

APPENDIX B
INITIAL STUDY

**ATHERTON LIBRARY BUILDING PROJECT
INITIAL STUDY**

LSA

March 2012

ATHERTON LIBRARY BUILDING PROJECT INITIAL STUDY

Submitted to:

Town of Atherton
91 Ashfield Road
Atherton, CA 94027

Prepared by:

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LSA

March 2012

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ATHERTON LIBRARY BUILDING PROJECT INITIAL STUDY

The following is an Initial Study/Environmental Checklist for the Atherton Library Building Project. This checklist will be used to identify areas to be further discussed in an Environmental Impact Report (EIR).

1. Project Title:

Atherton Library Building Project

2. Lead Agency Name and Address:

Town of Atherton
91 Ashfield Road
Atherton, CA 94027

3. Contact Person and Phone Number:

Lisa Costa Sanders, Deputy Town Planner
Phone: 650-752-0544

4. Project Location:

The approximately 0.3-acre project site is generally situated in the center of the existing 22-acre Holbrook-Palmer Park (park), located at 150 Watkins Avenue in the Town of Atherton, San Mateo County. The Atherton Town Center is located approximately 0.4 miles to the northwest. The park is located immediately south of and adjacent to Watkins Avenue, between its intersections with Middlefield Road to the east and El Camino Real to the west.¹ Figure 1 depicts the site's regional and local context. Figure 2 depicts an aerial view of the project site and vicinity.

5. Project Sponsor's Name and Address:

Town of Atherton
91 Ashfield Road
Atherton, CA 94027

6. General Plan Designation:

Parks and Open Space

¹ The street grid in Atherton generally extends northeast-southwest and northwest-southeast. The simplified directions used in this EIR have been chosen to be consistent with directional conventions used in Atherton. Specifically, roadways progressing along the peninsula toward the City of San Francisco (e.g., El Camino Real) are designated northbound-southbound and roadways progressing towards San Francisco Bay (e.g., Watkins Avenue) are designated eastbound-westbound. North arrows on all figures note this terminology.

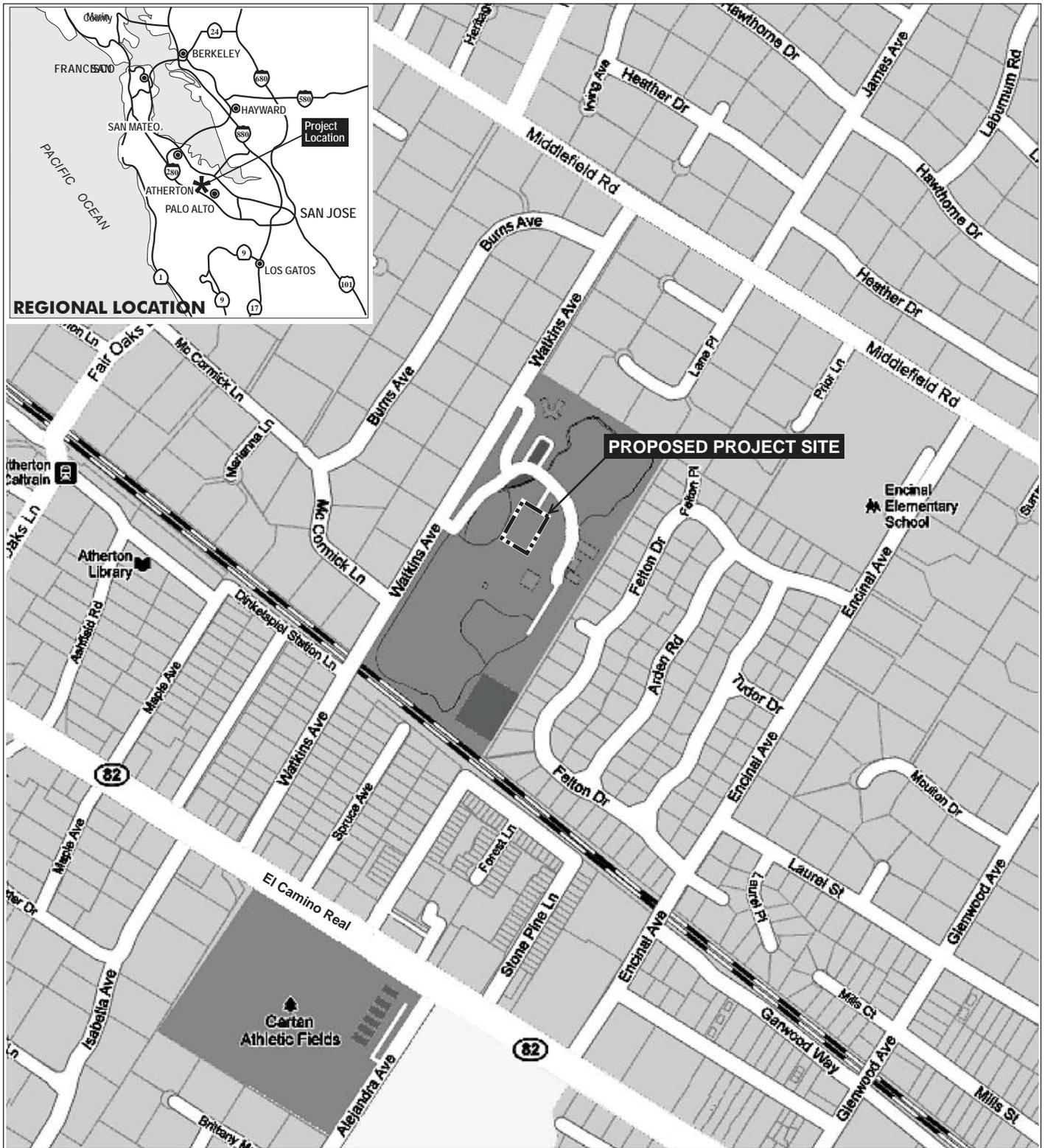
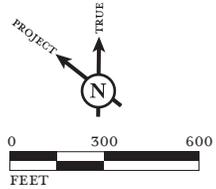


FIGURE 1

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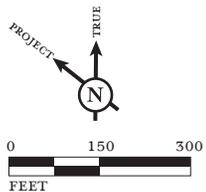
 Proposed Project Site

Atherton Library Building Project Initial Study
 Proposed Project Vicinity and Regional Location



FIGURE 2

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-  Proposed Project Site
-  Holbrook-Palmer Park

*Atherton Library Building Project Initial Study
Aerial Photograph of the Project Site
and Surrounding Land Uses*

SOURCES: GOOGLE EARTH, 2009; LSA ASSOCIATES, INC., 2011.

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7. Zoning:

POS (Parks and Open Space) District

8. Description of Project:

The proposed project includes the demolition of the existing 3,934 square foot Main House located within Holbrook-Palmer Park and construction of a new, up to 13,500 square foot library at this location. Figure 3 shows the existing Holbrook-Palmer Park site diagram and Figure 4 shows the preliminary conceptual site plan for the new library within the park. Some existing uses (e.g., meetings, classes, and events) currently accommodated at the Main House would be absorbed by other facilities in the park or within the new library itself. The existing 6,038 square-foot library building located at 2 Dinkelspiel (Station) Lane would likely be repurposed for storage, Town offices or other civic uses.² The proposed project is described below.

a. Building Program. Consistent with the recommendations of the Library Needs Assessment and the Library Building Program developed by the San Mateo County Library,³ the proposed new library would provide up to 11,700 square feet of usable program space in an up to 13,500 gross square foot building.⁴ The building footprint would be approximately 10,000 square feet and the building entrance would be oriented to the north. Per the Zoning Code, the new two-story structure would not exceed 34 feet in height.

b. Green Building Features. The new library building would be designed to incorporate green building features, and the Town may pursue and obtain a LEED Platinum and/or Net Zero rating with the assistance of a LEED-accredited professional.⁵ To develop a sustainable site, the new library building would be sited to maximize efficiency and sustainability, and some or all of the following green building strategies may be utilized:

- *Water and Stormwater.* The new library building would be designed and landscaped to allow for efficient water use and conservation. Water efficient landscaping would be installed to reduce water use. Stormwater management would be another priority including the establishment of both quantity and quality controls.
- *Energy.* To optimize energy performance of the new library, both active and passive heating and cooling strategies including radiant heating, operable windows and green roofs would be incorporated into the library building. On-site renewable energy would be generated by photovoltaic panels and solar-thermal tubes. The use of landscaping and low albedo⁶ surfaces would mitigate the heat island effect.

