's 21 percent minimum reduction

threshold, per the 2011 Scoping Plan, the project would not be expected to hinder the State's ability to reach the GHG reduction target or conflict with an applicable plan, policy, or regulation related to GHG reduction. Therefore, impacts related to GHG emissions and global climate change would be considered *less-than-significant*.

Table 7 GHG Reductions (%)	
Feature	Percent Reduction (%)
Compliance with CalGreen Code ¹	1.80
Reduction from Projected 2020 BAU by 2020 ²	21.26
TOTAL Percent Reduction	23.06
¹ CARB estimates a three MMTCO ₂ e reduction by 2020 due to the CalGreen Code, which is approximately 1.8 percent of the State's reduction goal; thus, compliance with the Code would result in an approximate 1.8 percent reduction. ² Percent reduction of project GHG emissions from projected 2020 BAU levels by 2020 (see calculation in text above).	

APPENDIX

MODELING RESULTS

Pearl Creek Apartments - Air Quality Analysis - Year 2015
Placer County APCD Air District, Summer

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric
Apartments Low Rise	224	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Roseville Electric
Climate Zone	2	Precipitation Freq (Days)	74		

1.3 User Entered Comments

Project Characteristics -

Land Use - *based on preliminary site plan

Construction Phase - *estimated construction phase timing from applicant

Off-road Equipment -

Off-road Equipment - *See note for Grading phase

Off-road Equipment - *changed defaults to match those of the District's defaults per URBEMIS, but assumed 8 hrs/day

Off-road Equipment - *See note for grading phase

Grading - Total Acres Disturbed revised to match the Project site size.

Vehicle Trips -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - *District restricts wood-burning hearths; therefore, requiring only natural gas hearth is not considered mitigation

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	ROG	NOx	CO	SO2	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																
2013	20.81	68.98	44.97	0.07	17.82	4.43	22.24	3.32	4.43	7.74						
2014	20.16	35.34	34.34	0.07	2.74	2.20	4.94	0.04	2.19	2.23						
2015	19.61	32.47	32.90	0.07	2.74	1.98	4.72	0.04	1.97	2.01						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.1 Overall Construction (Maximum Daily Emission)

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															
2013	20.81	68.98	44.97	0.07	17.40	4.43	21.83	3.32	4.43	7.74						
2014	20.18	35.34	34.34	0.07	0.11	2.20	2.31	0.04	2.19	2.23						
2015	19.61	32.47	32.90	0.07	0.11	1.98	2.09	0.04	1.97	2.01						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

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
Area	125.46	2.32	193.54	0.17		0.00	25.49		0.00	25.49						
Energy	0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						
Mobile	8.89	27.51	74.09	0.15	15.24	0.94	16.17	0.22	0.81	1.03						
Total	134.44	30.64	267.97	0.33	15.24	0.94	41.73	0.22	0.81	26.59						

Mitigated Operational

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
Area	7.71	0.22	19.08	0.00		0.00	0.37		0.00	0.37						
Energy	0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						
Mobile	8.89	27.51	74.09	0.15	15.24	0.94	16.17	0.22	0.81	1.03						
Total	16.69	28.54	93.51	0.16	15.24	0.94	16.61	0.22	0.81	1.47						

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

3.2 Grading - 2013

Unmitigated Construction On-Site

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																
Fugitive Dust					17.38	0.00	17.38	3.31	0.00	3.31						
Off-Road	5.25	41.52	25.36	0.04		2.12	2.12		2.12	2.12						
Total	5.25	41.52	25.36	0.04	17.38	2.12	19.50	3.31	2.12	5.43						

Unmitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.06	0.05	0.59	0.00	0.13	0.00	0.13	0.00	0.00	0.00						
Total	0.06	0.05	0.59	0.00	0.13	0.00	0.13	0.00	0.00	0.00						

3.2 Grading - 2013

Mitigated Construction On-Site

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																
Fugitive Dust					17.38	0.00	17.38	3.31	0.00	3.31						
Off-Road	5.25	41.52	25.36	0.04		2.12	2.12		2.12	2.12						
Total	5.25	41.52	25.36	0.04	17.38	2.12	19.50	3.31	2.12	5.43						

Mitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.06	0.05	0.59	0.00	0.00	0.00	0.01	0.00	0.00	0.00						
Total	0.06	0.05	0.59	0.00	0.00	0.00	0.01	0.00	0.00	0.00						

3.3 Paving - 2013

Unmitigated Construction On-Site

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
Off-Road	4.42	27.29	17.65	0.03		2.30	2.30		2.30	2.30						
Paving	0.00					0.00	0.00		0.00	0.00						
Total	4.42	27.29	17.65	0.03		2.30	2.30		2.30	2.30						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.13	0.12	1.36	0.00	0.30	0.01	0.31	0.00	0.01	0.01						
Total	0.13	0.12	1.36	0.00	0.30	0.01	0.31	0.00	0.01	0.01						

3.3 Paving - 2013

Mitigated Construction On-Site

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
Off-Road	4.42	27.29	17.65	0.03		2.30	2.30		2.30	2.30						
Paving	0.00					0.00	0.00		0.00	0.00						
Total	4.42	27.29	17.65	0.03		2.30	2.30		2.30	2.30						

Mitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.13	0.12	1.36	0.00	0.01	0.01	0.02	0.00	0.01	0.01						
Total	0.13	0.12	1.36	0.00	0.01	0.01	0.02	0.00	0.01	0.01						

3.4 Building Construction - 2013

Unmitigated Construction On-Site

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
Off-Road	5.46	30.39	20.88	0.04		2.00	2.00		2.00	2.00						
Total	5.46	30.39	20.88	0.04		2.00	2.00		2.00	2.00						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.30	3.76	1.74	0.01	0.22	0.11	0.33	0.01	0.10	0.11						
Worker	0.94	0.83	9.52	0.02	2.10	0.05	2.15	0.03	0.05	0.08						
Total	1.24	4.59	11.26	0.03	2.32	0.16	2.48	0.04	0.15	0.19						

3.4 Building Construction - 2013

Mitigated Construction On-Site

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
Off-Road	5.46	30.39	20.88	0.04		2.00	2.00		2.00	2.00						
Total	5.46	30.39	20.88	0.04		2.00	2.00		2.00	2.00						

Mitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.30	3.76	1.74	0.01	0.02	0.11	0.13	0.01	0.10	0.11						
Worker	0.94	0.83	9.52	0.02	0.08	0.05	0.13	0.03	0.05	0.08						
Total	1.24	4.59	11.26	0.03	0.10	0.16	0.26	0.04	0.15	0.19						

3.4 Building Construction - 2014

Unmitigated Construction On-Site

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
Off-Road	4.98	28.25	20.49	0.04		1.80	1.80		1.80	1.80						
Total	4.98	28.25	20.49	0.04		1.80	1.80		1.80	1.80						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.28	3.42	1.60	0.01	0.22	0.10	0.32	0.01	0.09	0.10						
Worker	0.86	0.75	8.62	0.02	2.10	0.05	2.15	0.03	0.05	0.08						
Total	1.14	4.17	10.22	0.03	2.32	0.15	2.47	0.04	0.14	0.18						

3.4 Building Construction - 2014

Mitigated Construction On-Site

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
Off-Road	4.98	28.25	20.49	0.04		1.80	1.80		1.80	1.80						
Total	4.98	28.25	20.49	0.04		1.80	1.80		1.80	1.80						

Mitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.28	3.42	1.60	0.01	0.02	0.10	0.12	0.01	0.09	0.10						
Worker	0.86	0.75	8.62	0.02	0.08	0.05	0.13	0.03	0.05	0.08						
Total	1.14	4.17	10.22	0.03	0.10	0.15	0.25	0.04	0.14	0.18						

3.4 Building Construction - 2015

Unmitigated Construction On-Site

Category	CO ₂	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Off-Road	4.55	25.97	20.15	0.04		1.61	1.61		1.61	1.61						
Total	4.55	25.97	20.15	0.04		1.61	1.61		1.61	1.61						

Unmitigated Construction Off-Site

Category	CO ₂	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.25	3.13	1.47	0.01	0.22	0.09	0.31	0.01	0.08	0.09						
Worker	0.79	0.67	7.82	0.02	2.10	0.05	2.15	0.03	0.05	0.08						
Total	1.04	3.80	9.29	0.03	2.32	0.14	2.46	0.04	0.13	0.17						

3.4 Building Construction - 2015

Mitigated Construction On-Site

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
Off-Road	4.55	25.97	20.15	0.04		1.61	1.61		1.61	1.61						
Total	4.55	25.97	20.15	0.04		1.61	1.61		1.61	1.61						

Mitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.25	3.13	1.47	0.01	0.02	0.09	0.11	0.01	0.08	0.09						
Worker	0.79	0.67	7.82	0.02	0.08	0.05	0.13	0.03	0.05	0.08						
Total	1.04	3.80	9.29	0.03	0.10	0.14	0.24	0.04	0.13	0.17						

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

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																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27						
Total	13.93	2.96	1.94	0.00		0.27	0.27		0.27	0.27						

Unmitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.19	0.17	1.89	0.00	0.42	0.01	0.43	0.01	0.01	0.02						
Total	0.19	0.17	1.89	0.00	0.42	0.01	0.43	0.01	0.01	0.02						

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

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																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27						
Total	13.93	2.96	1.94	0.00		0.27	0.27		0.27	0.27						

Mitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.19	0.17	1.89	0.00	0.02	0.01	0.03	0.01	0.01	0.02						
Total	0.19	0.17	1.89	0.00	0.02	0.01	0.03	0.01	0.01	0.02						

3.5 Architectural Coating - 2014

Unmitigated Construction On-Site

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																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24						
Total	13.89	2.77	1.92	0.00		0.24	0.24		0.24	0.24						

Unmitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.17	0.15	1.71	0.00	0.42	0.01	0.43	0.01	0.01	0.02						
Total	0.17	0.15	1.71	0.00	0.42	0.01	0.43	0.01	0.01	0.02						

3.5 Architectural Coating - 2014

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NEBio-CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24						
Total	13.89	2.77	1.92	0.00		0.24	0.24		0.24	0.24						

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NEBio-CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.17	0.15	1.71	0.00	0.02	0.01	0.03	0.01	0.01	0.02						
Total	0.17	0.15	1.71	0.00	0.02	0.01	0.03	0.01	0.01	0.02						

3.5 Architectural Coating - 2015

Unmitigated Construction On-Site

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
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.41	2.57	1.90	0.00		0.22	0.22		0.22	0.22						
Total	13.85	2.57	1.90	0.00		0.22	0.22		0.22	0.22						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.16	0.13	1.55	0.00	0.42	0.01	0.43	0.01	0.01	0.02						
Total	0.16	0.13	1.55	0.00	0.42	0.01	0.43	0.01	0.01	0.02						

3.5 Architectural Coating - 2015

Mitigated Construction On-Site

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																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.41	2.57	1.90	0.00		0.22	0.22		0.22	0.22						
Total	13.85	2.57	1.90	0.00		0.22	0.22		0.22	0.22						

Mitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.16	0.13	1.55	0.00	0.02	0.01	0.03	0.01	0.01	0.02						
Total	0.16	0.13	1.55	0.00	0.02	0.01	0.03	0.01	0.01	0.02						

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Ex-PM2.5	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	8.89	27.51	74.09	0.15	15.24	0.94	16.17	0.22	0.81	1.03						
Unmitigated	8.89	27.51	74.09	0.15	15.24	0.94	16.17	0.22	0.81	1.03						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
Apartments Low Rise	1,476.16	1,603.84	1,359.68	4,233,106	4,233,106		4,233,106
Total	1,476.16	1,603.84	1,359.68	4,233,106	4,233,106		4,233,106

4.3 Trip Type Information

Land Use	Miles				Trip %	
	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
Apartments Low Rise	10.80	7.30	7.50	42.60	21.00	36.40

5.0 Energy Detail

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-SO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
lb/day																
NaturalGas Mitigated	0.09	0.81	0.34	0.01	0.00	0.00	0.07	0.00	0.00	0.07						
NaturalGas Unmitigated	0.09	0.81	0.34	0.01	0.00	0.00	0.07	0.00	0.00	0.07						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	Natural Gas Use	NOx	CO	SO2	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															
		lb/day														
Apartment's Low Rise	8780.76	0.09	0.81	0.34	0.01	0.00	0.07		0.00	0.07						
Total		0.09	0.81	0.34	0.01	0.00	0.07		0.00	0.07						

5.2 Energy by Land Use - Natural Gas

Mitigated

Land Use	Natural Gas Use kBtu	CO ₂	CO	NO _x	SO ₂	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO ₂	Net Bio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Apartment Low Rise	8,78076	0.09	0.81	0.34	0.01	0.00	0.00	0.07	0.00	0.00	0.07						
Total		0.09	0.81	0.34	0.01	0.00	0.00	0.07	0.00	0.00	0.07						

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

Category	CO ₂	NO _x	CO	SO ₂	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO ₂	Net Bio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Mitigated	7.71	0.22	19.08	0.00	0.00	0.00	0.37	0.00	0.00	0.37						
Unmitigated	125.46	2.32	193.54	0.17	0.00	0.00	25.49	0.00	0.00	25.49						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Architectural Coating	1.92					0.00	0.00		0.00	0.00						
Consumer Products	4.79					0.00	0.00		0.00	0.00						
Hearth	118.14	2.10	174.48	0.16		0.00	25.39		0.00	25.38						
Landscaping	0.61	0.22	19.06	0.00		0.00	0.10		0.00	0.10						
Total	125.46	2.32	193.54	0.16		0.00	25.49		0.00	25.48						

Mitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Architectural Coating	1.92					0.00	0.00		0.00	0.00						
Consumer Products	4.79					0.00	0.00		0.00	0.00						
Hearth	0.39	0.00	0.02	0.00		0.00	0.27		0.00	0.27						
Landscaping	0.61	0.22	19.06	0.00		0.00	0.10		0.00	0.10						
Total	7.71	0.22	19.08	0.00		0.00	0.37		0.00	0.37						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Pearl Creek Apartments - Air Quality Analysis - Year 2015
Placer County APCD Air District, Winter

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric
Apartments Low Rise	224	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Roseville Electric
Climate Zone	2	Precipitation Freq (Days)	74		

1.3 User Entered Comments

Project Characteristics -

Land Use - *based on preliminary site plan

Construction Phase - *estimated construction phase timing from applicant

Off-road Equipment -

Off-road Equipment - *See note for Grading phase

Off-road Equipment - *changed defaults to match those of the District's defaults per URBEMIS, but assumed 8 hrs/day

Off-road Equipment - *See note for grading phase

Grading - Total Acres Disturbed revised to match the Project site size.

Vehicle Trips -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - *District restricts wood-burning hearths; therefore, requiring only natural gas hearth is not considered mitigation

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	CO ₂	CH ₄	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
lb/day																
2013	20.82	69.00	44.78	0.07	17.82	4.43	22.24	3.32	4.43	7.74						
2014	20.19	35.46	33.63	0.06	2.74	2.21	4.95	0.04	2.19	2.23						
2015	19.62	32.57	32.25	0.06	2.74	1.98	4.72	0.04	1.97	2.01						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

Year	ROG	NOx	CO	SO2	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																
2013	20.82	69.00	44.78	0.07	17.40	4.43	21.83	3.32	4.43	7.74						
2014	20.19	35.46	33.63	0.06	0.11	2.21	2.32	0.04	2.19	2.23						
2015	19.62	32.57	32.25	0.06	0.11	1.98	2.10	0.04	1.97	2.01						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

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
Area	125.46	2.32	193.54	0.17		0.00	25.49		0.00	25.49						
Energy	0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						
Mobile	8.82	28.22	73.44	0.13	15.24	0.96	16.19	0.22	0.83	1.05						
Total	134.37	31.35	267.32	0.31	15.24	0.96	41.75	0.22	0.83	26.61						

Mitigated Operational

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
Area	7.71	0.22	19.08	0.00		0.00	0.37		0.00	0.37						
Energy	0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						
Mobile	8.82	28.22	73.44	0.13	15.24	0.96	16.19	0.22	0.83	1.05						
Total	16.62	29.25	92.86	0.14	15.24	0.96	16.63	0.22	0.83	1.49						

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

3.2 Grading - 2013

Unmitigated Construction On-Site

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																
Fugitive Dust					17.38	0.00	17.38	3.31	0.00	3.31						
Off-Road	5.25	41.52	25.36	0.04		2.12	2.12		2.12	2.12						
Total	5.25	41.52	25.36	0.04	17.38	2.12	19.50	3.31	2.12	5.43						

Unmitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.06	0.06	0.53	0.00	0.13	0.00	0.13	0.00	0.00	0.00						
Total	0.06	0.06	0.53	0.00	0.13	0.00	0.13	0.00	0.00	0.00						

3.2 Grading - 2013

Mitigated Construction On-Site

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																
Fugitive Dust					17.38	0.00	17.38	3.31	0.00	3.31						
Off-Road	5.25	41.52	25.36	0.04		2.12	2.12		2.12	2.12						
Total	5.25	41.52	25.36	0.04	17.38	2.12	19.50	3.31	2.12	5.43						

Mitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.06	0.06	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00						
Total	0.06	0.06	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00						

3.3 Paving - 2013

Unmitigated Construction On-Site

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
Off-Road	4.42	27.29	17.65	0.03		2.30	2.30		2.30	2.30						
Paving	0.00					0.00	0.00		0.00	0.00						
Total	4.42	27.29	17.65	0.03		2.30	2.30		2.30	2.30						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.13	0.13	1.23	0.00	0.30	0.01	0.31	0.00	0.01	0.01						
Total	0.13	0.13	1.23	0.00	0.30	0.01	0.31	0.00	0.01	0.01						

3.3 Paving - 2013

Mitigated Construction On-Site

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																
Off-Road	4.42	27.29	17.65	0.03		2.30	2.30		2.30	2.30						
Paving	0.00					0.00	0.00		0.00	0.00						
Total	4.42	27.29	17.65	0.03		2.30	2.30		2.30	2.30						

Mitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.13	0.13	1.23	0.00	0.01	0.01	0.02	0.00	0.01	0.01						
Total	0.13	0.13	1.23	0.00	0.01	0.01	0.02	0.00	0.01	0.01						

3.4 Building Construction - 2013

Unmitigated Construction On-Site

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
Off-Road	5.46	30.39	20.88	0.04		2.00	2.00		2.00	2.00						
Total	5.46	30.39	20.88	0.04		2.00	2.00		2.00	2.00						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.32	3.79	2.11	0.01	0.22	0.12	0.34	0.01	0.11	0.11						
Worker	0.93	0.93	8.58	0.01	2.10	0.05	2.15	0.03	0.05	0.08						
Total	1.25	4.72	10.69	0.02	2.32	0.17	2.49	0.04	0.16	0.19						

3.4 Building Construction - 2013

Mitigated Construction On-Site

Category	ROG	NDx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Off-Road	5.46	30.39	20.88	0.04		2.00	2.00		2.00	2.00						
Total	5.46	30.39	20.88	0.04		2.00	2.00		2.00	2.00						

Mitigated Construction Off-Site

Category	ROG	NDx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.32	3.79	2.11	0.01	0.02	0.12	0.13	0.01	0.11	0.11						
Worker	0.93	0.93	8.58	0.01	0.08	0.05	0.13	0.03	0.05	0.08						
Total	1.25	4.72	10.69	0.02	0.10	0.17	0.26	0.04	0.16	0.19						

3.4 Building Construction - 2014

Unmitigated Construction On-Site

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
Off-Road	4.98	28.25	20.49	0.04		1.80	1.80		1.80	1.80						
Total	4.98	28.25	20.49	0.04		1.80	1.80		1.80	1.80						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.30	3.44	1.96	0.01	0.22	0.10	0.32	0.01	0.10	0.10						
Worker	0.85	0.83	7.73	0.01	2.10	0.05	2.15	0.03	0.05	0.08						
Total	1.15	4.27	9.69	0.02	2.32	0.15	2.47	0.04	0.15	0.18						

3.4 Building Construction - 2014

Mitigated Construction On-Site

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
Off-Road	4.98	28.25	20.49	0.04		1.80	1.80		1.80	1.80						
Total	4.98	28.25	20.49	0.04		1.80	1.80		1.80	1.80						

Mitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.30	3.44	1.96	0.01	0.02	0.10	0.12	0.01	0.10	0.10						
Worker	0.85	0.83	7.73	0.01	0.08	0.05	0.13	0.03	0.05	0.08						
Total	1.15	4.27	9.69	0.02	0.10	0.15	0.25	0.04	0.15	0.18						

3.4 Building Construction - 2015

Unmitigated Construction On-Site

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
Off-Road	4.55	25.97	20.15	0.04		1.61	1.61		1.61	1.61						
Total	4.55	25.97	20.15	0.04		1.61	1.61		1.61	1.61						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.27	3.14	1.83	0.01	0.22	0.09	0.31	0.01	0.09	0.09						
Worker	0.79	0.74	6.98	0.01	2.10	0.05	2.15	0.03	0.05	0.08						
Total	1.06	3.88	8.81	0.02	2.32	0.14	2.46	0.04	0.14	0.17						

3.4 Building Construction - 2015

Mitigated Construction On-Site

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
Off-Road	4.55	25.97	20.15	0.04		1.61	1.61		1.61	1.61						
Total	4.55	25.97	20.15	0.04		1.61	1.61		1.61	1.61						

Mitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.27	3.14	1.83	0.01	0.02	0.09	0.11	0.01	0.09	0.09						
Worker	0.79	0.74	6.98	0.01	0.08	0.05	0.13	0.03	0.05	0.08						
Total	1.06	3.88	8.81	0.02	0.10	0.14	0.24	0.04	0.14	0.17						

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

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
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27						
Total	13.93	2.96	1.94	0.00		0.27	0.27		0.27	0.27						

Unmitigated Construction Off-Site

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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.19	0.18	1.70	0.00	0.42	0.01	0.43	0.01	0.01	0.02						
Total	0.19	0.18	1.70	0.00	0.42	0.01	0.43	0.01	0.01	0.02						

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Blo- CO2	NBlo- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27						
Total	13.93	2.96	1.94	0.00		0.27	0.27		0.27	0.27						

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Blo- CO2	NBlo- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.19	0.18	1.70	0.00	0.02	0.01	0.03	0.01	0.01	0.02						
Total	0.19	0.18	1.70	0.00	0.02	0.01	0.03	0.01	0.01	0.02						

3.5 Architectural Coating - 2014

Unmitigated Construction On-Site

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																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24						
Total	13.89	2.77	1.92	0.00		0.24	0.24		0.24	0.24						

Unmitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.17	0.16	1.54	0.00	0.42	0.01	0.43	0.01	0.01	0.02						
Total	0.17	0.16	1.54	0.00	0.42	0.01	0.43	0.01	0.01	0.02						

3.5 Architectural Coating - 2014

Mitigated Construction On-Site

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																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24						
Total	13.89	2.77	1.92	0.00		0.24	0.24		0.24	0.24						

Mitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.17	0.16	1.54	0.00	0.02	0.01	0.03	0.01	0.01	0.02						
Total	0.17	0.16	1.54	0.00	0.02	0.01	0.03	0.01	0.01	0.02						

3.5 Architectural Coating - 2015

Unmitigated Construction On-Site

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																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.41	2.57	1.90	0.00		0.22	0.22		0.22	0.22						
Total	13.85	2.57	1.90	0.00		0.22	0.22		0.22	0.22						

Unmitigated Construction Off-Site

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																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.16	0.15	1.39	0.00	0.42	0.01	0.43	0.01	0.01	0.02						
Total	0.16	0.15	1.39	0.00	0.42	0.01	0.43	0.01	0.01	0.02						

3.5 Architectural Coating - 2015

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Site CO2	Mobile CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Archit. Coating	13.44					0.00	0.00		0.00	0.00						
Off-Road	0.41	2.57	1.90	0.00		0.22	0.22		0.22	0.22						
Total	13.85	2.57	1.90	0.00		0.22	0.22		0.22	0.22						

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Site CO2	Mobile CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Worker	0.16	0.15	1.39	0.00	0.02	0.01	0.03	0.01	0.01	0.02						
Total	0.16	0.15	1.39	0.00	0.02	0.01	0.03	0.01	0.01	0.02						

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	Total CO2	CH4	N2O	CO2e
Mitigated	8.82	28.22	73.44	0.13	15.24	0.96	16.19	0.22	0.83	1.05					
Unmitigated	8.82	28.22	73.44	0.13	15.24	0.96	16.19	0.22	0.83	1.05					
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
Apartments Low Rise	1,476.16	1,603.84	1,359.68	4,233,106	4,233,106	4,233,106	4,233,106
Total	1,476.16	1,603.84	1,359.68	4,233,106	4,233,106	4,233,106	4,233,106

4.3 Trip Type Information

Land Use	Miles				Trip %	
	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
Apartments Low Rise	10.80	7.30	7.50	42.60	21.00	36.40

5.0 Energy Detail

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																
NaturalGas Mitigated	0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						
NaturalGas Unmitigated	0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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
kBTU		lb/day															
Land Use																	
Apartments Low Rise	8780.76	0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						
Total		0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						

5.2 Energy by Land Use - NaturalGas

Mitigated

Land Use	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
	kBTU																
Apartment's Low Rise	8.78076	0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						
Total		0.09	0.81	0.34	0.01		0.00	0.07		0.00	0.07						

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

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
Mitigated	7.71	0.22	19.08	0.00		0.00	0.37		0.00	0.37						
Unmitigated	125.46	2.32	193.54	0.17		0.00	25.49		0.00	25.49						
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Architectural Coating	1.92					0.00	0.00		0.00	0.00						
Consumer Products	4.79					0.00	0.00		0.00	0.00						
Hearth	118.14	2.10	174.48	0.16		0.00	25.39		0.00	25.38						
Landscaping	0.61	0.22	19.06	0.00		0.00	0.10		0.00	0.10						
Total	125.46	2.32	193.54	0.16		0.00	25.49		0.00	25.48						

Mitigated

SubCategory	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Architectural Coating	1.92					0.00	0.00		0.00	0.00						
Consumer Products	4.79					0.00	0.00		0.00	0.00						
Hearth	0.39	0.00	0.02	0.00		0.00	0.27		0.00	0.27						
Landscaping	0.61	0.22	19.06	0.00		0.00	0.10		0.00	0.10						
Total	7.71	0.22	19.08	0.00		0.00	0.37		0.00	0.37						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Pearl Creek Apartments Project

The on-site construction off-road equipment assumptions used in the modeling are as follows:

Grading

- 1 Excavator, 8 hours per day
- 1 Grader, 8 hours per day
- 1 Rubber Tired Dozer, 8 hours per day
- 1 Tractor/Loader/Backhoe, 8 hours per day

Paving

- 4 Cement and Mortar Mixers, 8 hours per day
- 1 Paver, 8 hours per day
- 2 Paving Equipment, 8 hours per day
- 1 Roller, 8 hours per day
- 1 Tractor/Loader/Backhoe, 8 hours per day

Building Construction

- 1 Crane, 8 hours per day
- 2 Forklifts, 8 hours per day
- 1 Generator Set, 8 hours per day
- 1 Tractor/Loader/Backhoe, 8 hours per day
- 3 Welders, 8 hours per day

Pearl Creek Apartments - GHG Analysis - Projected 2020 BAU (Year 2005)
Placer County APCD Air District, Annual

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric
Apartment Low Rise	224	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Roseville Electric
Climate Zone	2	Precipitation Freq (Days)	74		

1.3 User Entered Comments

Project Characteristics -

Land Use - *based on preliminary site plan

Construction Phase - *construction emissions would not change

Off-road Equipment -

Off-road Equipment - *changed defaults to match those of the District's defaults per URBEMIS, but assumed 8 hrs/day

Grading - Total Acres Disturbed revised to match the Project site size.

Vehicle Trips -

Energy Use - *historical data
 Construction Off-road Equipment Mitigation -
 Mobile Land Use Mitigation -
 Area Mitigation -

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

Category	COG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	Non- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
MT/yr																
Area											231.38	293.86	525.25	0.22	0.02	536.65
Energy											0.00	408.98	408.98	0.02	0.01	411.70
Mobile											0.00	2,336.26	2,336.26	0.19	0.00	2,340.21
Waste											20.92	0.00	20.92	1.24	0.00	46.87
Water											0.00	28.68	28.68	0.45	0.01	41.66
Total											252.30	3,067.78	3,320.09	2.12	0.04	3,377.09

2.2 Overall Operational

Mitigated Operational

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								
Area											0.00	479.12	479.12	0.01	0.01	482.11
Energy											0.00	408.98	408.98	0.02	0.01	411.70
Mobile											0.00	2,331.85	2,331.85	0.19	0.00	2,335.79
Waste											20.92	0.00	20.92	1.24	0.00	46.87
Water											0.00	28.68	28.68	0.45	0.01	41.66
Total											20.92	3,248.63	3,269.55	1.91	0.03	3,318.13

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NI Bio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated											0.00	2,331.85	2,331.85	0.19	0.00	2,335.79
Unmitigated											0.00	2,336.26	2,336.26	0.19	0.00	2,340.21
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
Apartments Low Rise	1,476.16	1,603.84	1,359.68	4,233,106	4,224,781	4,224,781	4,224,781
Total	1,476.16	1,603.84	1,359.68	4,233,106	4,224,781	4,224,781	4,224,781

4.3 Trip Type Information

Land Use	Miles				Trip %	
	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
Apartments Low Rise	10.80	7.30	7.50	42.60	21.00	36.40

5.0 Energy Detail

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																
Electricity Mitigated										0.00	227.56	227.56	227.56	0.01	0.00	229.17
Electricity Unmitigated										0.00	227.56	227.56	227.56	0.01	0.00	229.17
NaturalGas Mitigated										0.00	181.42	181.42	181.42	0.00	0.00	182.53
NaturalGas Unmitigated										0.00	181.42	181.42	181.42	0.00	0.00	182.53
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

Land Use	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																
Apartment's Low Rise	3.39974e+006											0.00	181.42	181.42	0.00	0.00	182.53
Total												0.00	181.42	181.42	0.00	0.00	182.53

5.2 Energy by Land Use - NaturalGas

Mitigated

Land Use	NaturalGas Use kBTU	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Apartment Low Rise	3.39874e+006											0.00	181.42	181.42	0.00	0.00	182.53
Total												0.00	181.42	181.42	0.00	0.00	182.53

5.3 Energy by Land Use - Electricity

Unmitigated

Land Use	Electricity Use kWh	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Apartment Low Rise	887100					227.56	0.01	0.00	229.17
Total						227.56	0.01	0.00	229.17

5.3 Energy by Land Use - Electricity

Mitigated

Land Use	Electricity Use kWh	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Apartment Low Rise	887100					227.56	0.01	0.00	229.17
Total						227.56	0.01	0.00	229.17

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

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
Mitigated											0.00	479.12	479.12	0.01	0.01	482.11
Unmitigated											231.38	293.86	525.25	0.22	0.02	536.65
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	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						
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											231.38	291.12	522.50	0.22	0.02	533.81
Landscaping											0.00	2.75	2.75	0.00	0.00	2.84
Total											231.38	293.87	525.25	0.22	0.02	536.65

Mitigated

SubCategory	ROG	NOx	CO	SO2	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						
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											0.00	476.37	476.37	0.01	0.01	479.27
Landscaping											0.00	2.75	2.75	0.00	0.00	2.84
Total											0.00	479.12	479.12	0.01	0.01	482.11

7.0 Water Detail

7.1 Mitigation Measures Water

Category	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Mitigated					28.68	0.45	0.01	41.66
Unmitigated					28.68	0.45	0.01	41.66
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

Land Use	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal								
Apartment Low Rise	14,5945 / 9,20088					28.68	0.45	0.01	41.66
Total						28.68	0.45	0.01	41.66

7.2 Water by Land Use

Mitigated

Land Use	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	Mgal								
ton/yr									
Apartment Low Rise	14.5945 / 9.20088					28.66	0.45	0.01	41.66
Total						28.66	0.45	0.01	41.66

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
ton/yr								
Mitigated					20.92	1.24	0.00	46.87
Unmitigated					20.92	1.24	0.00	46.87
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

Land Use	Waste Disposed tons	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Apartment's Low Rise	103.04					20.92	1.24	0.00	46.87
Total						20.92	1.24	0.00	46.87

Mitigated

Land Use	Waste Disposed tons	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Apartment's Low Rise	103.04					20.92	1.24	0.00	46.87
Total						20.92	1.24	0.00	46.87

9.0 Vegetation

Pearl Creek Apartments - GHG Analysis - Year 2020
Placer County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Apartment Low Rise	224	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Roseville Electric
Climate Zone	2	Precipitation Freq (Days)	74		

1.3 User Entered Comments

Project Characteristics - *modified intensity factors based on the 33% RPS reduction required by 2020

Land Use - *based on preliminary site plan

Construction Phase - *estimated construction phase timing from applicant

Off-road Equipment -

Off-road Equipment - *modified (where appropriate) based on local statistics, but assumed 8 hrs/day for all

Off-road Equipment - *modified (where appropriate) based on local statistics, but assumed 8 hrs/day

Off-road Equipment - *modified (where applicable) based on local statistics, assumed 8 hrs/day for all

Grading - Total Acres Disturbed revised to match the Project site size.

Architectural Coating -

Vehicle Trips -

Woodstoves -

Energy Use -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - *District restricts wood-burning hearths; therefore, requiring only natural gas hearth is not considered mitigation

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	ROG	NOx	CO	SO2	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					
2013											0.00	471.07	471.07	0.05	0.00	472.11
2014											0.00	720.57	720.57	0.07	0.00	722.03
2015											0.00	271.20	271.20	0.02	0.00	271.71
Total											0.00	1,462.84	1,462.84	0.14	0.00	1,465.85

Mitigated Construction

Year	ROG	NOx	CO	SO2	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					
2013											0.00	471.07	471.07	0.05	0.00	472.11
2014											0.00	720.57	720.57	0.07	0.00	722.03
2015											0.00	271.20	271.20	0.02	0.00	271.71
Total											0.00	1,462.84	1,462.84	0.14	0.00	1,465.85

2.2 Overall Operational

Unmitigated Operational

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															
Area											231.38	293.86	525.25	0.22	0.02	536.61
Energy											0.00	318.30	318.30	0.01	0.01	320.34
Mobile											0.00	1,843.81	1,843.81	0.06	0.00	1,845.10
Waste											20.92	0.00	20.92	1.24	0.00	46.87
Water											0.00	19.27	19.27	0.45	0.01	32.18
Total											252.30	2,475.24	2,727.55	1.98	0.04	2,761.10

2.2 Overall Operational

Mitigated Operational

Category	ROG	NOx	CO	SO _x	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Biogenic CO ₂	Net CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
tons/yr											MT/yr					
Area											0.00	479.12	479.12	0.01	0.01	482.07
Energy											0.00	318.30	318.30	0.01	0.01	320.34
Mobile											0.00	1,722.25	1,722.25	0.06	0.00	1,723.46
Waste											20.92	0.00	20.92	1.24	0.00	46.87
Water											0.00	19.27	19.27	0.45	0.01	32.18
Total											20.92	2,538.94	2,559.86	1.77	0.03	2,604.92

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

3.2 Grading - 2013

Unmitigated Construction On-Site

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																
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	14.01	14.01	0.00	0.00	14.04
Total											0.00	14.01	14.01	0.00	0.00	14.04
MT/yr																

Unmitigated Construction Off-Site

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																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.29	0.29	0.00	0.00	0.29
Total											0.00	0.29	0.29	0.00	0.00	0.29
MT/yr																

3.2 Grading - 2013

Mitigated Construction On-Site

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																
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	14.01	14.01	0.00	0.00	14.04
Total											0.00	14.01	14.01	0.00	0.00	14.04
MT/yr																

Mitigated Construction Off-Site

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																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.29	0.29	0.00	0.00	0.29
Total											0.00	0.29	0.29	0.00	0.00	0.29
MT/yr																

3.3 Paving - 2013

Unmitigated Construction On-Site

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																
Off-Road											0.00	7.96	7.96	0.00	0.00	7.99
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	7.96	7.96	0.00	0.00	7.99
MT/yr																

Unmitigated Construction Off-Site

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																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.66	0.66	0.00	0.00	0.66
Total											0.00	0.66	0.66	0.00	0.00	0.66
MT/yr																

3.3 Paving - 2013

Mitigated Construction On-Site

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					
Off-Road											0.00	7.96	7.96	0.00	0.00	7.99
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	7.96	7.96	0.00	0.00	7.99

Mitigated Construction Off-Site

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					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.66	0.66	0.00	0.00	0.66
Total											0.00	0.66	0.66	0.00	0.00	0.66

3.4 Building Construction - 2013

Unmitigated Construction On-Site

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
Off-Road											0.00	253.32	253.32	0.04	0.00	254.07
Total											0.00	253.32	253.32	0.04	0.00	254.07

Unmitigated Construction Off-Site

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
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	48.75	48.75	0.00	0.00	48.77
Worker											0.00	106.79	106.79	0.01	0.00	106.90
Total											0.00	155.54	155.54	0.01	0.00	155.67

3.4 Building Construction - 2013

Mitigated Construction On-Site

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																
Off-Road											0.00	253.32	253.32	0.04	0.00	254.07
Total											0.00	253.32	253.32	0.04	0.00	254.07
MT/yr																

Mitigated Construction Off-Site

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																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	48.75	48.75	0.00	0.00	48.77
Worker											0.00	106.79	106.79	0.01	0.00	106.90
Total											0.00	155.54	155.54	0.01	0.00	155.67
MT/yr																

3.4 Building Construction - 2014

Unmitigated Construction On-Site

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
Off-Road											0.00	408.12	408.12	0.05	0.00	409.23
Total											0.00	408.12	408.12	0.05	0.00	409.23

Unmitigated Construction Off-Site

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
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	78.55	78.55	0.00	0.00	78.59
Worker											0.00	167.35	167.35	0.01	0.00	167.53
Total											0.00	245.90	245.90	0.01	0.00	246.12

3.4 Building Construction - 2014

Mitigated Construction On-Site

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
Off-Road											0.00	408.12	408.12	0.05	0.00	409.23
Total											0.00	408.12	408.12	0.05	0.00	409.23

Mitigated Construction Off-Site

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
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	78.55	78.55	0.00	0.00	78.59
Worker											0.00	167.35	167.35	0.01	0.00	167.53
Total											0.00	245.90	245.90	0.01	0.00	246.12

3.4 Building Construction - 2015

Unmitigated Construction On-Site

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
Off-Road											0.00	153.24	153.24	0.02	0.00	153.62
Total											0.00	153.24	153.24	0.02	0.00	153.62

Unmitigated Construction Off-Site

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
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	29.50	29.50	0.00	0.00	29.51
Worker											0.00	61.27	61.27	0.00	0.00	61.33
Total											0.00	90.77	90.77	0.00	0.00	90.84

3.4 Building Construction - 2015

Mitigated Construction On-Site

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
Off-Road											0.00	153.24	153.24	0.02	0.00	153.62
Total											0.00	153.24	153.24	0.02	0.00	153.62

Mitigated Construction Off-Site

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
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	29.50	29.50	0.00	0.00	29.51
Worker											0.00	61.27	61.27	0.00	0.00	61.33
Total											0.00	90.77	90.77	0.00	0.00	90.84

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

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																
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	19.38	19.38	0.00	0.00	19.44
Total											0.00	19.38	19.38	0.00	0.00	19.44
MT/yr																

Unmitigated Construction Off-Site

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																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	19.91	19.91	0.00	0.00	19.94
Total											0.00	19.91	19.91	0.00	0.00	19.94
MT/yr																

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

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																
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	19.38	19.38	0.00	0.00	19.44
Total											0.00	19.38	19.38	0.00	0.00	19.44
MT/yr																

Mitigated Construction Off-Site

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																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	19.91	19.91	0.00	0.00	19.94
Total											0.00	19.91	19.91	0.00	0.00	19.94
MT/yr																

3.5 Architectural Coating - 2014

Unmitigated Construction On-Site

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
kns/yr																
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	33.28	33.28	0.00	0.00	33.38
Total											0.00	33.28	33.28	0.00	0.00	33.38
MT/yr																

Unmitigated Construction Off-Site

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
kns/yr																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	33.26	33.26	0.00	0.00	33.30
Total											0.00	33.26	33.26	0.00	0.00	33.30
MT/yr																