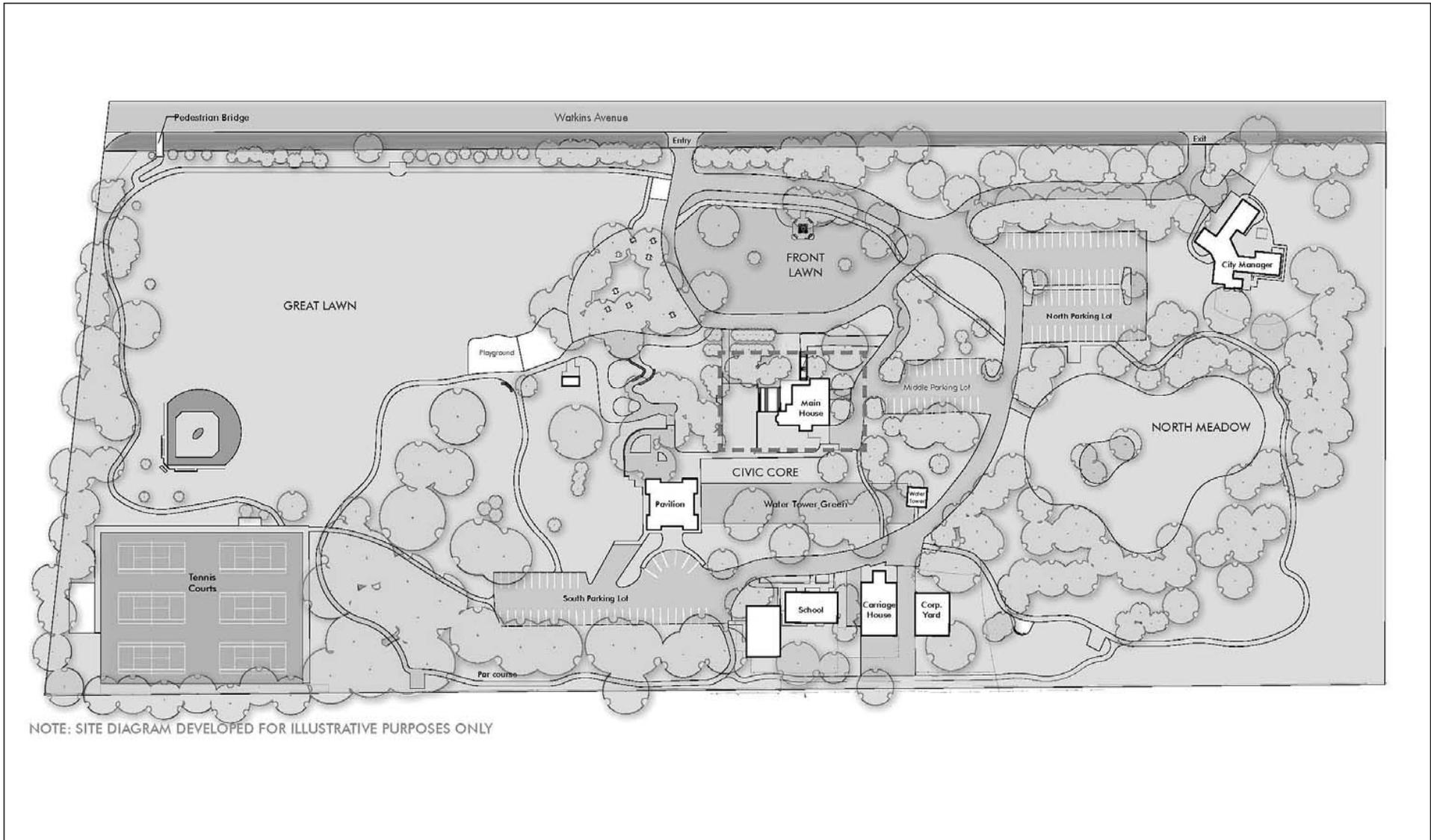
² Atherton, Town of, 2011. City Council Meeting. Agenda Item 20. December 21.

³ Atherton Library Building Steering Committee, 2011. *Report to Town of Atherton Town Council, Site Selection for Atherton Library Building Project.* October 12.

⁴ Usable square footage refers to space available for library programming. The gross square footage accounts for non programmed space (e.g., restrooms, hallways, stairs).

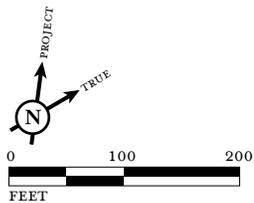
⁵ LEED stands for "Leadership in Energy and Environmental Design." LEED consists of a rating system for the design, construction, and operation of high performance "green buildings." The system and ratings are governed by the U.S. Green Building Council.

⁶ "Albedo" refers to the overall average reflection coefficient of an object. Low albedo surfaces reflect very little incoming radiation and absorb much of the energy instead.



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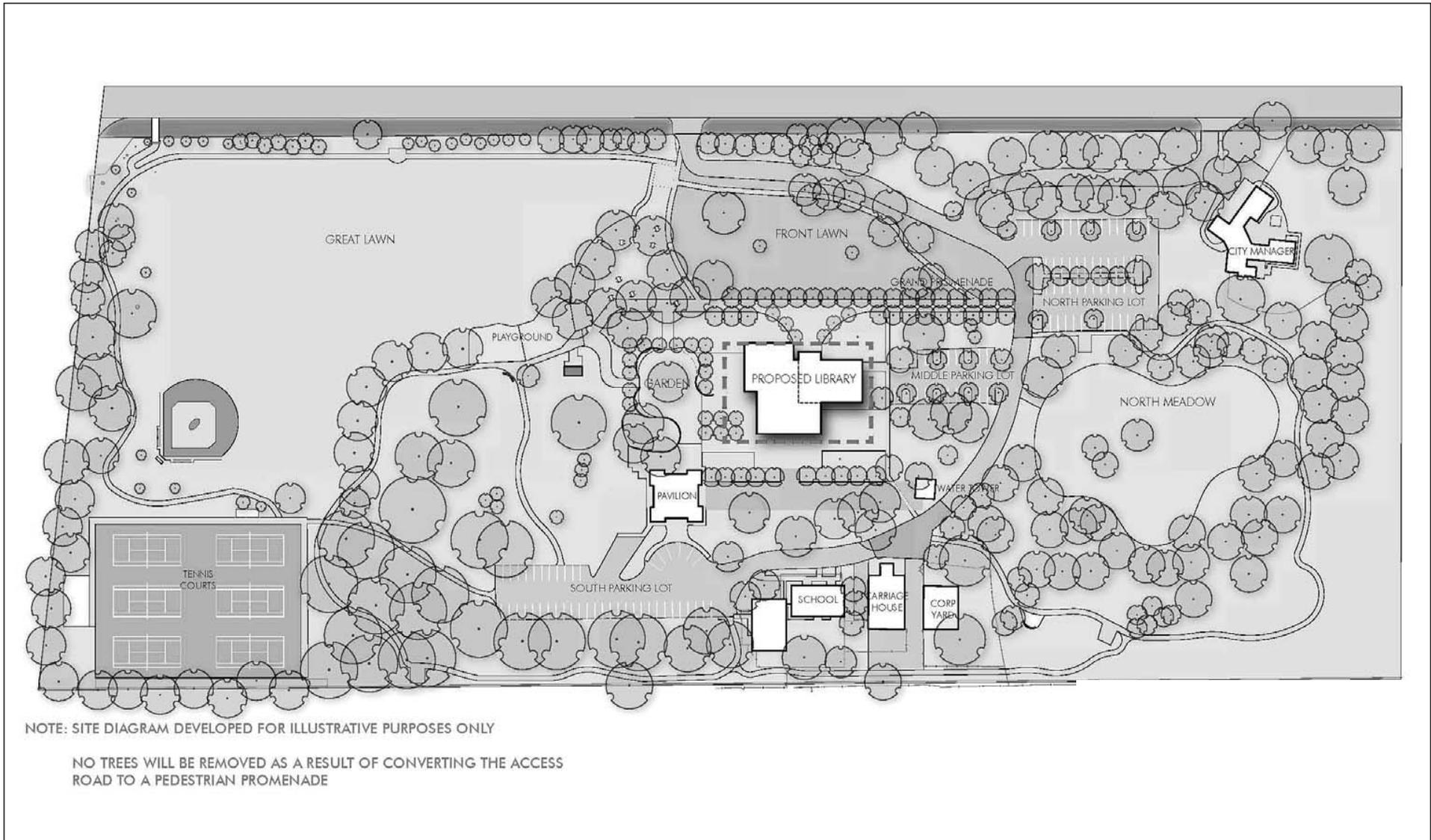
FIGURE 3



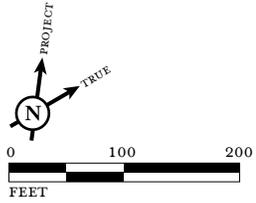
 Project Site

SOURCE: GROUP 4 ARCHITECTURE, 2012.

Atherton Library Building Project Initial Study
 Existing Holbrook-Palmer Park Diagram



LSA FIGURE 4



Project Site

Atherton Library Building Project Initial Study
**Conceptual Proposed Holbrook-Palmer Park
 and Project Site Diagram**

SOURCE: GROUP 4 ARCHITECTURE, 2012.
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- *Alternative Transportation.* Alternative transportation options to access the library would be incorporated into the project, including new pathways, bicycle storage, and changing rooms.
- *Construction Waste and Building Materials.* During demolition and construction, materials would be recycled to the extent feasible to divert construction waste from landfills. Building construction would maximize the use of regional materials and products containing recycled content. The building interiors would consist of low-emitting materials including adhesives and sealants, paints and coatings, flooring systems and composite wood and agrifiber.

The new library would also exemplify innovation in design through the incorporation of educational tours and exhibits and “green” housekeeping practices (e.g., inclusion of clearly marked recycling bins, use of timed thermostats, use of reusable or recyclable materials).

c. Landscaping. The proposed project would include landscaping that would replace and enhance some of the landscaping removed during the demolition phase of the proposed project. Approximately 37 trees (including two heritage trees) would be removed from the site due to construction of the new library and associated improvements within the vicinity. Approximately 82 new trees would be planted. All trees within the project site and vicinity have been evaluated by an arborist and recommendations for replacement (in the case of heritage trees) and protection would be implemented prior to site preparation work. In addition, the proposed project would be connected to existing adjacent uses through new landscaping and walkway connections.

d. Circulation and Parking. Vehicular access to the park would not be altered as part of the proposed project. All driveways and parking spaces within the park, including the existing 24-space parking area immediately adjacent to and east of the Main House, would be retained. However, the service driveway located immediately north of the site may be redesigned or redeveloped with new landscaping. Pedestrian access to the new library would be provided by existing and/or new pathways available throughout the park. On-site bicycle parking spaces would also be provided.

e. Utilities and Infrastructure. The proposed project would be developed on a site that is currently served by public utility systems. The site is served by the California Water Company (Cal Water) and the West Bay Sanitary District. Utility connections to the proposed library building would be required. Approximately 7,000 square feet of new impervious surface would result from development of the proposed library.⁷

f. Demolition, Grading and Construction. Demolition activities would include the removal of the existing 3,934 square-foot Main House and surrounding landscaping and pavements. The site is generally level and minimal grading is expected.

Approximately 2,586 cubic yards of construction debris would be collected and off-hauled.⁸ Construction of the new library is anticipated to commence in 2014 and occur over an 18 month period. Project operation is anticipated by the end of 2015. The existing library could continue to operate at its current location until that time.

⁷ Group 4 Architecture, 2012. Written communication with LSA Associates, Inc. January 6.

⁸ Ibid.

g. Relocation of Existing Main House Uses. The existing dedicated office, storage, and meeting spaces that are located within the Main House would generally be absorbed by other existing facilities within the park or within the new library itself.⁹

The existing flag pole located near the Main House would likely be relocated to an appropriate site near the front of the new library entrance, and the existing pole and plaque would be retained.

h. Requested Approvals. The proposed project includes and would require a series of discretionary actions, including Environmental Review, a General Plan Amendment, Holbrook-Palmer Park Master Plan Amendment, and a Zoning Ordinance Amendment.

9. Surrounding Land Uses and Setting:

The park is generally surrounded by single-family residential neighborhoods and dense vegetation on all sides. Watkins Avenue, a two-lane undivided east-west collector roadway, and the Atherton Channel storm drainage conduit border the park to the north and the Caltrain rail line corridor borders the park to the west. The project site itself is centrally located within the interior of the park and is surrounded by other park structures and landscaping. The site is bordered by an internal park driveway to the north; an adjacent parking lot to the east; the Water Tower and an open lawn area to the south; and the Pavilion, gazebo, and ornamental flower garden to the west. The park Corporation Yard, Carriage House, and day-care center are located farther south, across an internal driveway.

10. Other agencies whose approval may be required:

- Regional Water Quality Control Board (Water Board)
- California Water Services Company (CalWater)
- West Bay Sanitary District (WBSD)
- Menlo Park Fire Protection District (Fire District)

⁹ The proposed program for relocation of existing Main House uses was authorized for inclusion in the environmental analysis by the Atherton City Council on February 15, 2012.

Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality |
| <input checked="" type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input checked="" type="checkbox"/> Public Services | <input checked="" type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance |

Determination:

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Neal Martin, Town Planner

March 21, 2012

Date

ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) *Have a substantial adverse effect on a scenic vista? (Potentially Significant Impact)*

No scenic vistas are identified in the Atherton General Plan.¹⁰ However, demolition of the existing Main House and construction of the new two-story library could alter existing views from and within Holbrook-Palmer Park. Additionally, the Town considers all streets and roadways within its jurisdiction to be scenic routes (General Plan Policy 2.421). Therefore, the EIR will evaluate visual and aesthetic issues, including project visibility from key public viewpoints, including adjacent roadways.

b) *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? (No Impact)*

The closest State-designated scenic highway to the project site, and the only such roadway within Atherton, is I-280 (also referred to as the Junipero Serra Freeway), which is approximately 5 miles west of the project site. Because the site is not visible from this roadway, the proposed project would not damage scenic resources within a State scenic highway.

c) *Substantially degrade the existing visual character or quality of the site and its surroundings? (Potentially Significant Impact)*

The project site is currently developed with an existing one-story, 19-foot tall structure, which is centrally located within Holbrook-Palmer Park. The site is surrounded by an adjacent plaza, open lawn, and landscaped areas. Additional structures and landscaped areas as well as various internal driveways and parking lots are also located within the vicinity of the site. The site's existing appearance would be substantially altered by demolition of the existing building and construction of the new

¹⁰ Atherton, Town of, 2002. *Town of Atherton General Plan, Revisions 2002*. November 20.

library. The EIR will evaluate the project’s compatibility with the existing scale and architectural character of the park and surrounding vicinity, and consistency with public plans and policies regarding visual/urban design quality.

- d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?***(Potentially Significant Impact)**

The project site is currently developed with an existing building used for community meetings and events. The building and adjacent paved and landscaped areas also function as private rental space for weddings and corporate events. Both indoor and outdoor spaces have been used during the day and evening periods for these purposes. Permanent exterior lighting consists primarily of nighttime security lighting except when large events require the use of temporary outdoor lighting fixtures. Because of the interior location of the outdoor areas used for events and dense vegetation that surrounds the park, temporary exterior lighting used for these purposes does not spill over to the surrounding residential neighborhoods. The proposed project would introduce new sources of light and glare to the park which may affect day or nighttime views within and in the vicinity of the park. The EIR will evaluate the potential effects of new lighting sources on day and nighttime views in the area as well as compliance of proposed lighting materials with Town of Atherton requirements. The potential effects of new sources of glare will also be evaluated.

	Potentially Significant Unless Mitigation Incorporated	Potentially Significant	Less Than Significant Impact	No Impact
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II. AGRICULTURAL AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. 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:

- 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 a non-agricultural use?

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
a) <i>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 a non-agricultural use? (No Impact)</i>				

The project site is located within the existing 22-acre Holbrook-Palmer Park, which is located in an urban area in the Town of Atherton. The park is developed with civic, recreational, and pastoral uses and is generally surrounded by residential uses. There are no agricultural resources located within or near the project site vicinity. Additionally, the site is classified as “Urban and Built-Up Land” by the State Department of Conservation.¹¹ Therefore, the proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? (No Impact)

The project site is located within an existing park zoned within the Park and Open Space (POS) District on the Atherton Zoning Plan. The site is not under a Williamson Act contract.¹² Therefore, development of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract.

¹¹ California Department of Conservation, 2011. Division of Land Resource Protection, Farmland Mapping and Monitoring Program. *San Mateo County Important Farmland 2010* (map). Website: <ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2010/smt10.pdf>. October.

¹² California Department of Conservation, 2006. Division of Land Resource Protection. *San Mateo County Williamson Act Lands 2006* (map). Website: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Map%20and%20PDF/San%20Mateo/san_mateo_2006.pdf. January 1.

- 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))?* **(No Impact)**

The developed project site is located within an existing park, is zoned within the POS District on the Atherton Zoning Plan and is located within an urban area in the Town of Atherton. Therefore, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland.

- d) *Result in the loss of forest land or conversion of forest land to non-forest use?* **(No Impact)**

Please refer to Section II.c. The proposed project would not result in the loss of forest land or conversion of forest land to non-forest uses.

- 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?* **(No Impact)**

Please refer to Sections II.a. and II.d. Since the project site is located within a developed area, the proposed project would not result in: the extension of infrastructure into an undeveloped area, the development of urban uses on a greenfield site, or other physical changes that would result in the conversion of farmland to non-agricultural uses or forest land to non-forest uses. Therefore, the proposed project would not adversely affect agricultural or forestry resources.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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III. AIR QUALITY. 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:

- | | | | | |
|---|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
a) <i>Conflict with or obstruct implementation of the applicable air quality plan? (Less-Than-Significant Impact)</i>				

The main purpose of an air quality plan is to bring an area into compliance with the requirements of federal and State air quality standards. Such plans describe air pollution control strategies to be implemented by a city, county or region. The Town of Atherton and the project site are located in the San Francisco Bay air basin and are within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The latest air quality plan, the *Bay Area 2010 Clean Air Plan*,¹³ was developed in order to bring the region into compliance with State and federal air quality standards. The primary goals of the *Bay Area 2010 Clean Air Plan* are to: attain air quality standards; reduce population exposure to air pollutants and protect public health in the Bay Area; and reduce greenhouse gas emissions and protect the climate. As discussed in more detail below, the project would not exceed the BAAQMD’s significance criteria or increase population exposure to air pollutants. The proposed project would not hinder or disrupt implementation of any control measures from the Clean Air Plan and therefore would not conflict with or obstruct implementation of the *Bay Area 2010 Clean Air Plan*.

b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation? (**Potentially Significant Unless Mitigation Incorporated**)*

Air pollutant emissions associated with the proposed project would occur over the short term in association with construction activities such as grading and vehicle/equipment use. Long-term, or operational, emissions would result from vehicle trips to and from the project site and area sources, such as natural gas usage. The discussion below describes potential air quality violations that could occur as a result of short-term construction emissions, including fugitive dust, and long-term operational emissions.