3.5 Architectural Coating - 2014

Mitigated Construction On-Site

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					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	33.28	33.28	0.00	0.00	33.36
Total											0.00	33.28	33.28	0.00	0.00	33.36

Mitigated Construction Off-Site

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					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	33.26	33.26	0.00	0.00	33.30
Total											0.00	33.26	33.26	0.00	0.00	33.30

3.5 Architectural Coating - 2015

Unmitigated Construction On-Site

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																
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	13.77	13.77	0.00	0.00	13.81
Total											0.00	13.77	13.77	0.00	0.00	13.81
MT/yr																

Unmitigated Construction Off-Site

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																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	13.42	13.42	0.00	0.00	13.43
Total											0.00	13.42	13.42	0.00	0.00	13.43
MT/yr																

3.5 Architectural Coating - 2015

Mitigated Construction On-Site

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
lonsyr																
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	13.77	13.77	0.00	0.00	13.81
Total											0.00	13.77	13.77	0.00	0.00	13.81

Mitigated Construction Off-Site

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
lonsyr																
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	13.42	13.42	0.00	0.00	13.43
Total											0.00	13.42	13.42	0.00	0.00	13.43

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Improve Destination Accessibility
 Increase Transit Accessibility
 Improve Pedestrian Network

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
Mitigated											0.00	1,722.25	1,722.25	0.06	0.00	1,723.46
Unmitigated											0.00	1,843.81	1,843.81	0.06	0.00	1,845.10
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
Apartment Low Rise	1,476.16	1,603.84	1,359.68	4,233,106		3,941,022	
Total	1,476.16	1,603.84	1,359.68	4,233,106		3,941,022	

4.3 Trip Type Information

Land Use	Miles			Trip %		
	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
Apartments Low Rise	10.80	7.30	7.50	42.60	21.00	36.40

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	tons/yr										MT/yr					
	CO2	NOx	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Electricity Mitigated										0.00	147.27	147.27	0.01	0.00	148.27	
Electricity Unmitigated										0.00	147.27	147.27	0.01	0.00	148.27	
Natural Gas Mitigated										0.00	171.03	171.03	0.00	0.00	172.07	
Natural Gas Unmitigated										0.00	171.03	171.03	0.00	0.00	172.07	
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	COG	NOx	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Biogenic CO2	Net Biogenic CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU															
Apartment Low Rise	3.20498e+006										0.00	171.03	171.03	0.00	0.00	172.07
Total											0.00	171.03	171.03	0.00	0.00	172.07

Mitigated

	NaturalGas Use	COG	NOx	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Biogenic CO2	Net Biogenic CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU															
Apartment Low Rise	3.20498e+006										0.00	171.03	171.03	0.00	0.00	172.07
Total											0.00	171.03	171.03	0.00	0.00	172.07

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh								
Apartment's Low Rise	856878					147.27	0.01	0.00	148.27
Total						147.27	0.01	0.00	148.27

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh								
Apartment's Low Rise	856878					147.27	0.01	0.00	148.27
Total						147.27	0.01	0.00	148.27

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr															
Mitigated											0.00	479.12	479.12	0.01	0.01	482.07
Unmitigated											231.38	293.86	525.25	0.22	0.02	536.61
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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															
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											231.38	291.12	522.50	0.22	0.02	533.81
Landscaping											0.00	2.75	2.75	0.00	0.00	2.80
Total											231.38	293.87	525.25	0.22	0.02	536.61

6.2 Area by SubCategory

Mitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	lbs/yr					MT/yr										
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											0.00	476.37	476.37	0.01	0.01	479.27
Landscaping											0.00	2.75	2.75	0.00	0.00	2.80
Total											0.00	479.12	479.12	0.01	0.01	482.07

7.0 Water Detail

7.1 Mitigation Measures Water

Category	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Mitigated					19.27	0.45	0.01	32.18
Unmitigated					19.27	0.45	0.01	32.18
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

Land Use	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal								
Apartments Low Rise	14,5945 / 9,20088					19.27	0.45	0.01	32.18
Total						19.27	0.45	0.01	32.18

7.2 Water by Land Use

Mitigated

Land Use	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	Mgal	lbm/yr				MT/yr			
Apartment Low Rise	14,5945 / 9,20088					19.27	0.45	0.01	32.18
Total						19.27	0.45	0.01	32.18

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	lbm/yr				MT/yr			
Mitigated					20.92	1.24	0.00	46.87
Unmitigated					20.92	1.24	0.00	46.87
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

Land Use	Waste Disposed tons	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
MTr/yr									
Apartments Low Rise	103.04					20.92	1.24	0.00	46.87
Total						20.92	1.24	0.00	46.87

Mitigated

Land Use	Waste Disposed tons	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
MTr/yr									
Apartments Low Rise	103.04					20.92	1.24	0.00	46.87
Total						20.92	1.24	0.00	46.87

9.0 Vegetation



TECHNICAL MEMORANDUM

DATE: March 27, 2013
TO: Ms. Tricia Stewart, Associate Planner, City of Roseville
FROM: Jessica Alexander
SUBJECT: **Biological Resources Technical Memorandum for
Cresleigh Homes Phase II: Antelope Creek Apartments Project**

Attachments

- 1 – Figure 1: Project Impacts to Habitat Types in the Study Area
- 2 – Figure 2: Representative Photographs (2012)
- 3 – USFWS, CDFW, and CNPS Database Queries (2013)
- 4 – USFWS Biological Opinion (1997)
- 5 – USACE Section 404 Permit, Nationwide 26 (1997)

1.0 Purpose and Introduction

This Biological Resources Technical Memorandum has been prepared for the City of Roseville (City) in order to provide biological resources documentation in support of the City's CEQA document.

The Cresleigh Homes Phase II Antelope Creek Apartments Project (project) is located in the City of Roseville in Placer County, California. The project occurs within Placer County Assessor's parcel numbers 015-166-009-000. Phase I of the Antelope Creek Apartments Project was constructed in the late 1990's, while construction of Phase II is now anticipated to begin in 2013. Cresleigh Homes, Inc., has acquired the property for construction of the Phase II apartments.

A biological survey was conducted by AES in August of 2012 to document the biological resources present on the project site and to evaluate the site for the potential to support special-status species. Responses to the CEQA checklist questions are presented below. A summary of the methodology and results of the field survey is provided on the following pages as supplemental information (Sections 3.0 and 4.0).

2.0 Responses to CEQA Checklist Questions

- a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

The project would not have a substantial adverse effect on any special status species. There are no occurrence records for special status species within or directly adjacent to the project site (CDFW, 2013). The following discussion shows the mitigation measures that have been completed to date (see *Vernal Pool Crustaceans*) as well mitigation measures recommended to lessen project impacts to less than significant (see *Raptors and Migratory Birds*).

Vernal Pool Crustaceans

The project site contains marginal vernal pool habitat that has a low potential to support three federally listed species, vernal pool tadpole shrimp (VPTS) (*Lepidurus packardii*), vernal pool fairy shrimp (VPFS) (*Branchinecta lynchi*), and conservancy fairy shrimp (CFS) (*Branchinecta conservatio*) (CDFW, 2013). There are no records of these vernal pool species within the project site (CDFW, 2013). The vernal pools present within the project site were observed to be of marginal quality and were highly disturbed by truck traffic, partial grading of the site by equipment, and soil piling from past activities (AES, 2012). Overall, the habitat quality is low and the total acreage of vernal pool habitat is minimal.

Previously, project impacts to vernal pool species were addressed in the 1997 Biological Opinion for Phases I and II Antelope Creek Apartments Project and Antelope Creek Bicycle and Pedestrian Trail Project (City of Roseville, 2004; Wildlands 1997a-d; USFWS, 2006a/b). **Table 1** below shows how the mitigation for direct and indirect impacts to special status vernal pool crustacean species under the 1997 Biological Opinion have been fully met for Phases I and II of the Antelope Creek Apartments Project through the purchase of off-site mitigation banking credits. This fully completed mitigation per the 1997 Biological Opinion effectively covers impacts to vernal pool crustacean species from Phases I and II of the project.

Additional mitigation above and beyond the full mitigation completed in 1997 under the Biological Opinion was performed again in 2005 by the City of Roseville for its bike trail project. **Table 1** below shows how indirect impacts of the Antelope Creek Bicycle and Pedestrian Trail Project to the same vernal pools on the project site were fully mitigated for by purchase of off-site mitigation credits in 2006 (USFWS, 2006 a/b). Since the mitigation specified in the 1997 Biological Opinion and in the 2005 Biological Opinion (issued for the bike trail project) covered impacts to vernal pool species and since this mitigation has been fully met, no additional surveys for vernal pool species have been performed. Therefore, impacts of the project to vernal pool species would be less than significant.

TABLE 1
SUMMARY OF MITIGATION COMPLETED FOR DIRECT AND INDIRECT IMPACTS

Antelope Creek Apartments Project				
Permit (Date)	Project Impacts	Type	Acreage Impacted	Total Required Mitigation Acreage Completed
USFWS Programmatic BO (1997)	Direct & Indirect	Vernal Pools	0.26 ¹	0.74 ^{2,3}
USACE NWP #26 (1997)	Direct	Waters of the U.S., including wetlands	0.64 ⁴	0.38 ⁵
USFWS BO (2005)	Indirect	Vernal Pools	0.044 ⁶	0.088 ⁶
Combined Total of Direct and Indirect Impacts of Project (Phases I and II):			0.944	
Grand Total Mitigation Completed for Direct and Indirect Impacts to Waters of the U.S. including Wetlands (Phases I and II):				1.208
Current Phase II Project	Direct	1 Vernal Pool	0.045	Covered under the above 1.208 acres of Mitigation Completed.
	Direct	1 Potentially Jurisdictional Drainage	0.007	Covered under the above
	Direct (On-site) Subtotal		0.052	Covered under the above ⁷
	Indirect	4 Vernal Pools (off-site)	0.152	Covered under the above
	Indirect (Off-site) Subtotal		0.152	Covered under the above
Combined Total of Direct and Indirect Impacts of Phase II:			0.204	Covered under the above ⁸ . *The project will not result in any new impacts to Waters of the U.S. or wetlands not previously identified or mitigated for in the above 1.208 acres of Mitigation Completed.

Sources:

¹USFWS letter dated 9/30/1997

²Wildlands Bills of Sale dated 10/3/1997 and 11/12/1997

³Wildlands Bills of Sale dated 10/30/1997 and 10/10/1997

⁴USACE letter dated 9/15/1997

⁵ECORP Mitigation and Monitoring Report dated 10/25/2000

⁶USFWS, 2006a/b

⁷ Project impacts to 0.052 acres is identified in the Phase II Antelope Creek Apartments Section 401 Water Quality Certification Application currently pending before the RWQCB.

⁸Project impacts to 0.052 acres is identified in the Phase II Antelope Creek Apartments Section 404 Request for Letter of Permission Application currently pending before the USACE.

AES, 2013

Raptors and Migratory Birds

Figure 1 attached shows the habitat types found on the project site. The non-native annual grasslands on the project site are highly disturbed and of marginal quality; although this area may be used by raptor species, such as Swainson's hawk (*Buteo swainsonii*) for foraging. Swainson's hawk is recognized as a state threatened species. There are four blue oaks (*Quercus douglasii*) on the project site that will be impacted by the project (refer to question e) below). These oak trees may be used by raptors or other migratory birds for nesting. The nearest occurrence record for a

Swainson's hawk nest occurs 4.5 miles to the west on the other side of the downtown City of Roseville area from the project site (CDFW, 2013). Swainson's hawk was not observed utilizing the project site during the biological survey performed in August of 2012 (AES, 2012). Project impacts to the relatively small amount of low quality, highly disturbed foraging habitat onsite do not represent a significant impact to Swainson's hawk foraging habitat. However, to avoid potential impacts to nesting migratory birds, including Swainson's hawk, the following mitigation measure is recommended.

- If project activities are scheduled between February 1 and August 31, CDFW recommends surveys and avoidance measures for nesting raptors and migratory birds. With respect to surveys for nesting bird and raptor species, CDFW recommends that the project specifies: 1) nest surveys be conducted no earlier than 14 days prior to tree removal and/or breaking ground (surveys should be conducted a minimum of 3 separate days during the 14 days prior to disturbance), 2) in the event that nesting birds are found, the project applicant should consult with CDFW and obtain approval for nest-protection buffers prior to tree removal and/or ground disturbing activities, and 3) nest protection buffers will remain in effect until the young have fledged. All nest protection measures should apply to off-site impacts and within 500 feet of project activities. If a lapse in project-related work of 15 days or longer occurs, another focused survey and, if required, consultation with CDFW, will be required before project work can be reinitiated.

- b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

The project would not have a substantial adverse effect on riparian habitat because the project site is located outside of the riparian corridor of Antelope Creek. The project would impact the vernal pools on site; however, the project would not result in substantial adverse effects because the vernal pool habitat onsite has been fully mitigated for through off-site mitigation as explained in a) above. Re-verification of wetland acreage impacts on the project site is currently pending approval by the USACE as explained in detail under c) below. The project will not result in any new or additional substantial adverse effects to sensitive communities on the project site because no such communities are present.

- c) *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

In 1997, a USACE Section 404 permit was issued under Nationwide Permit 26 for Phases I and II of the Antelope Creek Apartments Project. Although development of the project would result in the removal of vernal pools, a type of wetland, these effects have already been fully mitigated according to the USACE 404 permit conditions (USFWS, 1997). **Table 1** shows how full mitigation for impacts to vernal pools occurring from Phases I and II of the project have been completed under Section 404 consistent with the USACE Nationwide Permit 26 (USACE, 1997).

Since the mitigation identified in the 1997 USACE permit has been fully met, no substantial adverse effects to federally protected wetlands under Section 404 would occur. No new or additional substantial adverse effects to wetlands defined under Section 404 would occur due to the project.

The onsite mitigation completed near the Phase I apartments area (0.38 acres) and the offsite mitigation purchased for direct and indirect impacts of Phases I and II of the project in 1997 (0.74 acres) combined with the offsite mitigation purchased in 2006 for indirect impacts from the City's Antelope Creek Bike and Pedestrian Trail Project (0.088 acres), when totaled equals 1.208 acres which provide full mitigation for the project (Wildlands 1997a-d; USFWS, 2006a/b; ECORP, 2000). The 1.208 acres of Mitigation Completed for the entire project more than covers the combined direct and indirect impacts of 0.204 acres that are anticipated from development of the current Phase II project. As stated in **Table 1**, the project will not result in any new impacts to Waters of the U.S. or wetlands not previously identified or mitigated for in the above 1.208 acres of Mitigation Completed.

Re-verification of the waters of the U.S. acreage impacts identified in **Table 1** is currently pending USACE approval via the Letter of Permission (LOP) process. To date, an updated wetland delineation performed in 2012 by AES has been submitted to the USACE for wetland re-verification. The 2012 updated wetland delineation includes the aquatic features shown in **Figure 1**.

As shown in **Figure 1**, today the study area includes five vernal pools (totaling approximately 0.197 acres) and three ephemeral drainages (totaling approximately 0.021 acres). In 1997, 0.197 acres of vernal pools (see **Table 1**) and 0.04 acres of drainages were identified for Phases I and II (USFWS, 1997, USACE, 1997). These impact acreages have been fully mitigated by the purchase of offsite mitigation banking credits in 1997 (**Table 1**) as indicated in the attached figure.

- d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

The vernal pools and ephemeral drainages on the project site do not provide habitat for fish. Vernal pools dry out in summer and do not provide habitat for native fish. Two of the ephemeral drainages direct stormwater from culverts into the project site, where flow is dissipated in the non-native grassland. These drainages each appeared to have a man-made excavated bed, bank, and channel, and showed evidence of attempts to pipe a portion of the runoff underground. These drainages are isolated from natural water courses. The third drainage was characterized as a wash or swale and is also fed by stormwater which is diverted through culverts. No discernible channel was present between the culverts. All of these ephemeral drainages lack the habitat characteristics to support fish.

No wildlife corridors or nursery sites are present within the project site (City of Roseville, 2004). The project would not affect the movement of any migratory wildlife species.

- e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

The City of Roseville has a Tree Preservation Ordinance (Chapter 19.66 of the Zoning Ordinance). The project applicant, Cresleigh Homes Inc., shall mitigate for the inches lost of

native tree species, such as oak. There are four blue oak (*Quercus douglasii*) that occur on the project site. These trees are proposed for removal under the project's tree permit for a total of 167 inches. The project applicant shall follow the conditions of the tree permit, which will ensure compliance with the City's Tree Preservation Ordinance.

- f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

The project will not conflict with any conservation plans because there are none for the project area.

Supplemental Information

3.0 Survey Methodology

Database Queries

Information on biological resources in the vicinity of the project site was obtained by AES from the following sources:

- USFWS list of federal listed special-status species with the potential to occur or be affected by projects on the "Roseville, CA" USGS quad and eight surrounding quads (USFWS, 2013; **Attachment 2**).
- California Natural Diversity Database (CNDDDB) query of special-status species known to occur within the "Roseville, CA" quad and eight surrounding quads (CDFW, 2013; **Attachment 2**).
- California Native Plant Society (CNPS) query for special-status species known to occur within the "Roseville, CA" quad and eight surrounding quads (CNPS, 2013; **Attachment 2**).
- Special-status species occurrences within five miles of the project site (CDFW, 2013).
- Aerial photographs and topographic maps of the project site.
- 1997 Jurisdictional Determination granted by the USACE for the project site (Corps File No. 1997-00413).
- 2000 Mitigation and Monitoring Report for Antelope Creek Apartments (Corps File No. 1997-00413).
- 2004 Wetland delineation conducted on the project site as part of the Roseville Bicycle Master Plan Initial Study/Mitigated Negative Declaration.
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey of Placer County, CA [Natural Resources Conservation Service (NRCS), 2010].
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS, 1987).

For the purposes of this assessment, "special-status" has been defined to include those species that are:

- Listed as endangered or threatened under the federal Endangered Species Act (or formally proposed for, or candidates for, listing).
- Listed as endangered or threatened under the California Endangered Species Act (or proposed for listing).
- Designated as endangered or rare, pursuant to the California Fish and Wildlife Code (§1901).

- Designated as fully protected, pursuant to the California Fish and Wildlife Code (§3511, §4700, or §5050).
- Designated as species of concern to the CDFW.
- Defined as rare or endangered under CEQA.
- Designated as rare according to the California Native Plant Protection Act.

Field Survey

Analytical Environmental Services (AES) biologists Jessica Alexander and Jacqueline McCrory conducted a biological field survey of the study area on August 9, 2012. The field survey was performed to assess the biological resources within the project site. The biologists walked meandering transects through the entire site, closely inspecting any areas that had been previously mapped as wetlands or vernal pools. Vegetation communities and water resources were mapped and described, and the site was evaluated for the potential to support state and/or federally listed special-status plant species.

4.0 Results

Terrestrial Habitat Types

The dominant vegetation associated with the study area includes non-native annual grassland with sparse valley oaks throughout. Non-native annual grassland onsite consists of: wild oat (*Avena fatua*), tall fescue (*Festuca arundinaceae*), common velvetgrass (*Holcus lanatus*), rabbit foot grass (*Polypogon monspeliensis*), Italian rye grass (*Lolium multiflorum*), cobwebby hedge nettle (*Stachys albens*), and spearscale (*Atriplex triangularis*). The study area is highly disturbed. Soil piles and topography indicate that inconsistent grading and piling of soils were previously performed by construction equipment, most likely in anticipation of development of the apartments. Disturbed soils and numerous tire tracks were seen across the entire study area. In addition, articles of trash and disconnected segments of plastic stormwater piping were observed near the northeast corner of the property. Stormwater conveyed through a culvert under an off-site road to the northeast of the study area becomes channelized and runs northeast to southwest through the eastern edge of the study area.

Aquatic Habitat Types

The study area includes five vernal pools (totaling approximately 0.197 acres) and three ephemeral drainages (totaling approximately 0.021 acres). In 1997, 0.197 acres of vernal pools and 0.04 acres of drainages (identified as waters of the U.S.) on the project site were identified for Phases I and II of the Antelope Creek Apartments Project by the 1997 Biological Opinion and 1997 USACE 404 permit, respectively (USFWS, 1997, USACE, 1997). These impact acreages have been fully mitigated by the purchase of offsite mitigation banking credits in 1997 (Wildlands 1997a-d). As stated above, re-verification of acreage impacts is currently pending USACE approval via the LOP process. A description of how the vernal pools and drainages appear on the project site today is provided in the following. Representative photos of the project site are shown in **Figure 2** attached.