Construction Dust. Construction dust would affect local air quality at various times during construction of the proposed project. The dry, windy climate of the area during the summer months creates a high potential for dust generation if and when underlying soils are exposed. Clearing, grading and earthmoving activities have a high potential to generate dust whenever soil moisture is low and particularly when the wind is blowing.

¹³ Bay Area Air Quality Management District, 2010. *Bay Area 2010 Clean Air Plan*. September.

Construction activities would result in increased dustfall and locally elevated levels of particulates downwind of construction activity. Uncontrolled construction dust has the potential to create a nuisance at nearby properties and to park users including users of the nearby sports fields.

Implementation of the following mitigation measure requires the best management practices for fugitive dust and would reduce construction-related dust and emissions (discussed in more detail below) to a less-than-significant level, thereby reducing the nuisance effect on nearby properties and existing park users.

Mitigation Measure AIR-1: Consistent with guidance from the BAAQMD, the following actions shall be required of construction contracts and specifications for the project site.

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent parking lots and public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the Town of Atherton regarding dust complaints. This person shall respond and take corrective action within 48 hours.

Construction Equipment Exhaust Emissions. Construction period emissions would result from development of the proposed project. Construction activities are a source of organic gas emissions. Solvents in adhesives, non-water-based paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application. The Urban Emissions Model (URBEMIS v 9.2.4) computer program, which is the BAAQMD's recommended model for estimating emissions associated with land use development projects, was used to calculate construction source emissions. Inputs to the model include an 18-month construction period, including demolition of the existing on-site building.

Results shown in Table 1 indicate the project emissions for construction would be below the significance threshold for construction adopted by the BAAQMD.

Table 1: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	NO _x	Exhaust PM _{2.5}	Fugitive Dust PM _{2.5}	Exhaust PM ₁₀	Fugitive Dust PM ₁₀
Maximum Daily Emissions	9.12	35.59	1.87	0.68	2.04	3.22
BAAQMD Thresholds	54.00	54.00	54.00	BMP	82.00	BMP
Exceed Threshold?	No	No	No	NA	No	NA

BMP = Best Management Practices

Source: LSA Associates, Inc., 2011

During construction, various diesel-powered vehicles and equipment would be in use. In 1998, the California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). The ARB has completed a risk management process that identifies potential cancer risks for a range of activities using diesel-fueled engines.¹⁴ High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (e.g., distribution centers and truck stops) were identified as having the highest associated risk.

Health risks from TACs are a function of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a period of days or perhaps weeks. Additionally, construction-related sources are mobile and transient in nature, and the emissions are limited to the project site. The BAAQMD provides a screening approach to evaluate the potential health risk from exposure to TACs, including diesel particulate matter, and PM_{2.5} from construction activities.¹⁵ The screening tables use conservative assumptions including 2 year construction duration, although the project will be constructed in only 18 months. Additionally, the BAAQMD screening tables assume that all equipment would operate at the construction site boundary, when actual equipment will rotate in different areas of the site away from sensitive receptors. According to the screening tables a project of this size must be located at a minimum of 328 feet from the closest sensitive receptor to avoid potentially significant health risks. According to the BAAQMD, sensitive receptors are facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and residential areas.

Park users are not considered sensitive receptors; however, the project site is located approximately 200 feet from a day care facility which is considered a sensitive receptor. Other sensitive receptors include residences, the closest of which is located 350 feet from the project site. A screening level health risk assessment was performed to determine a conservative health risk level for the day care receptor location. Results of the analysis are shown in Table 2. Results of the screening analysis are conservative in that it assumes all equipment would operate at the border of the project site closest to the receptor and that all emissions would be directly blown by the wind onto the receptor site. This

¹⁴ California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

¹⁵ Bay Area Air Quality Management District, 2010. *Screening Tables for Construction Health Risk Impacts*. May.

provides a worst case analysis because in reality, equipment would be operating at various locations within the site and the wind would disperse emissions in different directions.

Results of the analysis are shown in Table 2. Additional details related to the screening health risk assessment are included in Appendix A.

Table 2: Health Risks from Construction Emissions

Location	Carcinogenic Inhalation Health Risk with Child CRAF ^a	Chronic Inhalation Health Index	PM _{2.5} Concentration (µg/m ³)
Day Care Center (200 feet from project site)	5.9 in 1 million	0.055	0.1
Threshold	10 in a million	1.000	0.3

^a CRAF = Cancer Risk Adjustment Factor

Source: LSA Associates, Inc., December 2011.

Results of the analysis indicate that health risk levels and PM_{2.5} concentrations would be below the significance level identified by the BAAQMD. Additionally, with implementation of Mitigation Measure AIR-1, which is consistent with BAAQMD guidelines, health risks from construction emissions of diesel particulate would be less than significant.

Operational Emissions. Long-term air emission impacts would be those associated with changes in permanent usage of the project site. Mobile source emissions would result from vehicle trips associated with the proposed project and area source emissions would occur with the use of natural gas or landscaping equipment. The URBEMIS v. 9.2.4 computer program was again used to calculate long-term mobile and area source emissions. The model utilized trip generation rates consistent with the Transportation Impact Analysis prepared for this project as shown in Section XVI., Transportation/Traffic of the Initial Study.

The BAAQMD has established a significance threshold for the two ozone precursors [reactive organic gases (ROG) and nitrous oxide (NO_x)] and particulate matter of 2.5 microns or less (PM_{2.5}) at 54 pounds/day and particulate matter of 10 microns or less (PM₁₀) at 82 pounds/day. The emissions from daily vehicle trips and project operations are shown in Table 3. Based on the model results, the long-term vehicular emissions and area source emissions generated by the proposed project are not anticipated to exceed the BAAQMD's thresholds, and therefore the project would have a less-than-significant impact on local and regional air quality.

Table 3: Project Regional Emissions

Emissions in Pounds Per Day				
	Reactive Organic Gases	Nitrogen Oxides	PM ₁₀	PM _{2.5}
Area Source Emissions	0.09	0.13	0.00	0.00
Mobile Source Emissions	4.09	6.46	9.51	1.81
Total Emissions	4.18	6.59	9.51	1.81
BAAQMD Significance Threshold	54.00	54.00	82.00	54.00
Exceed?	No	No	No	No
Emissions in Tons Per Year				
Area Source Emissions	0.02	0.02	0.00	0.00
Mobile Source Emissions	0.66	0.92	1.73	0.33
Total Emissions	0.68	0.94	1.73	0.33
BAAQMD Significance Threshold	10.00	10.00	15.00	10.00
Exceed?	No	No	No	No

Source: LSA Associates, Inc., 2011

- 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)? (Potentially Significant Unless Mitigation Incorporated)*

As discussed above, the proposed project would not result in significant emissions of criteria air pollutants during the short-term construction period or during project operations. Implementation of Mitigation Measure AIR-1 would ensure that the project does not create a cumulatively considerable contribution to the air basin's non-attainment status for ozone and particulate matter.

- d) *Expose sensitive receptors to substantial pollutant concentrations? (Potentially Significant Unless Mitigation Incorporated)*

Construction of the proposed project may expose surrounding sensitive land uses, including the day care center and residents, to airborne particulates and fugitive dust, as well as pollutants associated with the use of construction equipment (e.g., diesel-fueled vehicles and equipment). However, implementation of Mitigation Measure AIR-1, which includes measures to reduce construction-related dust and exhaust emissions, would ensure that potential construction-related air quality impacts to sensitive receptors would be less than significant.

Air pollution associated with the proposed project would be primarily vehicle related, and would not necessarily be concentrated in the vicinity of the project sites. Therefore, implementation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations.

- e) *Create objectionable odors affecting a substantial number of people? (No Impact)*

The proposed project would not contain any major sources of odor and would not be located in an area with existing odors. Therefore, the proposed project would not create objectionable odors affecting a substantial number of people and would have a less-than-significant impact in terms of odors.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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IV. BIOLOGICAL RESOURCES. Would the project:

- 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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Information provided in the following section is based on a reconnaissance-level site visit conducted by an LSA biologist on May 25, 2011, and a tree survey conducted by an LSA arborist on May 27, 2011 and March 6, 2012; a search of records in the California Natural Diversity Database (CNDDDB);¹⁶ a search of the California Native Plant Society (CNPS) on-line Inventory of Rare and Endangered Plants;¹⁷ and LSA’s knowledge of biological resources in the Atherton area. The database searches covered areas within 5 miles of the project site. During the site visits, the entire project area was walked and plants and wildlife observed in the area were noted. In addition, existing habitats were assessed for their potential to support special-status species.

- 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? (No Impact)*

¹⁶ California Department of Fish and Game, 2011. California Natural Diversity Data Base. Version 3.1.0 (October 1, 2011) Update.

¹⁷ California Native Plant Society, 2011. Inventory of Rare and Endangered Plants. Online edition v8-01a (November 29, 2011).

Based on a review of the CNDDDB and CNPS online inventory and as shown in Table 4, 67 special-status species (48 plants, 19 animals) have been recorded in the vicinity of the site. Potential impacts to special-status plant and wildlife species are discussed below.

Special-Status Plant Species. The project site does not support any significant natural vegetation communities. The single habitat type on the site is urban landscaping at the park. Planting of the project site and surrounding area with non-native and ornamental trees makes the site unsuitable for special-status native plants. The value of the site as native plant habitat is further reduced by the isolation of the site from other native plant communities. Past and current disturbance within and around the project site (e.g., landscape maintenance, mowing, pruning) also make the site unsuitable for native plants.

Four special-status plant species, including: lost thistle (*Cirsium praeteriens*), slender-leaved pondweed (*Stuckenia filiformis*), San Mateo thorn mint (*Acanthomintha duttonii*), and San Francisco collinsia (*Collinsia multicolor*) have been recorded within 2 miles of the site. No suitable habitat for these species occurs onsite because the native plant communities in which these species grow (chaparral, coniferous forest, coastal scrub, and marsh) are absent and/or conditions on the site are disturbed and do not support native species. The other 44 special-status plant species known from the region likewise are not expected to occur on the site due to the absence of suitable habitat on the site or habitat disturbance. Therefore, the proposed project would not have a substantial adverse effect on any special-status plant species.

Special-Status Wildlife Species. The project site provides potential habitat for a variety of birds, mammals, reptiles, and amphibians. Thirteen bird species and one mammal species were observed during the May 25, 2011 site visit: red-shouldered hawk (*Buteo lineatus*), Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), ring-billed gull (*Larus delawarensis*), western scrub-jay (*Aphelocoma californica*), Nuttall's woodpecker (*Picoides nuttallii*), chestnut-backed chickadee (*Poecile rufescens*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), spotted towhee (*Pipilo maculatus*), California thrasher (*Toxostoma redivivum*), American goldfinch (*Carduelis tristis*), house finch (*Carpodacus mexicanus*), and eastern gray squirrel (*Sciurus carolinensis*). In addition to several other urban bird species that could inhabit the site, several amphibian and reptile species may also occur on the project site, such as arboreal salamander (*Aneides lugubris*), California slender salamander (*Batrachoseps attenuatus*), and western fence lizard (*Sceloporus occidentalis*). Other mammal species that are known to occur the project vicinity include several common species that are adapted to semi-urban areas including raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and house mouse (*Mus musculus*).

Although the project site supports native and ornamental trees, the dense residential development surrounding the site provides limited habitat for native wildlife except those species that are tolerant of human disturbance. As shown in Table 4, none of the 19 special-status animal species that have been historically observed in the vicinity of the site either are expected to occur on or adjacent to the site.

Table 4: Special-Status Species Potentially Occurring in the Vicinity of the Proposed Project Site

Common Name	Scientific Name	Status ¹	General Habitat Description	Occurrence Assessment
PLANTS				
San Mateo thornmint	<i>Acanthomintha duttonii</i>	FE, 1B	Serpentine soils of chaparral and valley and foothill grasslands	No suitable habitat present; closest CNDDDB (2011) occurrence is over 1.7 miles from the site
Franciscan onion	<i>Allium peninsulare</i> var. <i>franciscanum</i>	1B	Cismontane woodland, valley and foothill grassland, clay soils, often on serpentine, dry hillsides	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3 miles from the site
Bent-flowered fiddleneck	<i>Amsinckia lunaris</i>	1B	Cismontane woodland, valley and foothill grassland	No suitable habitat present
Pacific manzanita	<i>Arctostaphylos pacifica</i>	SE, 1B	Coastal scrub	No suitable habitat present
San Bruno Mountain manzanita	<i>Arctostaphylos imbricate</i>	SE, 1B	Chaparral, coastal scrub	No suitable habitat present
Montara manzanita	<i>Arctostaphylos montaraensis</i>	1B	Chaparral, coastal scrub	No suitable habitat present
Kings Mountain manzanita	<i>Arctostaphylos regismontana</i>	1B	Chaparral, broadleafed upland forest, North Coast coniferous forest	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3 miles from the site
Marsh milk-vetch	<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	1B	Coastal dunes, coastal scrub, marshes and swamps, coastal salt, stream-sides	No suitable habitat present
Alkali milk-vetch	<i>Astragalus tener</i> var. <i>tener</i>	1B	Alkali playa, valley and foothill grasslands, vernal pools	No suitable habitat present; closest CNDDDB (2011) occurrence is more than 4 miles from site
Bristly sedge	<i>Carex comosa</i>	2	Lake margins, wet places, delta islands	No suitable habitat present
Congdon's tarplant	<i>Centromadia parryi</i> ssp. <i>congdonii</i>	1B	Valley and foothill grassland	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3.4 miles from site
Pappose tarplant	<i>Centromadia parryi</i> ssp. <i>parryi</i>	1B	Chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, valley and foothill grassland	No suitable habitat present
Point Reyes bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	1B	Coastal salt marsh	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 2.7 miles from the site
Robust spineflower	<i>Chorizanthe robusta</i> var. <i>robusta</i>	FE, 1B	Sandy terraces and bluffs in woodlands, coastal dunes, and scrub	No suitable habitat present
San Francisco Bay spineflower	<i>Chorizanthe cuspidata</i> var. <i>cuspidate</i>	1B	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub	No suitable habitat present
Franciscan thistle	<i>Cirsium andrewsii</i>	1B	Broad-leafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub	No suitable habitat present
Compact cobwebby thistle	<i>Cirsium occidentale</i> var. <i>compactum</i>	1B	Chaparral, coastal dunes, coastal prairie, coastal scrub	No suitable habitat present
Fountain thistle	<i>Cirsium fontinale</i> var. <i>fontinale</i>	FE, 1B	Chaparral, valley grassland, wetland-riparian, often serpentine	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3 miles from the site

Table 4 Continued

Common Name	Scientific Name	Status ¹	General Habitat Description	Occurrence Assessment
Lost thistle	<i>Cirsium praeteriens</i>	1A	Unknown	No suitable habitat present; likely extinct; last observed in 1901 approximately 1 mile from the site in Palo Alto (CNDDDB 2011)
San Francisco collinsia	<i>Collinsia multicolor</i>	1B	Closed-cone coniferous forest, coastal scrub	No suitable habitat present; closest CNDDDB (2011) occurrence is over 1.6 miles from the site
Santa Cruz cypress	<i>Cupressus abramsiana</i>	FE, 1B	Closed-cone pine forest	No suitable habitat present
Western leatherwood	<i>Dirca occidentalis</i>	1B	Brushy slopes and mesic sites in mixed evergreen and foothill woodland communities.	No suitable habitat present; closest CNDDDB (2011) occurrence is over 2 miles from the site in Palo Alto
Tiburon buckwheat	<i>Eriogonum luteolum</i> var. <i>caninum</i>	1B	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland (with serpentine, sandy to gravelly soil)	No suitable habitat present
San Mateo woolly sunflower	<i>Eriophyllum latilobum</i>	FE, 1B	Shaded moist sites on steep grassy or sparsely wooded slopes of serpentine-influenced soil	No suitable habitat present
Hoover's button-celery	<i>Eryngium aristulatum</i> var. <i>hooveri</i>	1B	Alkaline depressions, vernal pools, roadside ditches, and wet places near the coast	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 2 miles from the site
Hillsborough chocolate lily	<i>Fritillaria biflora</i> var. <i>ineziana</i>	1B	Cismontane woodland, valley and foothill grassland	No suitable habitat present
Fragrant fritillary	<i>Fritillaria liliacea</i>	1B	Coastal scrub, valley and foothill grassland, coastal prairie, often on serpentine, usually clay soil	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3.5 miles from the site
San Francisco gumplant	<i>Grindelia hirsutula</i> var. <i>maritime</i>	1B	Sandy or serpentine slopes, sea bluffs	No suitable habitat present
Short-leaved evax	<i>Hesperovax sparsiflora</i> var. <i>brevifolia</i>	2	Coastal bluff scrub, coastal dunes, sandy bluffs and flats	No suitable habitat present
Marin dwarf-flax	<i>Hesperolinon congestum</i>	FT, ST, 1B	Chaparral, valley grassland; often serpentine	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3 miles from the site
Kellogg's horkelia	<i>Horkelia cuneata</i> ssp. <i>sericea</i>	1B	Closed-cone coniferous forest, coastal scrub, chaparral	No suitable habitat present
Point Reyes horkelia	<i>Horkelia marinensis</i>	1B	Coastal dunes, coastal prairie, coastal scrub	No suitable habitat present
Rose leptosiphon	<i>Leptosiphon rosaceus</i>	1B	Coastal bluff scrub	No suitable habitat present
Crystal Springs lessingia	<i>Lessingia arachnoidea</i>	1B	Grassy slopes on serpentine in coastal sage scrub, grassland, and woodland	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 4 miles from the site
San Francisco lessingia	<i>Lessingia germanorum</i>	FE, 1B	Northern coastal scrub	No suitable habitat present