The vernal pools present within the study area today are of marginal quality and have been highly disturbed by truck traffic, partial grading of the site by equipment, and soil piling from past activities. The primary species present in the vernal pools was coyote thistle (*Eryngium castrense*).

The two drainages in the northeastern corner of the study area represent washed-out areas where stormwater runoff is directed into the study area through culverts located offsite. These drainages appeared to have a man-made excavated bed, bank, and channel for a short distance and sand was noted in the channel that was likely previously brought in by equipment. These two drainages were not channelized continuously, as a portion of the northern drainage had been directed through a short piece of underground piping. Overall, the area was highly disturbed and the remains of past excavation of the channel and attempts to pipe a portion of the runoff underground appeared futile and in disrepair. The flow from these drainages dissipates out in the non-native grassland.

The southwest drainage in the study area was characterized as a wash or swale, which is fed from stormwater surface sheet flow carried across the study area before being diverted beneath a dirt road within the study area. A second culvert at the southernmost end of the drainage wash/swale directs flows beneath the bike trail and off-site, down slope towards Antelope Creek.

Special Status Plant Species

A variety of botanical surveys for special status plant species were conducted within the project site with negative results (City of Roseville 2004), and there are no recorded occurrences of any special status plants within the project site. Based on the lack of records and the negative survey results, no special status plant species occur within the project site.

5.0 References

- Analytical Environmental Services, 2012. Biological Technical Memorandum. Subject: Wetland Delineation Re-Verification for Cresleigh Homes Phase II: Antelope Creek Apartments Project. Prepared for Mr. Will Ness, U.S. Army Corps of Engineers. September 24, 2012.
- California Department of Fish and Wildlife (CDFW), 2013. California Natural Diversity Database: RareFind 4. Available online: <https://nrm.dfg.ca.gov/cnddb/view/query.aspx>. Accessed on January 24, 2013.
- California Native Plant Society (CNPS), 2013. Inventory of Rare and Endangered Plants (Online edition version 8-01a). Available online: <http://www.rareplants.cnps.org>. Accessed on January 24, 2013.
- City of Roseville, 2004. Draft Roseville Bicycle Master Plan Initial Study/Mitigated Negative Declaration for the Antelope Creek Bicycle and Pedestrian Trail Project. Date September 2004.
- Hickman, James C., 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, California.
- Natural Resources Conservation Service (NRCS), 2012. Official Soil Series Descriptions. Available online at <http://soils.usda.gov/technical/classification/osd/index.html> (accessed September 20, 2012).
- U.S. Fish and Wildlife Service (USFWS), 1997. Review of the Antelope Creek Apartments Project (ID# 199700413), Roseville, Placer County, California, for Inclusion with the Vernal Pool Crestaceans Programmatic Consultation of February 28, 1996 (1-1-96-F-1). Letter Addressed to Bob Junel, Chief Sacramento Valley Office, USACE. Dated September 30, 1997.

U.S. Fish and Wildlife Service (USFWS), 2006a. Agreement between the United States Fish and Wildlife Service, Vernal Pool Conservation Fund Participant and the Center for Natural Lands Management. February 13, 2006.

U.S. Fish and Wildlife Service (USFWS), 2006b. U.S. Fish and Wildlife Service Vernal Pool Conservation Fund Account Payment Receipt. February 13, 2006.

United States Fish and Wildlife Service (USFWS), 2013. Sacramento Fish and Wildlife Office, Endangered Species Program. Available online:
http://www.fws.gov/sacramento/es_species/Lists/es_species_lists-overview.htm. Accessed on January 25, 2013.

Wildlands, Inc., 1997a. Bill of Sale for 0.08 acres mitigation credits. Dated October 10, 1997.

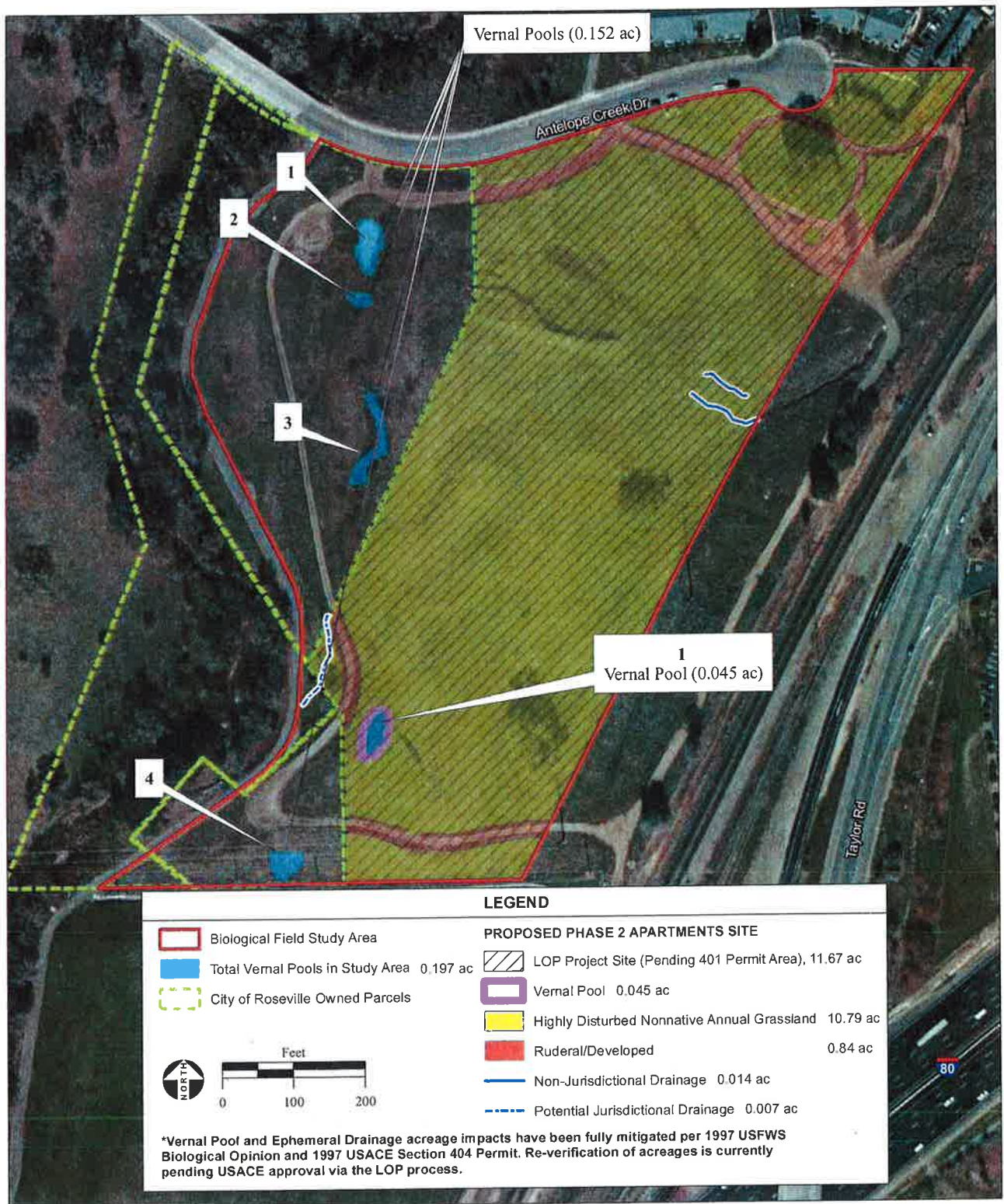
Wildlands, Inc., 1997b. Bill of Sale for 0.18 acres mitigation credits. Dated October 30, 1997.

Wildlands, Inc., 1997c. Bill of Sale for 0.36 acres mitigation credits. Dated November 12, 1997.

Wildlands, Inc., 1997d. Bill of Sale for 0.16 acres mitigation credits. Dated October 3, 1997.

ATTACHMENT 1

FIGURE 1 - PROJECT IMPACTS TO HABITAT TYPES IN THE STUDY AREA



SOURCE: USDA aerial photograph, 7/13/2010; AES, 2013

Cresleigh Homes Phase II Antelope Creek Apartments Project / 210561 ■

Figure 1
Project Impacts to Habitat Types in the Study Area

ATTACHMENT 2

FIGURE 2 – REPRESENTATIVE PHOTOGRAPHS (2012)



PHOTO 1: View to the southwest of the project site. Disturbed, non-native annual grassland with truck tracks, soil piling, and remnant grading paths seen in the landscape.



PHOTO 2: View to northwest of dirt roads through the project site.



PHOTO 3: View to south of culvert located outside of project site, which drains intermittent surface flows onto the site. This ephemeral drainage rapidly dissipates in the field.



PHOTO 4: View to the west of ephemeral drainage in the northeast of the project site, which dissipates into the open field.



PHOTO 5: View to north of highly disturbed vernal pools onsite. Tire marks seen through the area.



PHOTO 7: View to northwest of ephemeral swale/wash in the southwestern portion of project site, which begins from a culvert placed beneath the dirt road onsite. No defined bed, bank or channel is present in the swale.



PHOTO 6: View to the north of vernal pools on the project site with past activity of soil piling seen in the background.



PHOTO 8: View west of the southern portion of the project site. Offsite landfill seen to the left. Offsite Antelope Creek seen in the background.

ATTACHMENT 3

USFWS, CDFW, AND CNPS DATABASE QUERIES (2013)

CNPS *California Native Plant* Inventory of Rare and Endangered Plants

Plant List

13 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around 38121G3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Listing Status	Federal Listing Status
<u>Balsamorhiza macrolepis</u>	big-scale balsamroot	Asteraceae	perennial herb	1B.2		
<u>Chloropyron molle ssp. hispidum</u>	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1		
<u>Clarkia biloba ssp. brandegeae</u>	Brandegee's clarkia	Onagraceae	annual herb	4.2		
<u>Downingia pusilla</u>	dwarf downingia	Campanulaceae	annual herb	2.2		
<u>Fritillaria agrestis</u>	stinkbells	Liliaceae	perennial bulbiferous herb	4.2		
<u>Gratiola heterosepala</u>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	CE	
<u>Juncus leiospermus var. ahartii</u>	Ahart's dwarf rush	Juncaceae	annual herb	1B.2		
<u>Juncus leiospermus var. leiospermus</u>	Red Bluff dwarf rush	Juncaceae	annual herb	1B.1		
<u>Legenere limosa</u>	legenere	Campanulaceae	annual herb	1B.1		
<u>Navarretia myersii ssp. myersii</u>	pincushion navarretia	Polemoniaceae	annual herb	1B.1		
<u>Navarretia nigelliformis ssp. nigelliformis</u>	adobe navarretia	Polemoniaceae	annual herb	4.2		
<u>Orcuttia viscida</u>	Sacramento Orcutt grass	Poaceae	annual herb	1B.1	CE	FE
<u>Sagittaria sanfordii</u>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb	1B.2		

Suggested Citation

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-01a). California Native Plant Society. Sacramento, CA. Accessed on Thursday, January 24, 2013.

Search the Inventory

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Contributors

Jenkins Family

Bilisoly Bequest Grant

[California Natural Diversity Database](#)

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U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 130125011948

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

Lepidurus packardii

vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana draytonii

California red-legged frog (T)

Reptiles

Thamnophis gigas

giant garter snake (T)

Plants

Orcuttia viscida

Critical habitat, Sacramento Orcutt grass (X)

Sacramento Orcutt grass (E)

Candidate Species

Birds

Coccyzus americanus occidentalis

Western yellow-billed cuckoo (C)

Quads Containing Listed, Proposed or Candidate Species:

FOLSOM (511B)

CITRUS HEIGHTS (512A)

RIO LINDA (512B)

GOLD HILL (527B)

ROCKLIN (527C)

LINCOLN (528A)

SHERIDAN (528B)

PLEASANT GROVE (528C)

ROSEVILLE (528D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List**How We Make Species Lists**

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the

list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to

listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be April 25, 2013.



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S3	WL
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	None	G2G3	S2	SSC
<i>Alkali Meadow</i> Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
<i>Alkali Seep</i> Alkali Seep	CTT45320CA	None	None	G3	S2.1	
<i>Ammodramus savannarum</i> grasshopper sparrow	ABPBXA0020	None	None	G5	S2	SSC
<i>Andrena subapasta</i> vernal pool andrenid bee	IIHYM35050	None	None	G1G3	S1S3	
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Ardea alba</i> great egret	ABNGA04040	None	None	G5	S4	
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S2	SSC
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	ICBRA03010	Endangered	None	G1	S1	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S2S3	
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S2	
<i>Chloropyron molle ssp. hispidum</i> hispid bird's-beak	PDSCR0J0D1	None	None	G2T2	S2.1	1B.1
<i>Clarkia biloba ssp. brandegeae</i> Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G4	S2S3	SSC
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
<i>Downingia pusilla</i> dwarf downingia	PDCAM060C0	None	None	G2	S2	2.2
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3	FP
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Falco columbarius merlin	ABNKD06030	None	None	G5	S3	WL
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3.2	4.2
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G1G2	S1S2	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2.2	1B.1
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G4T1	S1	FP
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2.2	1B.1
Lepidurus packardii vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G3	S2S3	
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G1T1	S1	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S3	WL
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S3	WL
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2S3	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Spea hammondi</i> western spadefoot	AAABF02020	None	None	G3	S3	SSC
<i>Thamnophis gigas</i> giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 45

ATTACHMENT 4

USFWS BIOLOGICAL OPINION (1997)

OCT-2-87 THU 10:27

SUGNET AND ASSOC.

FAX NO. 8167829134

P. 03

1400



IN 224-77829134

1-1-97-F-158

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
3310 El Camino Avenue, Suite 130
Sacramento, California 95821

September 30, 1997

Mr. Bob Junell
Chief, Sacramento Valley Office
U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, California 95814-2922

FAX TRANSMITTAL

FAX TRANSMITTAL		# of pages = 3
To: MIKE EVAN	From: KIRSTEN TARP	
By: [Signature]	Place: 924-2120	
Fax: 597-6874	Per: [Signature]	
FAX TEL. OF 817-7200		GENERAL SERVICES ADMINISTRATION

Subject: Review of the Antelope Creek Apartments Project (ID# 199700413), Roseville, Placer County, California, for Inclusion with the Vernal Pool Crustaceans Programmatic Consultation of February 28, 1996 (1-1-96-F-1)

Dear Mr. Junell:

This is in response to your July 29, 1997, initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the Antelope Creek Apartments Project, in Roseville, Placer County, California. Included with the U.S. Army Corps of Engineers (Corps) request was a specific request to append this project to the Service's February 28, 1996, Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California (Programmatic Consultation). The Service has reviewed the biological information submitted by your office describing the effects of the proposed project on the federally listed as endangered vernal pool tadpole shrimp (*Lepidurus packardii*) and the threatened vernal pool fairy shrimp (*Branchinecta lynchi*). This response is in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The findings and recommendations in this consultation are based on: (1) A Wetland Delineation Report by Sugnet and Associates dated July 1, 1997, (2) conversations with Corps and Sugnet and Associates staff, and (3) a facsimile from Sugnet and Associates dated September 15, 1997. A complete administrative record is on file at the Service's Sacramento Fish and Wildlife Office.

The project lies within Section 25 of Township 11 North and Range 6 East, within the "Roseville, California," USGS 7.5 minute quadrangle, Roseville, Placer County, California. The applicant proposes to build a two-phased project. Phase I consists of an apartment complex with driveways, parking areas, apartment buildings, a swimming pool and rental office on 17.7 acres. Phase II is located south of Phase I on assessor parcel number 015-160-048, which is approximately 17 acres in size. Although the specific details for Phase II have not been

Mr. Bob Junell

2

developed, the impact assessment has been performed for both phases. Both phases of the project, cumulatively, would impact 0.68 acre of waters of the U.S., including 0.26 acre of habitat for the federally listed crustaceans.

The Service has determined that it is appropriate to append the Antelope Creek Apartments Project to the Programmatic Consultation. The mitigation for the projects appended to the Programmatic Consultation involves the use of creation and preservation banks in combination with on-site mitigation options. The Service has determined that by using banks, implemented mitigation will lead to the development of protected habitat areas distributed across the landscape that local communities can use as foundations for future habitat conservation plans.

The Service is tracking losses of habitat permitted under the Programmatic Consultation, in each County under the jurisdiction of the Sacramento Fish and Wildlife Office and within the ranges of the listed vernal pool crustaceans covered by the Programmatic Consultation. The Service reevaluates the effectiveness of the Programmatic Consultation at least every six months to ensure that continued implementation will not result in unacceptable impacts to the ecosystem upon which the listed species depend.

In accordance with the Programmatic Consultation, projects that are appended to that biological opinion will be mitigated using a combination of habitat preservation and creation. The mitigation identified in the Programmatic Consultation includes the following:

1. **Preservation component.** For every acre of habitat directly or indirectly impacted, at least two vernal pool credits will be dedicated within a Service-approved ecosystem preservation bank, or, based on Service evaluation of site-specific conservation values, three acres of vernal pool habitat may be preserved on the project site or another non-bank site as approved by the Service.
2. **Creation component.** For every acre of habitat directly impacted, at least one vernal pool creation credit will be dedicated within a Service-approved habitat creation bank, or, based on Service evaluation of site-specific conservation values, two acres of vernal pool habitat will be created and monitored on the project site or another non-bank site as approved by the Service.

The proposed project will result in direct effects to 0.22 acre of vernal pools/swales. Additionally 0.04 acre of indirect effects to vernal pools are anticipated. Therefore, the total impact acreage is 0.26 acre of vernal pools/swales. The agreed upon mitigation responsibilities of the applicant are as follows:

1. At least 0.520 credit shall be dedicated within a Service-approved ecosystem preservation bank.
2. At least 0.220 credit shall be dedicated within a Service-approved vernal pool creation bank.

Mr. Bob Innell

3

For assistance in fulfilling the above mitigation needs, please contact Kirsten Tarp of my staff at (916) 979-2120.

Sincerely,



for Wayne S. White
Field Supervisor

cc: AES-Portland, OR
CDFG, Region 2, Rancho Cordova, CA (Attn: Environmental Services)
CDFG, Sacramento, CA (Attn: Darlene McGriff)

ATTACHMENT 5

USACE SECTION 404 PERMIT, NATIONWIDE 26 (1997)

REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922
September 15, 1997

SEP 20 1997
BG/SG/DS/RL

Regulatory Branch (199700413)

Bjorn Gregersen
Sugnet & Associates
2260 Douglas Boulevard, Suite 160
Roseville, California 95661

Dear Mr. Gregersen:

This letter concerns your request for nationwide permit verification for the proposed phased filling of approximately 0.64 acres of waters of the United States, including wetlands, for the Antelope Creek Apartments project. This property is located on the east side of Antelope Creek, just south of highway 65, in Section 25, Township 11 North, Range 6 East, MDBM, in Roseville, Placer County, California.

Based upon the information you have provided, this work is authorized by Nationwide Permit 26, provided the work meets the terms and conditions listed on the enclosed information sheet and the following special conditions:

1. The July 1, 1997 mitigation plan must be implemented as proposed with the following modifications:

a. The proposed on-site mitigation habitat must be constructed by the permittee prior to, or concurrently with, Phase I project construction and be completed within one year of initiating work in waters of the United States.

b. The entire 0.38 acre on-site mitigation area must be dominated by native wetland vegetation and exhibit wetland hydrology by no later than two years following project construction. Plant diversity similar to that in avoided adjacent seasonal wetlands shall be established, documented and maintained in the proposed creation areas. Annual monitoring reports documenting the progress of the wetland creation effort, or a remediation plan if wetlands have not been successfully established, must be submitted to this office by no later than November 30 of each year following the initiation of construction for three years or until the mitigation wetlands meet wetland criteria without continued human intervention.