Table 4 Continued

Common Name	Scientific Name	Status ¹	General Habitat Description	Occurrence Assessment
Coast lily	<i>Lilium maritimum</i>	1B	Broad-leaved upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, freshwater marshes and swamps, northern coniferous forest (sometimes roadside)	No suitable habitat present
Arcuate bush-mallow	<i>Malacothamnus arcuatus</i>	1B	Gravelly alluvium in chaparral	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 4.5 miles from the site in Jasper Ridge Biological Preserve
Davidson's bush-mallow	<i>Malacothamnus davidsonii</i>	1B	Coastal scrub, riparian woodland, chaparral	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3.5 miles from the site
Hall's bush mallow	<i>Malacothamnus hallii</i>	1B	Chaparral	No suitable habitat present
Woodland woollythreads	<i>Monolopia gracilens</i>	1B	Grassy sites in openings in chaparral and woodlands, in sandy to rocky soils, often on serpentine	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3.5 miles from the site
White-rayed pentachaeta	<i>Pentachaeta bellidiflora</i>	FE, SE, 1B	Valley and foothill grassland	No suitable habitat present
Hickman's potentilla	<i>Potentilla hickmanii</i>	FE, 1B	Coastal meadows, freshwater marsh, usually occurs in wetlands, but occasionally found in non wetlands	No suitable habitat present; known from one site along the coast in San Mateo County
San Francisco campion	<i>Silene verecunda</i> ssp. <i>verecunda</i>	1B	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 4.8 miles from the site
Slender-leaved pondweed	<i>Stuckenia filiformis</i>	2	Marshes, swamps, shallow and clear water of lakes and drainage channels	No suitable habitat present; closest CNDDDB (2011) occurrence is an 1899 record from an unknown location in Palo Alto approximately 1 mile from the site
California seablite	<i>Suaeda californica</i>	FE, 1B	Margins of coastal salt marshes	No suitable habitat present; closest CNDDDB (2011) occurrence is a 1971 record at the salt flats at the Palo Alto Yacht Harbor
Showy Rancheria (two-fork) clover	<i>Trifolium amoenum</i>	FE, 1B	Valley and foothill grassland, coastal bluff scrub, sometimes on serpentine soil, open sunny sites, swales	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 4 miles from the site
Saline clover	<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	1B	Marsh, swamps, valley and foothill grassland, vernal pools	No suitable habitat present
San Francisco owl's-clover	<i>Triphysaria floribunda</i>	1B	Coastal prairie, valley and foothill grassland	No suitable habitat present

Table 4 Continued

Common Name	Scientific Name	Status ¹	General Habitat Description	Occurrence Assessment
INVERTEBRATES				
Bay checkerspot butterfly	<i>Euphydryas editha bayensis</i>	FT	Shallow, serpentine soils that support larval host plants (<i>Plantago erecta</i>)	No suitable habitat present
AMPHIBIANS				
California tiger salamander	<i>Ambystoma californiense</i>	FT, CSC	Vernal pools, seasonal ponds, stock ponds, and associated grasslands	No suitable habitat present; closest extant CNDDDB (2011) occurrence is approximately 1.5 miles from the site in San Francisquito Creek
California red-legged frog	<i>Rana draytonii</i>	FT, CSC	Breeds in semi-permanent and perennial water sources often with dense, shrubby or emergent riparian vegetation including stock ponds and marshes; uses a variety of wetland habitats including streams during the summer months.	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 2.7 miles from the site
REPTILES				
Western pond turtle	<i>Actinemys marmorata</i>	CSC	Ponds, streams, drainages, and associated uplands	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 1.5 miles from the site in San Francisquito Creek.
San Francisco Garter Snake	<i>Thamnophis sirtalis tetrataenia</i>	FE, SE	Near ponds, marshes, prairie swales, roadside ditches, streams, sloughs, damp meadows in grasslands and woodlands	No suitable habitat present; closest known occurrences are north of the site in San Bruno (LSA, pers. obs.) and Millbrae
BIRDS				
White-tailed kite	<i>Elanus leucurus</i>	CFP	Forages for small mammals in grassland, high salt marsh, and along grassy road verges; nests in tall trees near open areas	Not expected to nest or forage on the site due to the lack of foraging habitat (natural grasslands) and isolation from other large open grasslands and fields; may fly over site; closest CNDDDB (2011) occurrence is approximately 4.1 miles from the site
American peregrine falcon	<i>Falco peregrinus anatum</i>	FD, SE, CFP	Open country, mountains, and sea coasts; nests on high cliffs, bridges, and buildings	No suitable nesting habitat present; may rarely forage over site; closest CNDDDB (2011) occurrence is approximately 4.1 miles from the site
Northern harrier	<i>Circus cyaneus</i>	CSC	Meadows, grasslands, open rangeland, and fresh or saltwater marshes	No suitable nesting habitat onsite; may fly over the site; closest CNDDDB (2011) nesting occurrence is approximately 3.7 miles from the site
Burrowing owl	<i>Athene cunicularia</i>	CSC	Open, dry grasslands that contain abundant small mammal (e.g., California ground squirrel) burrows	No suitable nesting (ground squirrel burrows, rock piles) or foraging habitat (natural grasslands) onsite; isolation from other natural grasslands and fields further reduces the suitability of the site as habitat; closest CNDDDB (2011) occurrence is approximately 4 miles from the site in Palo Alto

Table 4 Continued

Common Name	Scientific Name	Status ¹	General Habitat Description	Occurrence Assessment
Short-eared owl	<i>Asio flammeus</i>	CSC	Salt- and freshwater marshes, grasslands, open treeless areas with low perches and dense vegetation for roosting and nesting	No suitable habitat present; closest CNDDDB (2011) occurrence is approximately 3.7 miles from the site near Foster City
Vaux's swift	<i>Chaetura vauxi</i>	CSC	Grasslands and agricultural fields; nests in dense vegetation in large hollow trees near open water; forages in most habitats but prefers rivers and lakes	No suitable nesting or foraging habitat within site; may fly over the site
Olive-sided flycatcher	<i>Contopus cooperi</i>	CSC	Coniferous forests with open canopies	No suitable nesting or foraging habitat on the site and in the vicinity;; may fly over the site;
Loggerhead shrike	<i>Lanius ludovicianus</i>	CSC	Grasslands and open shrub or woodland communities; nests in dense shrubs or trees and forages in scrub, open woodlands, grasslands, and croplands	No suitable nesting or foraging habitat on the site or in the vicinity; suitability of habitat further reduced due to isolation of site from natural open space areas; may fly over the site
Alameda song sparrow	<i>Melospiza melodia pusillula</i>	CSC	Salt marshes, pickleweed (<i>Salicornia</i>) marshes. Nests low in gumplant (<i>Grindelia</i>) and pickleweed	No suitable nesting or foraging habitat on the site or in the vicinity; suitability of habitat further reduced due to isolation of site from natural open space areas; may fly over the site
MAMMALS				
Pallid bat	<i>Antrozous pallidus</i>	CSC	Wide variety of habitats at low elevations; most commonly found in open, dry habitats with rocky areas for roosting	No suitable roosting habitat (cavities) observed in trees on or adjacent to site; may fly over the site; occurrence within 1.6 mile of the site is a 1951 record in Palo Alto (CNDDDB 2011)
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	CSC	Riparian woodlands, wetlands, forest edges, and open woodlands; roosts in caves, mines, and old buildings	No suitable roosting habitat present; may fly over the site
Western mastiff bat	<i>Eumops perotis californicus</i>	CSC	Roosts in crevices in cliff faces, tunnels, and high buildings	No suitable roosting habitat present; may fly over the site
San Francisco dusky-footed woodrat	<i>Neotoma fuscipes annectens</i>	CSC	Forest habitats of moderate canopy and moderate to dense understory	No suitable habitat present; suitability of habitat further reduced due to isolation of site from natural open space areas (woodlands); closest CNDDDB (2011) occurrence is approximately 4.3 miles from the site

Table 4 *Continued*

Common Name	Scientific Name	Status¹	General Habitat Description	Occurrence Assessment
American badger	<i>Taxidea taxus</i>	CSC	Grassland, scrub, and woodlands with loose-textured soils	No suitable habitat present on the site (open grasslands with fossorial mammals as prey); suitability of habitat further reduced due to isolation of site from natural open space areas; closest CNDDDB (2011) occurrence is an 1894 record in Menlo Park, approximately 1.2 miles from the site and a 1981 record in Palo Alto, approximately 2.7 miles from the site

¹ Status:

FE = Federally listed as endangered

FT = Federally listed as threatened

FD = Federally delisted

SE = State-listed as endangered

ST = State-listed as threatened

CSC = California Species of Special Concern

CFP = California Fully Protected Species

1B = California Rare Plant Rank List 1B (plant species that are rare or endangered in California and elsewhere)

2 = California Rare Plant Rank List 2 (plant species that rare or endangered in California but more common elsewhere)

Eight of these species are not expected to occur at the site due to the lack of suitable onsite habitat such as streams, vernal pools, chaparral, salt marsh, and natural grasslands. These species include: Bay checkerspot butterfly (*Euphydryas editha bayensis*), California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), western pond turtle (*Emys marmorata*), San Francisco garter snake (*Neotoma fuscipes annectens*), short-eared owl (*Asio flammeus*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and American badger (*Taxidea taxus*). Eight special-status bird species, burrowing owl (*Athene cunicularia*), northern harrier (*Circus cyaneus*), American peregrine falcon (*Falco peregrinus anatum*), white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), Vaux's swift (*Chaetura vauxi*), olive-sided flycatcher (*Contopus cooperi*), and Alameda song sparrow (*Melospiza melodia pusillula*), have been documented from the project vicinity and some individuals may occasionally fly or forage over the site, but none are expected to use the site for extended periods due to the lack of suitable nesting and/or foraging habitat. Similarly, pallid bats (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western mastiff bat (*Eumops perotis californicus*) may occasionally forage over the site but the lack of suitable roost sites precludes their regular occurrence (no large cavities or hollows were observed in the trees near the site; no cliff ledges, abandoned buildings near the site). Therefore, the proposed project would not have a substantial adverse effect on any special-status wildlife species.