-2-

c. The area within wetland preserve boundaries shown on the July 1, 1997, revised July 31, 1997 "Wetland Preservation and Impacts" map drawing must be established by the permittee as wetland habitat preserve and maintained in a natural unmowed condition as long as the authorized fills in waters of the United States, including wetlands, are in place. Appropriate fencing, designed to limit trespass, must be constructed and maintained at or outside the preserve boundaries and these areas must be clearly marked as wetland compensation and habitat preservation areas.

d. Evidence of the purchase of any proposed and approved off-site wetland habitat mitigation credits for both non-vernal pool and vernal pool habitat at the appropriate ratios must be provided by the permittee to this office prior to initiating work in waters of the United States respectively for each Phase of the project.

2. No work in waters of the United States, including wetlands, may occur until the U.S. Fish and Wildlife Service has made an incidental take statement, identified appropriate mitigation measures for the effects of this project on listed threatened or endangered species and the permittee has implemented those mitigation measures.

3. The following actions shall be taken by the permittee prior to the start of construction of any actions authorized by this permit:

a. A suitable mechanism, to fund long term maintenance of the on-site mitigation and preservation areas, shall be formed and recorded prior to discharging fill into waters of the United States. Evidence of this shall be provided to the Corps upon recordation.

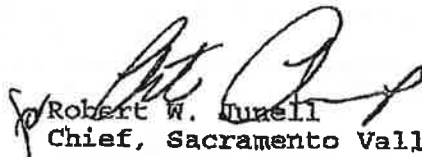
b. Deed restrictions, maintaining the on-site mitigation and proposed wetland habitat preservation areas as wetland and wildlife habitat in perpetuity, shall be recorded prior to discharging fill into waters of the United States. Copies of the recorded documents shall be provided to the Corps upon recordation.

4. All project features must be designed constructed and maintained to allow passage of expected flood flows without any disturbance, including vegetation removal, in the mitigation preservation areas.

5. Storm water may not be discharged from the project into Antelope Creek or adjacent mitigation preservation wetlands without first passing through trash racks and functional oil/water separators constructed by the permittee to remove pollutants from the water. All storm water drains must be clearly marked and maintained to prevent pollution.

This verification is valid until the current nationwide permit expires on December 13, 1998. Please refer to identification number 199700413 in any correspondence concerning this work. Thank you for your cooperation, If you have any questions, please write to Mike Finan at the letterhead address, or telephone (916) 557-5324.

Sincerely,


Robert W. Tunell
Chief, Sacramento Valley Office

Enclosure

Copies Furnished w/o enclosure:

Ms. Kirsten Tarp, U.S. Fish and Wildlife Service, Endangered
Division, 3310 El Camino Avenue, Suite 130, Sacramento,
California 95821-6340

NATIONWIDE PERMIT #26**HEADWATERS AND ISOLATED WATERS DISCHARGES**
(Section 404)

Effective Date: 11 February 1997

Expires 13 December 1998

Note: Additional information on this and other Nationwide permits can be obtained on the internet at <http://wetland.usace.mil>

The Corps of Engineers has issued a nationwide general permit (NWP) authorizing discharges of dredged or fill material into headwaters and isolated waters provided that the activity meets all of the following criteria:

- a. The discharge does not cause the loss of more than 3 acres of waters of the United States nor cause the loss of waters of the United States for a distance greater than 500 linear feet of the stream bed;
- b. For discharges causing the loss of greater than 1/3 acre of waters of the United States, the permittee notifies the District Engineer in accordance with the "Notification" general condition;
- c. For discharges causing a loss of 1/3 acre or less of waters of the United States the permittee must submit a report within 30 days of completion of the work, containing the information listed below;
- d. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands (Also see 33 CFR 330.1(e)); and
- e. The discharge, including all attendant features, both temporary and permanent, is part of a single and complete project.

For the purposes of this NWP, the acreage of loss of waters of the United States includes the filled area plus waters of the United States that are adversely affected by flooding, excavation or drainage as a result of the project. The 3 acre and 1/3 acre limits of NWP 26 are absolute, and cannot be increased by any mitigation plan offered by the applicant or required by the District Engineer. Whenever any other NWP is used in conjunction with this NWP, the total acreage of impacts to waters of the United States of all NWPs combined, can not exceed 3 acres.

Subdivisions: For any real estate subdivision created or subdivided after October 5, 1984, a notification pursuant to subsection (b) of this NWP is required for any discharge which would cause the aggregate total loss of waters of the United States for the entire subdivision to exceed 1/3 acre. Any discharge in any real estate subdivision which would cause the aggregate total loss of waters of the United States in the subdivision to exceed 3 acres is not authorized by this NWP; unless the District Engineer exempts a particular subdivision or parcel by making a written determination that: (1) the individual and cumulative adverse environmental effects would be minimal and the property owner had,

NATIONWIDE PERMIT #26

Page 3

4. **Aquatic Life Movements:** No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.

5. **Equipment:** Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

6. **Regional and Case-by-Case Conditions:** The activity must comply with any regional conditions which may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state or tribe in its Section 401 water quality certification.

7. **Wild and Scenic Rivers:** No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely effect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service.)

8. **Tribal Rights:** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

9. **Water Quality Certification:** In certain states, an individual Section 401 water quality certification must be obtained or waived (see 33 CFR 330.4(c)).

a. The State of California has denied this NWP without prejudice as an interim action to allow adequate time for the State Water Resources Control Board (SWRCB) to develop conditions and prepare a negative declaration for this NWP. In the interim, water quality certification or waiver will need to be obtained from the Regional Water Quality Control Board (RWQCB).

b. The State of Nevada has certified all NWP's with the following exception:

"404 Certification is denied for all NWP's when a discharge permit is required by the Division of Environmental Protection for the proposed project. These discharge permits include, but are not limited to NPDS Permits, Storm water Permits, State Discharge Permits, Rolling Stock Permits, etc."

10. **Coastal Zone Management:** In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see Section 330.4(d)).

NATIONWIDE PERMIT #26

Page 5

(3) Unless 45 days have passed from the District Engineer's receipt of the notification and the prospective permittee has not received notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 30.5(d)(2).

(b) *Contents of Notification:* The notification must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed project;
- (3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity; and
- (4) The PCN must also include a delineation of affected special aquatic sites, including wetlands (see paragraph 13(f));

(c) *Form of Notification:* The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(4) of General Condition 13. A letter may also be used.

(d) *District Engineer's Decision:* In reviewing the pre-construction notification for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the pre-construction notification to expedite the process and the District Engineer will consider any optional mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects are minimal, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary.

Any mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee elects to submit a mitigation plan, the District Engineer will expeditiously review the proposed mitigation plan, but will not commence a second 45-day notification procedure. If the net adverse effects of the project (with the mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the nationwide permit.

NATIONWIDE PERMIT #26

Page 7

(f) *Wetlands Delineations:* Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 45 days will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

(g) *Mitigation:* Factors that the District Engineer will consider when determining the acceptability of appropriate and practicable mitigation include, but are not limited to:

(i) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes;

(ii) To the extent appropriate, permittees should consider mitigation banking and other forms of mitigation including contributions to wetland trust funds, "in lieu fees" to organizations such as The Nature Conservancy, state or county natural resource management agencies, where such fees contribute to the restoration, creation, replacement, enhancement, or preservation of wetlands. Furthermore, examples of mitigation that may be appropriate and practicable include but are not limited to: reducing the size of the project; establishing wetland or upland buffer zones to protect aquatic resource values; and replacing the loss of aquatic resource values by creating, restoring, and enhancing similar functions and values. In addition, mitigation must address wetland impacts, such as functions and values, and cannot be simply used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the NWP's (e.g., for NWP 26, 5 acres of wetlands cannot be created to change a 6-acre loss of wetlands to a 1 acre loss; however, 2 created acres can be used to reduce the impacts of a 3-acre loss.).

14. *Compliance Certification:* Every permittee who has received a Nationwide permit verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded to the Corps and will include:

a. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;

b. A statement that any required mitigation was completed in accordance with the permit conditions;

c. The signature of the permittee certifying the completion of the work and mitigation.

NATIONWIDE PERMIT #26

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8. *Waterfowl Breeding Areas:* Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

9. *Removal of Temporary Fills:* Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

APPENDIX C

July 22, 2012

VIA EMAIL AND U.S. MAIL

Ms. Deana Ellis
CRESLEIGH HOMES
2024 Opportunity Drive, Suite 150
Roseville, California 95678

RE: ***Native Oak Tree Impact Assessment:
Pearl Creek Apartments Project – City of Roseville***

Dear Ms. Ellis:

I am in receipt and have reviewed the "Encroachment Exhibit" provided by Mr. Rick Hansen of MSA Engineers for the native oak tree removal and encroachment request for various Oak trees located on the Pearl Creek Apartments project site. As you know, at the request of Cresleigh Homes I visited the proposed Pearl Creek Apartments project site on February 3, 2012, to collect current field data for five native oaks located on the site. Following this field review specific data was memorialized in a Native Oak Inventory Summary which was provided to Cresleigh Homes for further plan depiction and development discussions.

It is my understanding that 4 of the on site trees (numbers - 46, 47, 48 and 49) are proposed for removal and tree number 45 will be retained with construction encroachment. For convenience, the data for Tree No. 45 has been replicated below:

Tree No 45

TREE#45	DIAMETER	:	18 inches
Blue Oak	DRIPLINE RADIUS	:	30 feet
(<i>Quercus douglasii</i>)	ROOT CROWN	:	Fair
	TRUNK	:	Poor to fair – Leans and bends west
	LIMBS	:	Fair – above average amount of deadwood
	FOLIAGE	:	Dormant
	CONDITION	:	Poor to fair structure and fair vigor

The "encroachment exhibit" provided by MSA indicates that tree #45 will sustain minor (8.5%) encroachment into the PZR from construction of a 30 inch storm drain and required outfall structure.

The drawing shows the improvements/ excavation falling approximately 20 north east of the trees trunk. The excavation should be monitored by a qualified, ISA certified arborist and any roots exposed or damaged during the excavation should be properly root pruned and treated. No other special measures should be necessary.

Ms. Deana Ellis, Cresleigh Homes

July 23, 2012

Re: Impact Assessment --

Pearl Creek Apartments-- City of Roseville

Page 2

Please keep in mind that the mitigative recommendations provided for the construction encroachment into the PZR of tree #45 are intended to minimize impacts from the encroachment but are not to be considered a "guarantee" regarding the survival or longevity of the tree.

Thank you for allowing Sierra Nevada Arborists to assist you with this review. Please feel free to give me a call if you have any questions or require additional information and/or clarification.

Sincerely,



Edwin E. Stirtz

ISA Certified Arborist WE-0510A

Member, American Society of Consulting Arborists

EES

Ms. Deana Ellis, Cresleigh Homes

July 23, 2012

Re: Impact Assessment --

Pearl Creek Apartments-- City of Roseville

Page 3

DEFINITIONS AND CONDITIONAL RATINGS

Tree Number:	Corresponds to aluminum tag attached to the tree.
Species Identification:	Scientific and common species name.
Diameter ("DBH"):	This is the trunk diameter measured at breast height (industry standard 4.5 feet above ground level).
Dripline radius ("DLR"):	A radius equal to the horizontal distance from the trunk of the tree to the end of the farthest most branch tip prior to any cutting. When depicted on a map, the dripline will appear as an irregularly shaped circle that follows the contour of the tree's branches as seen from overhead.
Protected Zone:	A circle equal to the largest radius of a protected tree's dripline plus 1 foot.
Root Crown:	Assessment of the root crown/collar area located at the base of the trunk of the tree at soil level.
Trunk:	Assessment of the tree's main trunk from ground level generally to the point of the primary crotch structure.
Limbs:	Assessment of both smaller and larger branching, generally from primary crotch structure to branch tips.
Foliage:	Tree's leaves.
Overall Condition:	Describes overall condition of the tree in terms of structure and vigor.
Recommendation:	Pre-development recommendations based upon observed characteristics noted at the time of the initial field inventory effort.
Obscured:	Occasionally some portion of the tree may be obscured from visual inspection due to the presence of dense vegetation which, during the course of inspection for the initial arborist report, prevented a complete evaluation of the tree. In these cases, if the tree is to be retained on site the vegetation should be removed to allow for a complete assessment of the tree prior to making final decisions regarding the suitability for retention.

Ms. Deana Ellis, Cresleigh Homes

July 23, 2012

Re: Impact Assessment --

Pearl Creek Apartments-- City of Roseville

Page 4

Structure and Vigor Ratings:

GOOD - A tree in this category has no trunk or root crown cavities or injuries; there is no indication of hollowness; no foreign objects are embedded in its structure; the root crown is above grade; there is no decay present except for small stubs; the structure is strong; the trunk is tapers; the bark thickness is normal; there is no fluxing; no fungus is evident; there is a below average amount of dead limbs and twigs present which is normal for the size and age of the species; there is no co-dominant branching present; there are no large callused areas and any small callusing present is vigorous and intact; there are no abnormally heavy insect infestations; the growth rate is and has been average or above; limb weight is not excessive; buds are normal size and viable; the leaf size, color, and density is normal or better; and barring any unforeseen negative effects, the life expectancy should exceed thirty years.

FAIR - There is no decay or indications of large hollow areas in the large limbs, root crown, or trunk; a few small callused-over foreign objects, e.g., nails, may be present, the structure is strong; no fungus is evident other than small saprophytes on exposed wood; some small, callusing injuries may be present, some small limbs may be dead and decaying but callus is forming at their base; some excessive limb weight may exist; there may be some minor fluxing; the amount of dead limbs and twigs present is within the normal range; some large callused areas may be present; some small cavities and areas of decay may be present; the growth rate is average or slightly below average; and some leaf size, color, and density may vary.

POOR - Significant cavities, dead areas, and decay may be present; the tree is actually defective; fungus fruiting bodies may be present; the amount of dead limbs and twigs is far above normal; major co-dominant branching with embedded bark may be present; buds are small and some may not be viable; leaves may be below average size and may be abnormal in color; significant pest damage may be present; and the predicted structural life and/or viability is less than ten years.

The ratings "good to fair" and "fair to poor" are used to describe trees that fall between the described major categories and have elements of both.

APPENDIX D

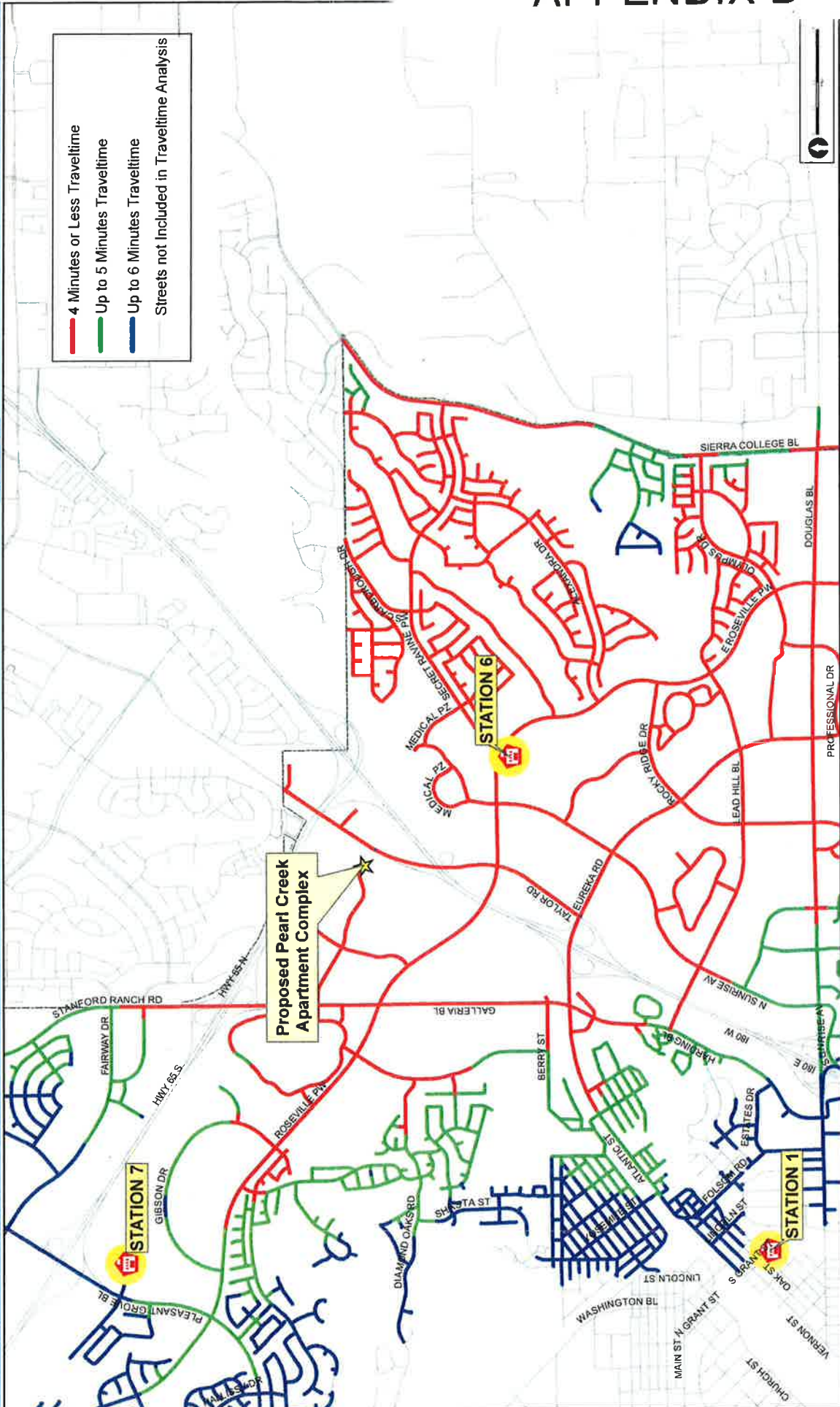
Station 6 # 4-6 Minute Travel Time

Nov 28, 2012



CITY OF
ROSEVILLE
CALIFORNIA

- 4 Minutes or Less Traveltime
- Up to 5 Minutes Traveltime
- Up to 6 Minutes Traveltime
- Streets not Included in Traveltime Analysis



Environmental Noise Assessment

Pearl Creek Apartments

Roseville, California

Job # 2012-120

Prepared For:

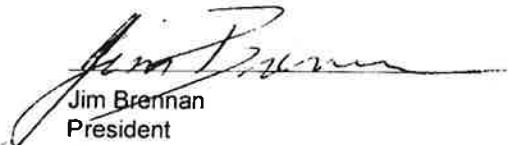
Cresleigh Homes

2024 Opportunity Drive, Suite 150
Roseville, California 95678

Attn: Deana Ellis

Prepared By:

j.c. brennan & associates, Inc.



Jim Brennan
President

Member, Institute of Noise Control Engineering

July 10, 2012

 **j.c. brennan & associates**
consultants in acoustics

INTRODUCTION

The Pearl Creek Apartments project site is located south of Antelope Creek Dr. and west of the Union Pacific Railroad (UPRR) in the City of Roseville, California. The project includes the construction of 224 multi-family units including one, two, and three bedroom units.

Potentially significant sources of noise include traffic on Taylor Road, Interstate Route 80, and train activity on the UPRR tracks. Therefore, this analysis will examine potential noise impacts which could occur at the proposed residential uses. Figure 1 shows the project site location. Figure 2 shows the project site plan.

ACOUSTIC TERMINOLOGY

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise can be highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

Figure 1
 Pearl Creek Apartments – City of Roseville, California
 Project Site and Noise Measurement Locations



- △ : Short Term Noise Measurement Location
 □ : Continuous Noise Measurement Location

Figure 2



The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn} , and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. Appendix A provides a summary of acoustical terms used in this report.

Table 1
Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing
Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. November 2009.		

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

CRITERIA FOR ACCEPTABLE NOISE EXPOSURE

For noise due to transportation-related noise sources, the City of Roseville General Plan Noise Element establishes an exterior noise level criterion on 60 dB L_{dn} at outdoor activity areas for residential uses. Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn} or less using a practical application of the best-available noise reduction measures, an exterior noise level up to 75 dB L_{dn} may be allowed provided that available exterior noise reduction measures have been implemented and interior noise levels are in compliance with a 45 dB L_{dn} interior noise level standard.

The requirements for an acoustical analysis for projects also requires that a report must address the potential for sleep disturbance due to intermittent single event noise levels. Since one of the major noise sources includes intermittent train passbys, this report will address the potential for sleep disturbance due to railroad operations.

Issues:

One of the issues relevant to this project is where on the project site should the City apply the exterior noise level criteria. The exterior noise level criterion of 60 dB L_{dn} is generally applied at the outdoor activity areas of a project site. In the case of a single family residential development, the exterior noise level standard is applied at the rear yard area of each residence.

In the case of multi-family residential developments, the standard could be applied at the individual patios, a property line, or at a common area which is designated for recreation or outdoor activities such as the recreation complex or pool areas. This practice is common in many jurisdictions. Generally, the intent is to allow for an outdoor area where individuals can relax and conduct outdoor activities, and then focus on maintaining interior noise levels consistent with the General Plan Noise Element for each of the individual units.

By applying the exterior noise level standard at the common outdoor activity areas, a project can shield the outdoor activity area from the noise source with the proposed building facades. This is consistent with Policy 9 of the General Plan Noise Element which states the following:

Where noise mitigation measures are required to achieve the standards of Tables IX-1 and IX-3, the emphasis of such measures should be placed on site planning and project design. These measures may include, but are not limited to, building orientation, setbacks, landscaping, and building construction practices. The use of noise barriers such as soundwalls should be considered as a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

The proposed project does include designated common outdoor activity areas, as well as individual patios. However, considering that the project includes multi-story buildings, mitigation of noise levels at elevated patios is not considered practical. Therefore, this analysis will focus on attainment of the interior noise level criterion of 45 dB L_{dn} for each individual unit while applying the exterior noise level standard at the common outdoor activity areas. Figure 2 shows the locations of the common outdoor activity areas.

EVALUATION OF RAILROAD NOISE LEVELS AT THE PROJECT SITE

The UPRR line runs adjacent to the project and parallel to Taylor Road, approximately 200 feet east of the project boundaries. j.c. brennan & associates conducted 24-hour monitoring of the railroad lines adjacent to the project site on March 29-30, 2012. Figure 3 graphically shows the railroad noise measurement results. Based on the data collected, j.c. brennan & associates estimates typical operations of approximately 16 trains per day.

From the data collected, it was found that trains generated a typical sound exposure level (SEL) of 105 dB at a distance of 50 feet from the railroad centerline. The day/night average (Ldn) noise level can be calculated using the following equation.

$$Ldn = SEL + 10 \log N_{eq} - 49.4 \text{ dB, where:}$$

SEL is the measured SEL of the train event (105 dB at a distance of 50 feet), N_{eq} is the sum of the daytime (7 a.m. to 10 p.m.) train events plus 10 times the number of nighttime (10 p.m. to 7 a.m.) train events, and 49.4 is ten times the logarithm of the number of seconds per day. The Ldn was calculated to be 74 dB at 50 feet, assuming an even day/night distribution of trains. Table 2 shows the predicted exterior railroad noise levels.

Table 2				
Measured and Predicted UPRR Train Noise Levels				
Railroad Noise Levels, Ldn		Distances to Noise Contours, Ldn		
At 50 feet*	At Nearest Building Facade	60 dBA	65 dBA	70 dBA
74 dBA	63 dBA	480 feet	223 feet	103 feet
* Measured sound level at Site A				

Based upon the project design, the project includes garages and wood fences between the garages located between the primary noise sources, including the railroad and the first row of apartment buildings. The garages and fences which provide a continuous linear barrier between the first row of buildings and the noise sources will provide some shielding. However, unless the wood fences are of sufficient density and do not have gaps between boards, the fences will provide very little benefit in terms of acting as a barrier. Based upon the site plan, the garages occupy approximately 55% of the area between the noise sources and the first row of buildings, while not accounting for any shielding from the wood fences. Based upon the Caltrans Technical Noise Supplement, if a row of buildings interrupts between 40% and 65 % of the line-of-sight, a -3 dBA correction can be used for the shielding affects (*Technical Noise Supplement, Table 5-12, Prepared for: California Department of Transportation Division of Environmental Analysis, Prepared by: ICF Jones & Stokes, November 1999*). However, based upon comments received from the City of Roseville Planning Staff, this analysis provided a conservative estimate of railroad noise and did not include a -3 dBA correction for shielding associated with the garages.

Potential for Sleep Disturbance

The Placer County Noise Element, like most cities and counties, does not contain noise level standards for single events. However, since a recent court case in Berkeley, California (*Berkeley Keep Jets Over the Bay Com. v. Bd of Port Comrs. of Oakland, 2001*), there has been increased attention to the evaluation of single-event noise levels in addition to the more typical evaluation of noise sources using 24-hour average descriptors such as Ldn. Because the Berkeley case involved aircraft, and the issue with this project involves railroad activities, the situations are considerably different. Nonetheless, in response to the Court's direction, single event noise levels for all types of noise sources, such as railroad operations, loading dock activities or other single noise events have generated concern about potential noise impacts.

It is important to note that while the Berkeley case ruling required that single-event noise be considered, it did not recommend an appropriate single-event noise level standard. Instead it has become more of an exercise in full disclosure of potential noise impacts. Extensive studies have been conducted regarding the effects of single-event noise on sleep disturbance, but due to the wide variation in test subjects reactions to noises of various levels (some test subjects were awakened by indoor sound exposure level (SEL) values of 50 dB, whereas others slept through indoor SEL values exceeding 80 dB), there has been difficulty in determining a level of significance.

In 2008, the American National Standards Institute (ANSI) published a procedure for predicting sleep disturbance in terms of percent awakening based upon various field studies. For the purposes of evaluating the potential for sleep disturbance due to interior noise from railroad operations at the project site, j.c. brennan & associates, Inc. utilized the methods described in ANSI/ASA S12.9-2008/Part 6, as described in Annex B of the ANSI procedures. The ANSI procedures calculate the probability of behavioral awakenings using the predicted mean indoor sound exposure level (SEL) at adjacent residential uses and the number of nighttime noise events.

The analysis for the Pearl Creek Apartments site assumes that there could be up to 10 train events during the nighttime period (10:00 p.m. - 7:00 a.m.). The mean sound exposure level from train passbys is 105 dBA SEL at 50 feet from the railroad track centerline. the mean sound exposure level at the nearest building facade is 90 dBA SEL at second and third floor facades, and 87 dBA SEL at the first floor facades. Using the ANSI procedures, the predicted percent of awakening during a typical night at second and third floor facades is 33%. The predicted percent of awakening during a typical night at first floor facades is 29%. This assumes an interior SEL of 65 dBA, with a typical exterior to interior noise level reduction of 25 dBA (This assumes the windows are in the closed position). See Appendix C for the calculation procedure.

Another means of determining the potential for sleep disturbance is to use the Federal Interagency Committee on Noise (FICAN) procedures. In 1997, the Federal Interagency Committee on Aviation Noise (FICAN) sought to put the subject to rest with publication of a recommended new dose-response curve predicting awakening. This curve was calculated using data from various studies. The 1997 FICAN curve represents the upper limit of the observed field data and should be interpreted as predicting the maximum percent of the exposed population expected to be behaviorally awakened. For the purposes of evaluating the potential

for sleep disturbance due to interior noise from railroad operations at the project site, Figure 4 is used, and is based upon the FICAN curve.

Assuming exterior SEL values associated with railroad operations of up to 90 dBA SEL, the interior SEL values could be up to 65 dBA SEL. Based upon the FICAN study (Figure 4), the percent of awakened individuals would be approximately 5 percent. FICAN explained that, "because the adopted curve represents the upper limit of the data presented, it should be interpreted as predicting the maximum percent of the exposed population expected to be behaviorally awakened, or the maximum percent awakened" (FICAN 1997). As one can see, the two procedures vary widely in predicting the potential for sleep disturbance.

Figure 3
 24hr Continuous Monitoring - Site A
 Pearl Creek Apartments
 March 29-30, 2012

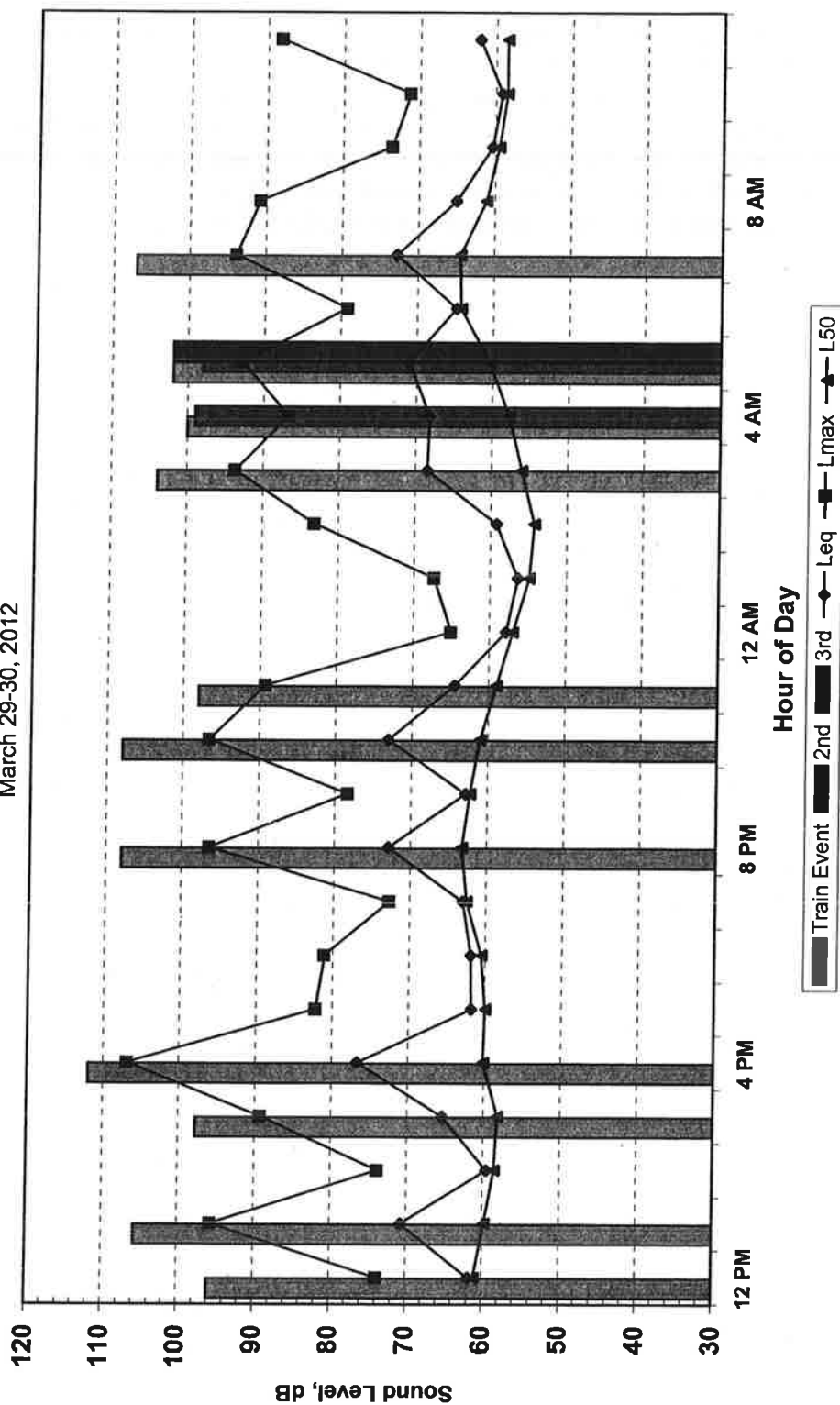
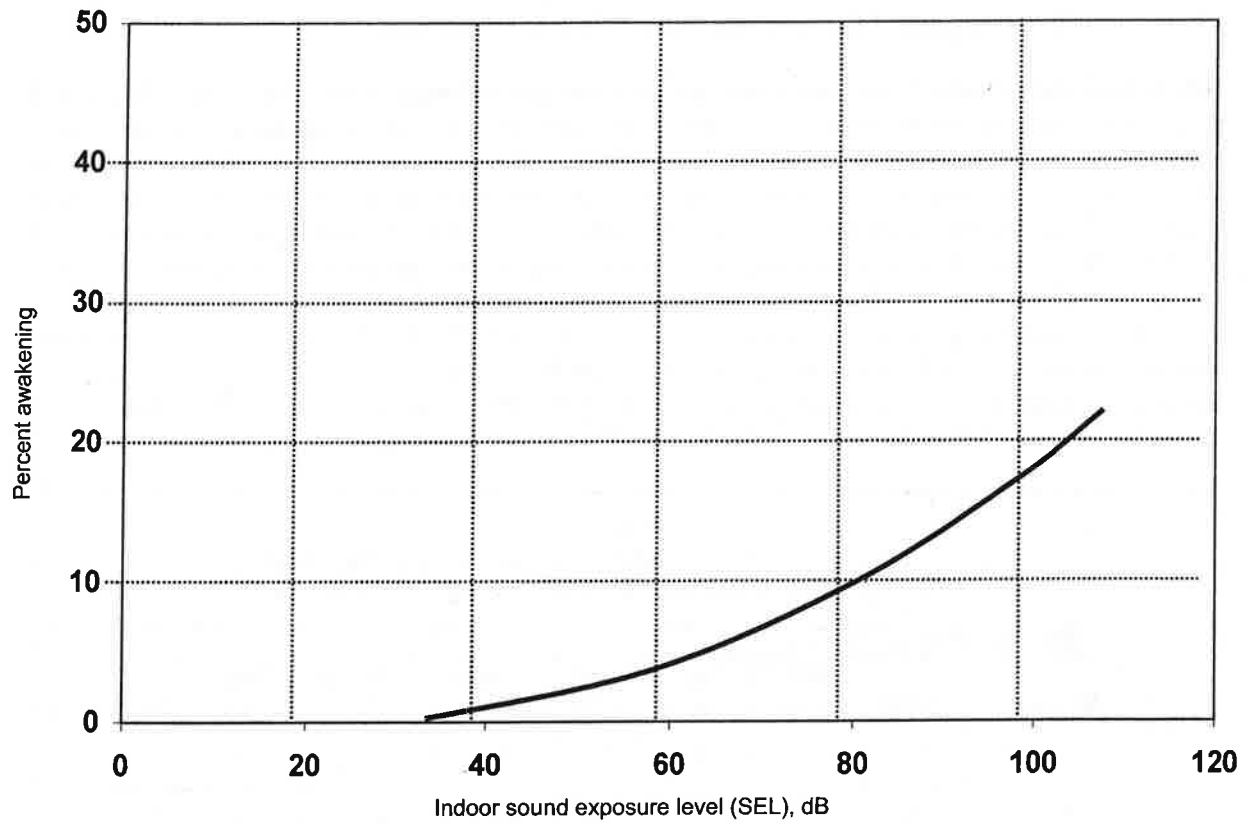


Figure 4
Sleep Disturbance Dose-Response Relationship



Source: Federal Interagency Committee on Airport Noise (1997)

EVALUATION OF TRAFFIC NOISE LEVELS AT THE PROJECT SITE

Traffic Noise Prediction Methodology:

j.c. brennan & associates, Inc. employs the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) for the prediction of traffic noise levels. The model is based upon the CALVENO noise emission factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

Short-term traffic noise level measurements and concurrent traffic counts for Taylor Road, and Interstate Route 80 traffic were conducted at the project site. The purpose of the short-term traffic noise level measurements was to determine the accuracy of the FHWA model in describing the existing traffic noise at the project site, accounting for shielding from local topography, actual travel speeds, and roadway grade. Noise measurement results were compared to the FHWA model results by entering the observed traffic volume, speed and distance as inputs to the FHWA model. See Figure 1 for the noise measurement locations. Instrumentation used for the measurements were Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter, which were calibrated in the field before and after use with an LDL CAL200 acoustical calibrator. Table 3 shows the results of the traffic noise calibrations. Appendix B provides the complete inputs and results to the FHWA calibration model.

Table 3 Comparison of FHWA Model to Measured Traffic Noise Pearl Creek Apartments – City of Roseville, California									
Site	Roadway	Observed Number of Vehicles			Speed (mph)	Distance (feet)	Measured L _{eq}	Modeled L _{eq} *	Difference
		Autos	Med. Trucks	Hvy. Trucks					
1	Taylor Rd.	278	5	0	50	320	56.3	58.1	- 1.8
1E	Taylor Rd.	261	7	1	50	320	63.3	58.2	+5.1
2	Interstate 80	1775	44	72	65	630	55.9	66.3	- 10.4
2E	Interstate 80	1775	44	72	65	630	59.7	66.3	- 6.6
Acoustically "soft" site assumed									
'E' signifies the measurement location was elevated 15 feet above the ground.									
Source: j.c. brennan & associates, FHWA RD-77-108, 2012									

Based upon field observations during the calibrations, the railroad track is elevated approximately 6 feet relative to the project site. This naturally shielded Taylor Road traffic noise at the first floor elevations. I-80 traffic noise was significantly shielded along the entire project site by the raised railroad track bed, and intervening buildings and topography from the westbound S.R. 65 to I-80 on-ramp. I-80 traffic was only visible to the south of the Taylor Road overpass, and therefore, the I-80 traffic noise was not as significant as expected at the site.

After receiving comments from the City of Roseville staff on a previous draft of this analysis, the calibration results at Site 1E were not reported correctly. The noise levels associated with Taylor Road should have had a +5 dB correction, based upon the calibration results. However, there was also one other reported error in Table 4 from the previous report. There was a +5 dB offset applied to the railroad operations at 2nd and 3rd floor receiver locations. This was not correct, and there should not be any offset associated with the railroad at the elevated receivers. In addition, no offset was applied for shielding at first floor facades and decks from the railroad operations.

Based upon the calibration results, and the discussion above, conservative offsets were applied to the FHWA model for the prediction of future traffic noise levels on the project site. Offsets applied to the FHWA model are shown in Table 4. Overall offsets for all noise sources were calculated based upon the FHWA model calibration procedures discussed earlier, and conservative estimates of future shielding due to on-site apartment building structures.

Future Exterior Traffic and Railroad Noise Levels:

To determine the future traffic noise levels on the project site, j.c. brennan & associates, Inc. used Taylor Road and Roseville Parkway traffic information received from the City of Roseville Public Works web-based information site, and Interstate Route 80 traffic forecasts obtained from Caltrans. Appendix C shows the complete listing of inputs to the FHWA Noise Prediction Model. Table 4 shows the predicted future traffic and railroad noise levels at the project site.

Table 4 Predicted Future Traffic and Railroad Noise Levels Pearl Creek Apartments – City of Roseville, California				
Noise Source	Façade	Distance	Shielding Offset	Exterior Noise Level, Ldn
Interstate 80	1 st Floor Facades/Decks	700'	-10 dB	59 dB
	2 nd - 3 rd Floors Facades/Decks	700'	-5 dB	64dB
	Outdoor BBQ Areas	780'	-10 dB	59 dB
Taylor Rd.	1 st Facades/Decks	400'	-2 dB	59 dB
	2 nd - 3 rd Floors Facades/Decks	400'	+5 dB	66 dB
	Outdoor BBQ Areas	475'	-10 dB	50 dB
UPRR	1 st Floor Facades/Decks	300'	0 dB	63 dB
	2 nd - 3 rd Floors Facades/Decks	300'	0 dB	63 dB
	Outdoor BBQ Areas	375'	-10 dB	53 dB
Cumulative at Nearest Outdoor Activity Areas (BBQ Areas)				60 dB
Cumulative Interstate 80 / Taylor Rd. / UPRR Building Façade – 1 st Floors/Decks				65 dB
Cumulative Interstate 80 / Taylor Rd. / UPRR Building Façade – 2 nd - 3 rd Floors/Decks				69 dB
Source: j.c. brennan & associates, Inc. with Caltrans, FHWA RD-77-108, and the City of Roseville Traffic Engineering, j.c. brennan & associates, Inc. noise measurements.				

Analysis of Compliance with the City of Roseville Exterior Noise Level Standard:

Based upon the Table 3 data, exterior noise levels at the nearest common areas, which are the proposed BBQ areas, are predicted to comply with the City of Roseville 60 dB Ldn exterior noise level standard, without any additional noise reduction measures.