- b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (No Impact)*

The project site is located within a developed area of an existing park and does not support any riparian habitat or other sensitive natural communities. Therefore, the proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community.

- 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? (No Impact)*

The project site is located within a developed area of an existing park and does not support any wetlands. Therefore, the proposed project would not have a substantial adverse effect on any wetlands.

- 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? (Potentially Significant Unless Mitigation Incorporated)*

The proposed project would not substantially interfere with wildlife movement. Wildlife that currently moves through the site would continue to do so after the project is complete since the site would remain largely unaltered following construction. In addition, most of the species that occur in the area are generalists that are adept at moving through urban and semi-urban landscapes. The relatively limited extent of habitat loss that would result from the project would not affect the ability of these species to move through the project site and surrounding areas following construction of the project.

The proposed project would result in the removal of four trees within the project footprint and disturbance to two additional trees adjacent to the site during the construction period. Construction activities on the project site could temporarily affect nesting birds both on and adjacent to the site if trees or

vegetation containing active nests are removed during the nesting season (February 1 through August 31) or construction activities disturb nesting birds adjacent to the project site resulting in nest abandonment or nest failure. Although no active or inactive nests were observed during LSA's site visits, an oak titmouse was observed feeding a young titmouse in a tree near the site, suggesting this bird was nesting in the area. The nests and eggs of these and other native bird species are protected under the federal Migratory Bird Treaty Act and Section 3503 of the California Fish and Game Code. Trees and shrubs on the project site, if occupied by nesting native birds, would be considered a wildlife nursery site under CEQA. Therefore, destruction or abandonment of an active nest as a result of project related activities would result in direct effects to a wildlife nursery site. Implementation of the following two-part mitigation measure would ensure that potential impacts to protected native bird species, including nesting special-status bird species if present, would be reduced to a less-than-significant level during project construction.

Mitigation Measure BIO-1a: For construction activities occurring during the nesting season (February 1 through August 31), a qualified biologist shall conduct nesting bird surveys no more than 15 days prior to tree pruning, tree removal, ground disturbing activities, or construction activities to locate active nests on or immediately adjacent to the project site. If construction activities are delayed, additional preconstruction surveys, at 15 day intervals, shall be completed until construction is initiated.

Mitigation Measure BIO-1b: If nesting birds are identified on the project site, the locations of active nests shall be noted on the construction drawings and protective measures implemented. Protective measures shall include establishment of clearly delineated (i.e., orange construction fencing) exclusion zones around each nest site. Each exclusion zone shall have a 300-foot radius centered on the nest tree for raptor nests and a 50-foot radius centered on the nest for other birds. Active nest sites shall be monitored periodically throughout the nesting season to identify signs of disturbance. These protection measures shall remain in effect until the young have left the nest and are foraging independently or the nest is no longer active. Exclusion zones may be reduced in size, if in consultation with the California Department of Fish and Game (CDFG), a smaller exclusion zone is determined to adequately protect the active nest. Upon completion of construction activities, a report detailing the results of the preconstruction surveys and monitoring shall be prepared by the project biologist and submitted to the Town and CDFG.

- e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Potentially Significant Unless Mitigation Incorporated)*

Chapter 8.10 of the Town's Municipal Code addresses removal and damage to heritage trees. Heritage trees are defined as any tree with a trunk circumference of 48-inches or more, when measured 48-inches above the natural grade located within the tree preservation area. In the POS zoning district, the tree preservation area is located within the 60-foot front and rear setback lines and the 50-foot side setback lines. Heritage trees are further defined as native oaks (valley oak [*Quercus lobata*], coast live oak [*Q. agrifolia*], or California black oak [*Q. kelloggii*]) with a trunk circumference of 48-inches or more, when measured 48-inches above the natural grade located anywhere on the lot. For private development projects, a permit is required for removal of heritage trees.

The proposed project would remove approximately 37 trees from the site. Landscaping improvements include the addition of about 82 new trees in the areas the surround the proposed library building area

and in the adjacent North Parking lot. Trees that would be directly or indirectly affected by the project are discussed below.

Thirty-one (31) large trees (trunk circumference greater than 48 inches) were observed within or outside the proposed library footprint and area of proposed landscape improvements. With the exception of the two heritage live oaks discussed below, trees within this area are not considered heritage trees. Eighteen (18) of these large, non-heritage trees would be removed as part of the proposed development and 13 would be preserved. Trees planned to be removed as a result of site development include four American elms (*Ulmus americana*), two bunya-bunya (*Auricauria bidwillii*), one camphortree (*Cinnamomum camphora*), one Chinese elm (*Ulmus parvifolia*), two coast redwood (*Sequoia sempervirens*), one deodar cedar (*Cedrus deodara*), four American sweet gum trees (*Liquidambar styraciflua*), one southern magnolia (*Magnolia grandiflora*), one olive (*Olea europaea*), and one glossy privet (*Ligustrum lucidum*). Replacement of these trees is not required. Large, non-heritage trees to be retained adjacent to the proposed development area in the tree preservation area include six American elm, one Atlas cedar (*Cedrus atlantica*), one bunya-bunya, one blue gum eucalyptus (*Eucalyptus globulus*), one deodar cedar, one Canary Island date palm (*Phoenix canariensis*), one red maple (*Acer rubrum*), and one white alder (*Alnus rhombifolia*). Large trees that are not oak trees are not considered heritage trees, thus impacts to these trees would be less than significant.

Forty-six (46) small trees (trunk circumference less than 48 inches) were observed within or adjacent to the proposed development area. Twenty-four (24) of these trees would be removed as part of the proposed development and 22 would be preserved. Trees designated for removal during site development include one chaste tree (*Vitex agnus-castus*), one coast live oak, five fruit trees, fourteen hawthorn (*Crataegus sp.*), one Japanese maple (*Acer palmatum*), one common lilac (*Syringa vulgaris*), two southern magnolia, and one silver maple (*Acer saccharinum*). Replacement of these trees is not required. Small trees to be retained adjacent to the proposed development area in the tree preservation area include six fruit trees, one coast live oak, two European beech (*Fagus sylvatica*), two holly oak (*Quercus ilex*), two sweetgum, two red maple, one strawberry tree (*Arbutus unedo*), one saucer magnolia (*Magnolia soulangeana*), and three white alder (*Alnus rhombifolia*). Small trees are not considered heritage trees, thus impacts to these trees would be less than significant.

A total of nine protected heritage live oak trees were observed within the project area that includes the proposed library site and the improved landscape elements proposed for the vicinity. Two of these heritage live oaks are within the southwest extension of the planned grand promenade and would be removed by the project. Replacement trees are required to compensate for the loss of heritage oak trees. The four heritage live oaks west of the Pavilion are planned to be retained, yet the paved courtyard in which they grow is planned to be removed. Tree protection measures should be implemented to protect these trees during demolition and construction. Three heritage live oaks southeast of the middle parking lot would not be impacted by the proposed project.

Implementation of the following two-part mitigation measure would ensure that potential direct and indirect impacts to heritage trees would be reduced to a less-than-significant level.

Mitigation Measure BIO-2a: The two heritage live oaks that would be removed as a result of development activities shall be replaced with a minimum of two 48-inch-container-sized live oaks (minimum loss: replacement ratio of 1:1) consistent with the *Town of Atherton Tree*

*Preservation Guidelines, Standards and Specifications.*¹⁸ Replacement oaks shall be clearly indicated on the landscape plan for the proposed project.

Mitigation Measure BIO-2b: Heritage and other trees to be retained shall be enclosed in a tree protection zone (TPZ) to prevent direct damage to the trees, and their growing environment. Temporary fencing shall be installed for each tree or group of trees at their drip line or at a radial distance ratio of one foot for each inch of diameter of the tree at DBH, whichever is greater. If it is not practical to install a TPZ around the trees at this distance, then a 5-foot minimum radius from the trunk would be acceptable providing all work within the drip line is performed with hand tools. No heavy machinery shall be allowed to pass through or park within this area, nor shall debris, tools, or other materials be stored within the TPZ or against tree trunks. If heavy machinery is to operate within the TPZ, a 4-inch layer of mulch or pea gravel topped with ¾-inch plywood shall be placed on the ground beneath the drip line. The plywood and mulch would reduce soil compaction. If the canopy of a tree within the tree preservation area is to be pruned to allow equipment passage, this work must be performed by a professional arborist familiar with the American National Standards Institute’s *American National Standard for Tree Care Operations, Tree, Shrub, and Other Woody Plant Maintenance, Standard Practices* for tree pruning.¹⁹

- 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? (No Impact)*

The proposed project would not conflict with the provisions of any adopted or other approved local, regional, or State habitat conservation plan. The Town and proposed project site location are not included within any adopted conservation plans.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹⁸ Town of Atherton. 2004. *Tree Preservation Guidelines, Standards and Preservations*. February.