Interior Noise Levels:

Standard construction practices, consistent with the uniform building code typically provide an exterior-to-interior noise level reduction of 25 dB, assuming that air conditioning is included for each unit, which allows residents to close windows for acoustical isolation. Interior noise levels at 2nd and 3rd floor facades could be as high as 44 dB Ldn, and would comply with the 45 dB Ldn interior noise level standard. Interior noise levels at first floor facades could be as high as 40 dB Ldn, and would comply with the interior noise level standard of 45 dB Ldn.

Based upon the analysis, the potential for sleep disturbance ranges between 5% and 33%, depending on the method used for evaluation. The recent ANSI procedure which indicates a potential for 33% of individuals in bedrooms facing the railroad track is the most conservative estimate. The City of Roseville does not have a criterion for evaluating acceptable levels of sleep disturbance.

CONCLUSIONS

The proposed project is predicted to comply with the City of Roseville noise level standards.

These conclusions are based on the site plan provided by the project applicant, the assumptions stated in this report, traffic information contained on the City of Roseville Public Works traffic information website, traffic forecasts provided by Caltrans, and noise reduction data for standard residential dwellings and for typical STC rated window data. j.c. brennan & associates, Inc., is not responsible for degradation in acoustic performance of the residential construction due to poor construction practices, failure to comply with applicable building code requirements, or for failure to adhere to standard building practices.

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
$L_{(n)}$	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L_{50} is the sound level exceeded 50% of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2012-120 Pearl Creek Apts

Description: Future Traffic

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Name	Description	ADT	Day %	Eve %	Night %	% Med. % Hvy.		Speed	Distance	Offset
							Trucks	Trucks			(dB)
1	I-80	1st Floor	237,200	80		20	2	4	65	700	-10
2	I-80	2nd 3rd floor	237,200	80		20	2	4	65	700	-5
3	I-80	BBQ	237,200	80		20	2	4	65	780	-10
4	Taylor Rd	1st Floor	49,554	83		17	2	1	45	400	-4
5	Taylor Rd	2nd 3rd floor	49,554	83		17	2	1	45	400	5
6	Taylor Rd	BBQ	49,554	83		17	2	1	45	475	-10
7											
8											
9											
10											
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Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model Predicted Levels

Project #: 2012-120 Pearl Creek Apts
Description: Future Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Description	Autos	Medium Trucks	Heavy Trucks	Total
1	I-80	1st Floor	57.8	47.2	53.7	59
2	I-80	2nd 3rd floor	62.8	52.2	58.7	64
3	I-80	BBQ	57.1	46.5	53.0	59
4	Taylor Rd	1st Floor	55.7	47.1	48.6	57
5	Taylor Rd	2nd 3rd floor	64.7	56.1	57.6	66
6	Taylor Rd	BBQ	48.6	40.0	41.5	50

Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model Noise Contour Output

Project #: 2012-120 Pearl Creek Apts
Description: Future Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Description	Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	I-80	1st Floor	65	139	300	646	1391
2	I-80	2nd 3rd floor	139	300	646	1391	2996
3	I-80	BBQ	65	139	300	646	1391
4	Taylor Rd	1st Floor	25	54	117	251	541
5	Taylor Rd	2nd 3rd floor	100	215	464	999	2153
6	Taylor Rd	BBQ	10	22	46	100	215

Appendix C

ANSI Procedure for Calculating Percent Awakening

Project Name: Pearl Creek Apts

Job Number: 2012-120

Noise Source: Railroad

Site: 1

		One-Third Octave Band Center Frequency (Hz)															
		125	160	200	250	315	400	500	630	800	1K	1.25K	1.6K	2K	2.5K	3.15K	4K
Railroad - Slow, Horns Dominate		-29	-33	-34	-31	-14	-5	-5	-5	-11	-13	-14	-17	-16	-21	-24	-25
Exterior SEL, dB		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TL of Window		61	57	56	59	76	85	85	85	79	77	76	73	74	69	66	65
Interior SEL, dB		1168555	479834	384319	877398	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####
Window - 1/8*1/4*1/8 STC28		21	23	23	26	21	19	24	27	30	33	36	40	44	46	39	34
		40	34	33	33	55	66	61	58	49	44	40	33	30	23	27	31
		9282	2405	1926	2204	#####	#####	#####	#####	#####	#####	10405	2060	952	191	492	1295
Date	Time	SEL > 75															

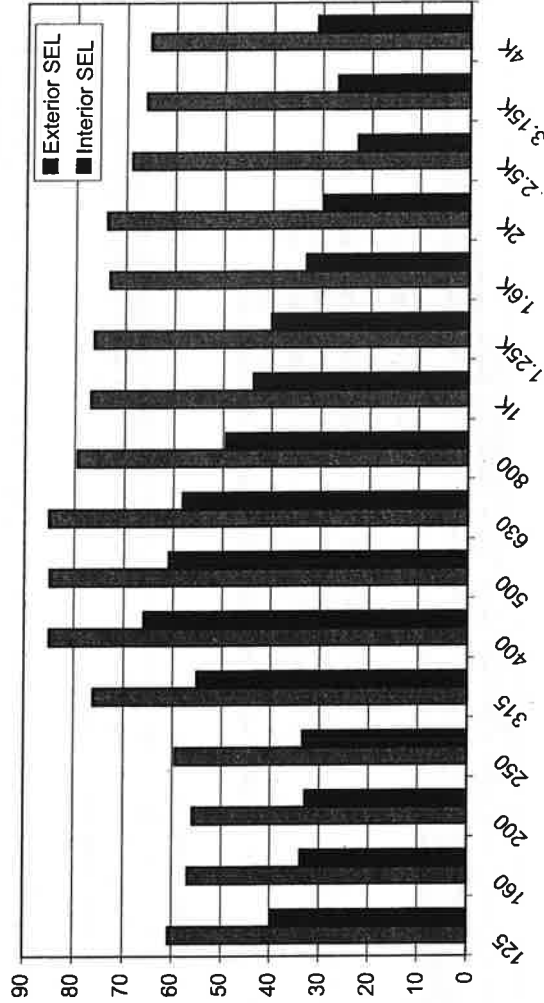
Mean Exterior SEL: 90

Mean Interior SEL¹: 65

Number of Nighttime Events: 10

Percent Awakened: 33%

¹Assumes a typical exterior-to-interior noise level reduction (NLR) of 25 dB provided by STC 28 windows and modern construction practices.



Source: ANSI/ASA S12.9-2008 / Part 6 - Quantities and Procedures for Description and Measurement of Environmental Sound - Part 6: Methods for Estimation of Awakenings Associated with Outdoor Noise Events Heard in Homes.

j.c. brennan & associates
consultants in acoustics

Appendix C

ANSI Procedure for Calculating Percent Awakening

Project Name: Pearl Creek Apts

Job Number: 2012-120

Noise Source: Railroad

Site: 1

		One-Third Octave Band Center Frequency (Hz)																	
		125	160	200	250	315	400	500	630	800	1K	1.25K	1.6K	2K	2.5K	3.15K	4K		
Railroad - Slow, Horns Dominate		-29	-33	-34	-31	-14	-5	-5	-5	-11	-13	-14	-17	-16	-21	-24	-25		
Exterior SEL, dB		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
TL of Window		58	54	53	56	73	82	82	82	76	74	73	70	71	66	63	62		
Interior SEL, dB		585665	240487	192616	439741	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####		
Window - 1/8**1/4**1/8 STC28		21	23	23	26	21	19	24	27	30	33	36	40	44	46	39	34		
		37	31	30	30	52	63	58	55	46	41	37	30	27	20	24	28		
Date		4652	1205	965	1105	#####	#####	#####	#####	#####	#####	5215	1033	477	96	247	649		
Time		SEL >75																	

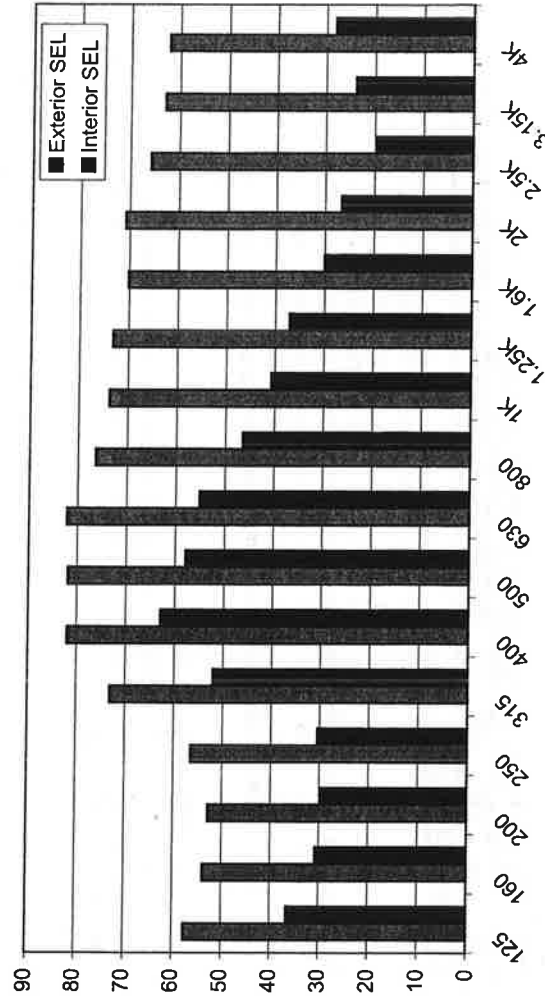
Mean Exterior SEL: 87

Mean Interior SEL¹: 62

¹ Assumes a typical exterior-to-interior noise level reduction (NLR) of 25 dB provided by STC 28 windows and modern construction practices.

Number of Nighttime Events: 10

Percent Awakened: 29%



Source: ANSI/ASA S12.9-2008 / Part 6 - Quantities and Procedures for Description and Measurement of Environmental Sound - Part 6: Methods for Estimation of Awakenings Associated with Outdoor Noise Events Heard in Homes.

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July 11, 2012

Ms. Tricia Stewart
Planning Department
City of Roseville
311 Vernon Street
Roseville, CA 95678

Subject: Response to additional comments submitted by the City staff (June 29, 2012), via email, on the Pearl Creek Noise Study (dated May 24, 2012)

Dear Ms. Stewart:

j.c. brennan & associates, Inc. submitted a second draft of a noise study for the Pearl Creek Apartments, dated May 24, 2012. You have submitted comments on the report in an email dated June 29, 2012. We have prepared a revised draft of the report (dated July 10, 2012), and are submitting that report to you under separate cover for your review. This letter is intended to respond to some of the comments which are not necessarily addressed in the report, or may need additional clarification outside of the report. As always, we welcome any additional comments or concerns by the City staff. In the end, our intent is to provide a report which meets the City's noise level standards and provides the best information available for you and the City Council to make an informed decision on the project.

1. We have provided an analysis and discussion on the potential for sleep disturbance in the revised report, as it pertains to single maximum noise events from train passbys. As you can see, the two most recent methodologies for evaluating sleep disturbance vary widely in predicting the potential for sleep disturbance. It is important that we all keep in mind that there is no criterion for an acceptable level of sleep disturbance. However, these procedures do provide tools for evaluating the potential effects, and provide a disclosure for future residents who may occupy the projects residential units. However, it must be noted, that the methodology for evaluating sleep disturbance is based upon the Sound Exposure Level (SEL) descriptor, and not the individual maximum (Lmax) level. This is consistent with other reports we have prepared for the City of Roseville, including the Sierra Vista Specific Plan EIR, Fiddymont Ranch EIR and Creekview Specific Plan EIR. The SEL descriptor not only evaluates the maximum potential noise from individual single events, but also includes the duration of the noise event;

2. As the staff have indicated, the report needed to include the revised upper limit criterion of 75 dBA Ldn for exterior noise levels, and the discussion on sleep disturbance;
3. To be conservative in our analysis, we have eliminated the potential shielding effects from the garages due to the fact that there are gaps between some of the garages which have wood fences, and the fact that there are no garages at the south end of the project site. However, standard calculation procedures allow for shielding of noise sources due to limited visibility of the noise source. As was used in the previous analysis, we included a -3 dBA shielding effect due to the garages. This could also be applied to the last row of residences to the south which would only have a 90 degree view of railroad operations. However, as mentioned, we have not included this off-set;
4. Although we only observed 14 trains during our recent noise monitoring at the site, we used conservative calculations of the noise due to train operations, based upon 16 trains per day. Previous noise measurements along this portion of the railroad track have indicated that up to 16 trains could occur;
5. Some of the major changes which have occurred in the second and third drafts of the report are based upon Tables 3 and 4 of the reports.

Table 3 basically indicates the differences between the measured traffic noise levels, and the noise levels which the FHWA model would predict. This is a calibration of traffic noise on the project site. The important information is that the elevated noise measurement sites (2nd and 3rd floor) resulted in higher levels of traffic noise than the first floor noise measurements. In addition, the noise measurement results clearly indicate that I-80 traffic noise was substantially lower than what the traffic noise model predicted. This is due to the fact that I-80 is shielded significantly by intervening buildings, in some cases shielding from earthen embankments, and the Taylor Road overpass.

Table 4 provides offsets to the predicted future traffic noise levels based upon the calibration results contained in Table 3, and shielding of the common outdoor activity areas provided by apartment building facades. No shielding is accounted for at first floor facades due to the proposed line of garages, although some shielding is expected. One important revision in this latest report is that we have included a +5 dBA offset to Taylor Road traffic noise at the second and third floor building facades. Simply we have increased the predicted future Taylor Road traffic noise by 5 dBA. Previously we did not include this, and was simply an oversight.

There is one other significant change to Table 4. Previously we had a -3 dBA offset to the first floor facades due to railroad operations noise levels, due to expected shielding from the garages. We have eliminated that offset. In addition, there was an error when we applied a +5 dBA offset to the 2nd and 3rd floor

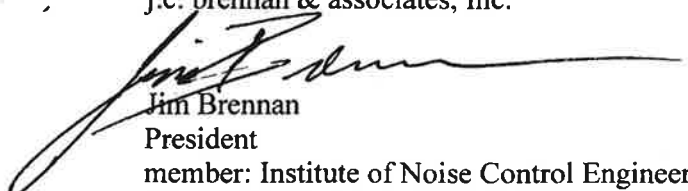
facades due to railroad operations. Once again, this was an error on our part. The shielding effects shown in Table 4 are as follows:

- I-80 first floor facades and decks (-10 dBA) - This is based upon the calibration results shown in Table 3, Site 2. The modeled noise level for I-80 was 66.3 dBA Leq, and the measured noise level was 55.9 dBA;
- I-80 second and third floor facades (-5 dBA) - This is based upon the calibration results shown in Table 3, Site 2E. The modeled noise level was 66.3 dBA Leq, and the measured noise level was 59.7 dBA;
- I-80 outdoor BBQ areas (-10 dB) - This is based upon the calibration results described above, and did not account for building facade shielding;
- Taylor Road first floor facades and decks (-2 dBA) - This is based upon the calibration results shown in Table 3, Site 1. The modeled noise level for Taylor Road was 58.2 dBA Leq, and the measured noise level was 56.3 dBA;
- Taylor Road second and third floor facades (+5 dBA) - This is based upon the calibration results shown in Table 3, Site 1E. The modeled noise level was 58.2 dBA Leq, and the measured noise level was 63.3 dBA;
- Taylor Road outdoor BBQ areas (-5 dBA) - This was a conservative estimate which includes some shielding from building facades. Actual shielding is expected to be a minimum of -10 dBA;
- UPRR first, second and third floor facades and decks (0 dBA) - No shielding was included;
- UPRR outdoor BBQ areas (-10 dBA) - This is based upon shielding from Apartment Building facades.

As I mentioned in a previous email, I am more than happy to meet with the City of Roseville staff to discuss the report. There are some complex nuances to the site, and it is important our company that the City staff is comfortable with the analysis. Although our client is Cresleigh Homes, it is our responsibility to provide an accurate and defensible document for the City staff and Council.

Please contact me with questions.

Respectfully submitted,
j.c. brennan & associates, Inc.



Jim Brennan
President

member: Institute of Noise Control Engineering
file: 2012-120 July 11 letter - Tricia Stewart



P.O. Box 6748 • Auburn, California 95604
263 Nevada Street • Auburn, California 95603
p.530.823.0960 • f.530.823.0961 • www.jcbrennanassoc.com

August 20, 2012

Ms. Deana Ellis
Cresleigh Homes
2024 Opportunity Drive, Suite 150
Roseville, CA 95678

Dear Ms. Ellis:

Based upon our meeting last Wednesday (August 15, 2012) with the City of Roseville Planning Department staff, I am providing this addendum letter. Specifically, this letter is an addendum to the Pearl Creek Apartments Environmental Noise Analysis dated July 10, 2012, and prepared by j.c. brennan & associates, Inc.

Table IX-2 of the City of Roseville General Plan Noise Element (Requirements for an Acoustical Analysis) provides guidelines for the development of an acoustical analysis for projects potentially affected by varying types of noise sources. Item E in Table IX-2 states the following:

Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

The Pearl Creek Apartments Environmental Noise Analysis identified Union Pacific Railroad operations near the project site as a source of intermittent single events. The analysis goes on to discuss the potential noise levels associated with those events based upon the Sound Exposure Level (SEL) descriptor. The report did not discuss the maximum noise levels (Lmax).

The intent of item E in Table IX-2 is to provide guidelines for evaluating noise impacts. The City does not have a maximum (Lmax) standard for intermittent noise sources, but does recognize the importance of identifying the potential for sleep disturbance, and the need for disclosing such impacts. The most recent research on identifying the potential for sleep disturbance utilizes the SEL descriptor. This descriptor not only allows for evaluating both the loudness the noise event, and the duration of the noise event.

As we discussed with Ms. Tricia Stewart and Mr. Chris Burrows of the planning staff, even the most recent research does not provide a criterion for acceptability of sleep disturbance, but does provide disclosure of the potential for sleep disturbance.

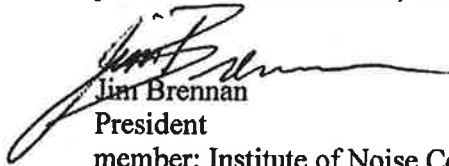
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NOV 09 2012
Planning Department

The report did evaluate compliance with the interior noise level criterion of 45 dBA Ldn contained in the General Plan Noise Element during the intermittent single events.

If you, or the City staff have questions, please call me at 530-823-0960, or at jbrennan@jcbrennanassoc.com.

Respectfully submitted,

j.c. brennan & associates, Inc.



Jim Brennan
President

member: Institute of Noise Control Engineering
file: 2012-120 September 18 letter - Deana Ellis



MEMORANDUM

TO: Kathy Pease/Tricia Stewart – Roseville Planning Department
FROM: Scott Gandler, Senior Civil Engineer – Roseville Public Works Department *S.G.*
DATE: July 19, 2012
SUBJECT: Pearl Creek Apartments PM peak Hour Intersection Level-of-Service Analysis

Purpose

To determine the CEQA impacts of the approval and construction of the proposed Pearl Creek Apartments on Antelope Creek Drive in Roseville, CA.

Background

Antelope Creek Drive is located Near Roseville Parkway and Galleria Boulevard in Roseville, in close proximity to the Galleria Mall, The Fountains shopping Center and the Creekside Ridge Retail/Office Center. Adjacent major signalized intersections include Galleria Boulevard/Antelope Creek Drive, Galleria Boulevard/Roseville Parkway and Roseville Parkway/Creekside Ridge Drive. PM peak hour level-of-service (LOS) at these three intersections was analyzed under existing plus project conditions and compared to existing conditions.

Analysis Methodology And Assumptions

For this analysis, I used my 23 years of experience and knowledge of Roseville intersections along with PM peak hour directional information from the City's Travel Demand Forecasting model to determine the expected trip distribution of the project. I then used the PM peak hour trip generation rates published in the Institute of Transportation Engineers (ITE) Trip Generation, 8th Edition to predict the expected trips generated by the proposed project. Those project trips were then added to the existing (2011) turning movement volumes and compared to the no-project condition to determine the project impacts.

Results

Based on the assumptions described above, this analysis shows that the addition of the project will not adversely impact any of the adjacent intersections. The following table compares the no project condition to the plus project condition.

Intersection	Existing (2011)		Existing Plus Project	
	LOS	V/C	LOS	V/C
Galleria/Antelope Creek	A	0.59	B	0.61
Roseville Pkwy/Galleria	D	0.86	D	0.87
Roseville Pkwy/Creekside Ridge	B	0.69	C	0.70

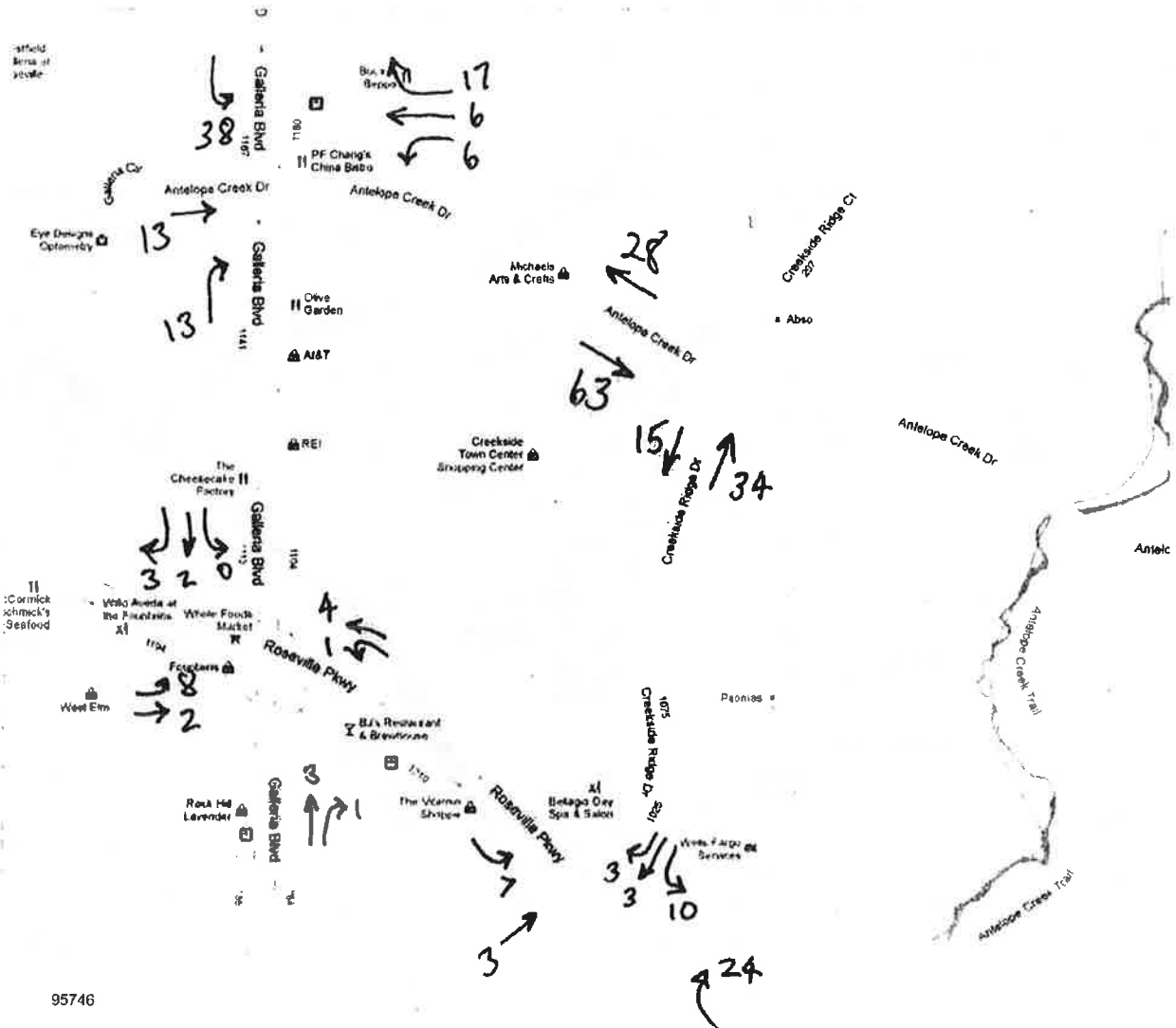
Google



95746

Google

To see all the details that are visible on the screen, use the "Print" link next to the map



95746

	%	139
Out	0.16 31%	43
in	0.36 69%	96
Total	0.52 100%	139

65%	90
35%	49
	<u>139</u>

65%	
90	
60%	54
20%	18
20%	18
	<u>90</u>

35%		
49		
20%	10	10
10%	5	60% 6
70%	34	40% 4
	<u>49</u>	
18		
60%	11	
40%	7	

Galleria/Antelope Creek

W/B Left	6			
14 W/B Thru	6		out 28	out 15
W/B Right	17	28	in 63	in 34
S/B Left	38		90	49
N/B Right	13			
E/B Thru	13			
	90	90		

Galleria/Rsvl Pkwy

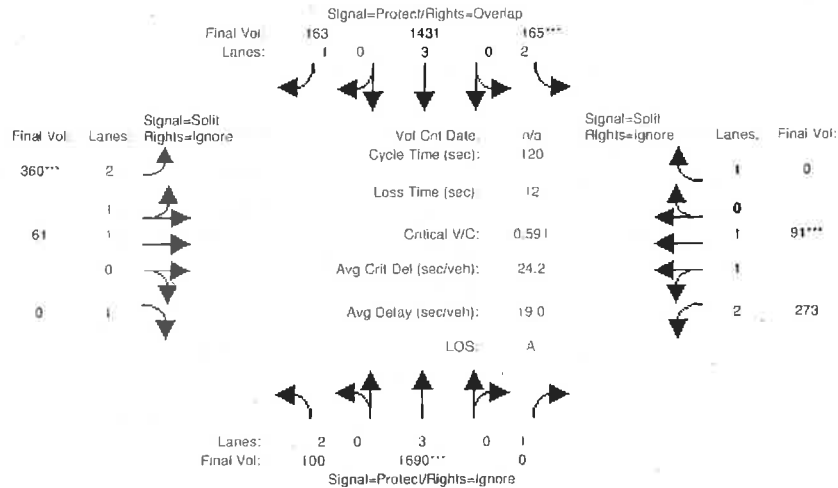
S/B Right	3	
S/B Thru	2	
E/B Left	8	
E/B Thru	2	
W/B Thru	4	
W/B Left	1	
N/B Right	1	
N/B Thru	3	
	24	24

Creekside Ridge/Rsvl Pkwy

S/B Left	10	
S/B Thru	3	
S/B Right	3	
N/B Thru	3	
E/B Left	7	
W/B Right	24	
	50	50
	140	

City of Roseville
Existing Conditions PM Peak Hour
Amoruso Ranch **Specific Plan**
Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing PM

Intersection #61: Antelope Creek Dr & Galleria Blvd



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:	204			203			19			279 97 271		
Base Vol:	100	1690	191	165	1431	163	360	61	99	273	91	254
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	100	1690	191	165	1431	163	360	61	99	273	91	254
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	100	1690	0	165	1431	163	360	61	0	273	91	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	1690	0	165	1431	163	360	61	0	273	91	0
PCB Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Volume:	100	1690	0	165	1431	163	360	61	0	273	91	0
Saturation Flow Module:												
Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	3.00	1.00	1.00	3.00	1.00	1.00
Final Sat.:	2900	4350	1450	2900	4350	1450	4350	1450	1450	4350	1450	1450
Capacity Analysis Module:												
Vol/Sat:	0.03	0.39	0.00	0.06	0.33	0.11	0.08	0.04	0.00	0.06	0.06	0.00
Crit Volume:	563			83			120			91		
Crit Moves:	***			***			***			***		

City of Roseville
Sierra Vista Specific Plan
Existing Conditions: PM Peak Hour

No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #61 Galleria & Antelope Creek

Cycle (sec): 120 Critical Vol./Cap.(X): 0.591
Loss Time (sec): 12 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 56 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Protected			Protected			Split Phase			Split Phase			
Rights:	Ignore			Ovl			Ignore			Ignore			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	2	0	3	0	1	2	0	3	0	1	2	1	1

Volume Module:

Base Vol:	100	1690	191	165	1431	163	360	61	99	273	91	254
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	100	1690	191	165	1431	163	360	61	99	273	91	254
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	100	1690	0	165	1431	163	360	61	0	273	91	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	1690	0	165	1431	163	360	61	0	273	91	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Volume:	100	1690	0	165	1431	163	360	61	0	273	91	0

Saturation Flow Module:

Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	3.00	1.00	1.00	3.00	1.00	1.00
Final Sat.:	2900	4350	1450	2900	4350	1450	4350	1450	1450	4350	1450	1450

Capacity Analysis Module:

Vol/Sat:	0.03	0.39	0.00	0.06	0.33	0.11	0.08	0.04	0.00	0.06	0.06	0.00
Crit Volume:	563			83			120			91		
Crit Moves:	****			****			****			****		

City of Roseville
Sierra Vista Specific Plan
Existing Conditions: PM Peak Hour

Plus Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #61 Galleria & Antelope Creek

Cycle (sec): 120 Critical Vol./Cap. (X): 0.606
Loss Time (sec): 12 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 58 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Protected			Protected			Split Phase			Split Phase			
Rights:	Ignore			Ovl			Ignore			Ignore			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	2	0	3	0	1	2	0	3	0	1	2	1	0

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	100	1690	204	203	1431	163	360	74	99	279	97	271
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	100	1690	204	203	1431	163	360	74	99	279	97	271
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	100	1690	0	203	1431	163	360	74	0	279	97	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	1690	0	203	1431	163	360	74	0	279	97	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
FinalVolume:	100	1690	0	203	1431	163	360	74	0	279	97	0

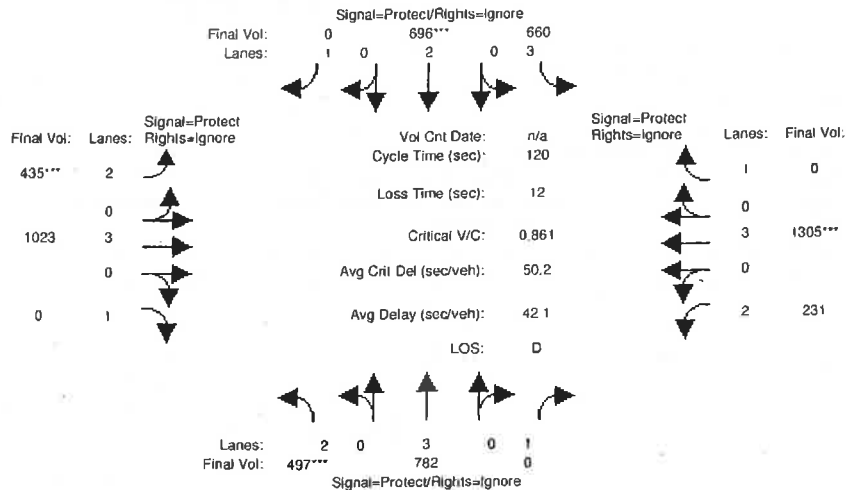
Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	3.00	1.00	1.00	2.97	1.03	1.00
Final Sat.:	2900	4350	1450	2900	4350	1450	4350	1450	1450	4304	1496	1450

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.03	0.39	0.00	0.07	0.33	0.11	0.08	0.05	0.00	0.06	0.06	0.00
Crit Volume:	563			102			120			94		
Crit Moves:	****			****			****			****		

City of Roseville
Existing Conditions PM Peak Hour
Amoruso Ranch Specific Plan

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing PM

Intersection #63: Roseville Pkwy & Galleria Blvd



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:	785	74	0	698	355	443	1025	232	1309	231	1305	747
Base Vol:	497	782	73	660	696	352	435	1023	484	231	1305	747
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	497	782	73	660	696	352	435	1023	484	231	1305	747
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	497	782	0	660	696	0	435	1023	0	231	1305	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	497	782	0	660	696	0	435	1023	0	231	1305	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Volume:	497	782	0	660	696	0	435	1023	0	231	1305	0
Saturation Flow Module:												
Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	3.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2900	4350	1450	4350	2900	1450	2900	4350	1450	2900	4350	1450
Capacity Analysis Module:												
Vol/Sat:	0.17	0.18	0.00	0.15	0.24	0.00	0.15	0.24	0.00	0.08	0.30	0.00
Crit Volume:	249			348			217			435		
Crit Moves:	****			****			****			****		

City of Roseville
Sierra Vista Specific Plan
Existing Conditions: PM Peak Hour

No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #63 Galleria & Roseville Pkwy

Cycle (sec): 120 Critical Vol./Cap.(X): 0.861
Loss Time (sec): 12 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 164 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Protected			Protected			Protected			Protected			
Rights:	Ignore			Ignore			Ignore			Ignore			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	2	0	3	0	1	3	0	2	0	1	2	0	3

Volume Module:

Base Vol:	497	782	73	660	696	352	435	1023	484	231	1305	747
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	497	782	73	660	696	352	435	1023	484	231	1305	747
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	497	782	0	660	696	0	435	1023	0	231	1305	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	497	782	0	660	696	0	435	1023	0	231	1305	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
FinalVolume:	497	782	0	660	696	0	435	1023	0	231	1305	0

Saturation Flow Module:

Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	3.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2900	4350	1450	4350	2900	1450	2900	4350	1450	2900	4350	1450

Capacity Analysis Module:

Vol/Sat:	0.17	0.18	0.00	0.15	0.24	0.00	0.15	0.24	0.00	0.08	0.30	0.00
Crit Volume:	249			348			217			435		
Crit Moves:	****			****			****			****		

City of Roseville
Sierra Vista Specific Plan
Existing Conditions: PM Peak Hour

Plus Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #63 Galleria & Roseville Pkwy

Cycle (sec): 120 Critical Vol./Cap.(X): 0.866
Loss Time (sec): 12 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 170 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Ignore				Ignore				Ignore				Ignore			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	2	0	3	0	1	3	0	2	0	1	2	0	3	0	1	

Volume Module:	North Bound				South Bound				East Bound				West Bound			
Base Vol:	497	785	74	660	698	355	443	1025	484	232	1309	747				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	497	785	74	660	698	355	443	1025	484	232	1309	747				
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00				
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00				
PHF Volume:	497	785	0	660	698	0	443	1025	0	232	1309	0				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	497	785	0	660	698	0	443	1025	0	232	1309	0				
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00				
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00				
Final Volume:	497	785	0	660	698	0	443	1025	0	232	1309	0				

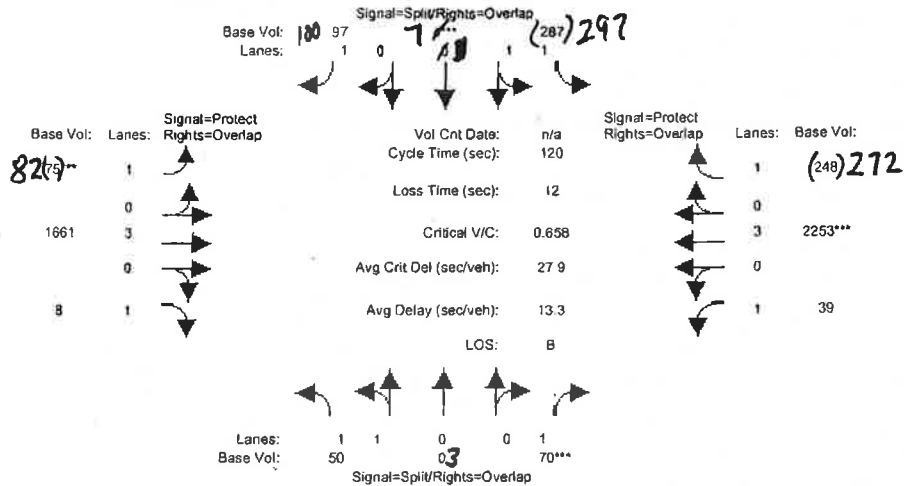
Saturation Flow Module:	North Bound				South Bound				East Bound				West Bound			
Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450				
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Lanes:	2.00	3.00	1.00	3.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00				
Final Sat.:	2900	4350	1450	4350	2900	1450	2900	4350	1450	2900	4350	1450				

Capacity Analysis Module:	North Bound				South Bound				East Bound				West Bound			
Vol/Sat:	0.17	0.18	0.00	0.15	0.24	0.00	0.15	0.24	0.00	0.08	0.30	0.00				
Crit Volume:	249			349			222			436						
Crit Moves:	****			****			****			****						

City of Roseville
Amoruso TISLevel Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing PM

107

Intersection #104: Roseville Parkway & Creekside Ridge



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:	3			297 7 100			82			272		
Base Vol:	50	0	70	287	4	97	75	1661	8	39	2253	248
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	0	70	287	4	97	75	1661	8	39	2253	248
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	0	70	287	4	97	75	1661	8	39	2253	248
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	0	70	287	4	97	75	1661	8	39	2253	248
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	50	0	70	287	4	97	75	1661	8	39	2253	248
Saturation Flow Module:												
Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Adjustment:	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Lanes:	2.00	0.00	1.00	1.97	0.03	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3045	0	1523	3003	42	1523	1523	4568	1523	1523	4568	1523
Capacity Analysis Module:												
Vol/Sat:	0.02	0.00	0.05	0.10	0.10	0.06	0.05	0.36	0.01	0.03	0.49	0.16
Crit Volume:			70		146			75			751	
Crit Moves:			****		****			****			****	

City of Roseville
Sierra Vista Specific Plan
Existing Conditions: PM Peak Hour

No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #107 Roseville Parkway & Creekside Ridge

Cycle (sec): 120 Critical Vol./Cap. (X): 0.691
Loss Time (sec): 12 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 74 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	1	0	0	1	1	0	0	1	1	0	3

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	50	0	70	287	4	97	75	1661	8	39	2253	248
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	0	70	287	4	97	75	1661	8	39	2253	248
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	0	70	287	4	97	75	1661	8	39	2253	248
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	0	70	287	4	97	75	1661	8	39	2253	248
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	50	0	70	287	4	97	75	1661	8	39	2253	248

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	1.97	0.03	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	2900	0	1450	2860	40	1450	1450	4350	1450	1450	4350	1450

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.02	0.00	0.05	0.10	0.10	0.07	0.05	0.38	0.01	0.03	0.52	0.17
Crit Volume:	70			146			75			751		
Crit Moves:	****			****			****			****		

City of Roseville
Sierra Vista Specific Plan

2011

Existing Conditions: PM Peak Hour

Plus Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #107 Roseville Parkway & Creekside Ridge

Cycle (sec): 120 Critical Vol./Cap. (X): 0.701
Loss Time (sec): 12 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 76 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	1	0	0	1	1	0	0	1	1	0	3

Volume Module:

Base Vol:	50	3	70	297	7	100	82	1661	8	39	2253	272
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	3	70	297	7	100	82	1661	8	39	2253	272
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	3	70	297	7	100	82	1661	8	39	2253	272
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	3	70	297	7	100	82	1661	8	39	2253	272
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	50	3	70	297	7	100	82	1661	8	39	2253	272

Saturation Flow Module:

Sat/Lane:	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.89	0.11	1.00	1.95	0.05	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	2736	164	1450	2833	67	1450	1450	4350	1450	1450	4350	1450

Capacity Analysis Module:

Vol/Sat:	0.02	0.02	0.05	0.10	0.10	0.07	0.06	0.38	0.01	0.03	0.52	0.19
Crit Volume:	70	152					82			751		
Crit Moves:	****	****					****			****		

Antelope Creek - TAZ 233

Buildout/2025 CIP Model

	UNITS/ SQUARE FOOTAGE	MODEL TRIP RATE	TRIPS
MODEL:			
SFR	0	0.69	0
MFR	340	0.52	177
Retail	0.0	2.46	0
Office	152.7	1.44	220
			397

EXISTING PLUS PROPOSED

	SQUARE FOOTAGE	MODEL TRIP RATE	TRIPS
EXISTING:			
SFR	0	0.69	0
MFR	336	0.52	175
			175
PROPOSED		ITE TRIP RATE	
MFR	224	0.62	139
Office	0.0	1.49	0
			139
EXISTING PLUS PROPOSED:			175
			139
			314

EXISTING PLUS PROPOSED:	314
MODEL:	-397
DIFFERENCE:	-83

SINCE THIS PROJECT DOES NOT GENERATE 50 TRIPS MORE THAN OUR MODEL ASSUMES, ONLY A SHORT-TERM TRAFFIC STUDY IS REQUIRED