¹⁹ American National Standards Institute, 2001. *American National Standard for Tree Care Operations, Tree, Shrub, and Other Woody Plant Maintenance, Standard Practices (ANSI A300 [Part 1] – 2001 Pruning)*.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a) <i>Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? (Potentially Significant Impact)</i>				

Holbrook-Palmer Park includes two historic buildings: the Carriage House and Water Tower. The Carriage House, recognized by the Town of Atherton as a “Historical Site,” was built in about 1900 to replace the original barn that was destroyed by fire in 1896. The Water Tower is also recognized by the Town of Atherton as a “Historical Site,” dates from the 1870s, and provides a visual point of interest within the park. Although the project would not directly impact either of these resources, historical resources can be subjected to indirect visual effects from adjacent or nearby construction that impact the historical setting of the resource. The EIR will assess the project’s potential impacts to the Carriage House and Water Tower and determine whether the c. 1960 Main House and 1977 Jennings Pavilion qualify as historical resources under CEQA.

Potential impacts to archaeological sites, which can qualify as “historical resources” under CEQA (CEQA Guidelines Section 15064.5(c)), are discussed under Section V.b below.

b) *Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? (Potentially Significant Unless Mitigation Incorporated)*

To identify potential archaeological resources within the project site, LSA conducted a records search at the Northwest Information Center²⁰ at Sonoma State University, Rohnert Park, California, and completed a surface reconnaissance of the project site. Neither the records search nor the survey identified archaeological sites within or immediately adjacent to Holbrook-Palmer Park. Prehistoric deposits have been identified, however, in the general area. Furthermore, although the proposed building footprint is in a previously graded and developed area, there is a potential for unearthing historical archaeological deposits associated with the non-extant Elmwood mansion. If such deposits qualify as historical or unique archaeological resources then a substantial adverse change in their significance (i.e., damage or destruction) would result in a significant impact. Implementation of the following mitigation measure would reduce this potential impact to historical and archaeological resources to a less-than-significant level.

Mitigation Measure CULT-1: If prehistoric or historical archaeological deposits are encountered during project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified archaeologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery.

²⁰ The Northwest Information Center is the official State repository for cultural resources site records and studies for San Mateo County.

If the archaeological deposit cannot be avoided, it shall be evaluated for its California Register of Historical Resources eligibility. If the deposit is not eligible, a determination shall be made as to whether it qualifies as a “unique archaeological resource” under *CEQA Guidelines* Section 15064.5(3)(c) and Section 21083.2. If the evaluation determines that the deposit is neither a historical nor unique archaeological resource, avoidance is not necessary. If the deposit is eligible, adverse effects on the resource shall be mitigated. Mitigation may consist of excavating the archaeological deposit in accordance with a data recovery plan (see *CEQA Guidelines* Section 15126.4(b)(3)(C)); recording the resource; preparing a report of findings; and accessioning recovered archaeological materials at an appropriate curation facility. Public educational outreach may also be appropriate. Upon completion of the evaluation, the archaeologist shall prepare a report to document the methods and results of the assessment. The report shall be submitted to the Town of Atherton for review and the Northwest Information Center.

The Town shall inform its contractor(s) of the sensitivity of the project site for archaeological deposits and verify that the following directive has been included in the appropriate contract documents:

“If prehistoric or historical archaeological deposits are discovered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archaeologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations regarding the treatment of the discovery. Project personnel should not collect or move any archaeological materials or human remains and associated materials. Archaeological resources can include flaked-stone tools (e.g., projectile points, knives, choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials); and stone-milling equipment (e.g., mortars, pestles, handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse.”

- c) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (Potentially Significant Unless Mitigation Incorporated)*

The project site has been previously graded and developed with the Elmwood Mansion, the current Main House, and concrete and asphalt walkways and driveways. The current project site is generally flat, and minimal grading would be required to construct the proposed library. It is unlikely that project ground-disturbing activities will be sufficiently deep to disturb intact paleontological resources (fossils) that may underlie the project site. Nonetheless, potential impacts to fossils in paleontologically sensitive geological formations that may underlie the project site cannot be discounted. Implementation of the following mitigation measure would ensure that impacts to paleontological resources are less than significant:

Mitigation Measure CULT-2: Should paleontological resources be encountered during project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. If found to be significant, and project activities cannot avoid the paleontological resources, adverse effects to

paleontological resources shall be mitigated. Mitigation may include monitoring, recording the fossil locality, data recovery and analysis, a final report, and accessioning the fossil material and technical report to a paleontological repository. Public educational outreach may also be appropriate. Upon completion of the assessment, a report documenting methods, findings, and recommendations shall be prepared and submitted to the Town of Atherton for review, and, if paleontological materials are recovered, a paleontological repository, such as the University of California Museum of Paleontology.

The Town shall inform its contractor(s) of the sensitivity of the project area for paleontological resources and verify that the following directive has been included in the appropriate contract documents:

“The subsurface of the construction site may be sensitive for paleontological resources. If paleontological resources are encountered during project subsurface construction and a paleontologist is not on site, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any paleontological materials.

Paleontological resources include fossil plants and animals, and such trace fossil evidence of past life as tracks. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Vertebrate land mammals may include bones of mammoth, camel, saber tooth cat, horse, and bison. Paleontological resources also include plant imprints, petrified wood, and animal tracks.”

- d) *Disturb any human remains, including those interred outside of formal cemeteries? (**Potentially Significant Unless Mitigation Incorporated**)*

Although Native American remains have not been identified within the project site, the possibility of encountering such remains, either in isolation or with prehistoric archaeological deposits, cannot be discounted. Such remains could be uncovered during project ground-disturbing activities. The project will have a significant effect on the environment if it will disturb human remains, including those interred outside of formal cemeteries. Implementation of the following mitigation measure would reduce potential adverse impacts to human remains to a less-than-significant level.

Mitigation Measure CULT-3: Any human remains encountered during project ground-disturbing activities shall be treated in accordance with California Health and Safety Code Section 7050.5. The Town shall inform its contractor(s) of the sensitivity of the project site for human remains and verify that the following directive has been included in the appropriate contract documents:

“If human remains are uncovered, work within 25 feet of the discovery shall be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with agencies as appropriate. Project personnel shall not collect or move any human remains or associated materials. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native

American Heritage Commission will identify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.”

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Responses in this section rely on geologic and hazard mapping provided by federal, State, and local agencies.

- a) *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: 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; ii) Strong seismic groundshaking; iii) Seismic-related ground failure, including liquefaction; iv) Landslides? (Potentially Significant Unless Mitigation Incorporated)*

Fault Rupture. No portion of the proposed project site is within an Alquist-Priolo Earthquake Fault Zone (A-PEFZ),²¹ and no active faults have been mapped on the project site by the United States Geological Survey (USGS) or the California Geological Survey (CGS).²² Fault rupture of the surface typically occurs along existing faults that have ruptured the surface in the past. Since faults with known surface rupture have been mapped in California, and none are known to occur at the project site, the potential for impacts to the proposed project due to fault rupture is less than significant.

Groundshaking. Groundshaking is likely to occur within the life of the project as a result of future earthquakes.²³ The closest known active fault to the project site is the San Andreas Fault, which has been mapped in an A-PEFZ approximately 4½ miles southwest of the site. Other active faults near the project site include the Monte Vista Fault, located approximately 6 miles to the southeast, the Hayward Fault, located approximately 13 miles to the east, and the San Gregorio Fault, located approximately 13 miles to the west. The Working Group on California Earthquake Probabilities and the USGS have predicted a 21 percent probability of a 6.7 magnitude or greater earthquake on the Peninsula section of the San Andreas Fault system between 2007 and 2037, and a total probability of 62 percent that a fault of that magnitude will occur during that time on one of the regional San Francisco Bay Area faults.²⁴ The Association of Bay Area Governments (ABAG) has classified the Modified Mercalli Intensity Shaking Severity Level of groundshaking in the proposed project vicinity due to an earthquake on the San Andreas Fault as “VIII-Very Strong”.²⁵ Very strong shaking would result in extensive damage to unreinforced masonry buildings, including partial collapse; fall of some masonry walls; twisting and falling of chimneys and monuments; and shifting of unbolted wood structures on their foundations.

The following mitigation measure, which requires the Town to include analysis of the potential for strong seismic shaking as part of the design-level geotechnical investigation to be prepared for the proposed project, would reduce the potential strong seismic shaking impacts at the project site to a less-than-significant level.

Mitigation Measure GEO-1: Prior to grading or construction activities at the project site, a design-level geotechnical investigation shall be prepared by a licensed professional and submitted to the Town for review. The investigation shall determine the proposed project’s geotechnical conditions,

²¹ California Geological Survey, 2010. Department of Conservation, *Alquist-Priolo Fault Zones*. Website: www.quake.ca.gov/gmaps/ap/ap_maps.htm (accessed December 12, 2011).

²² United States Geologic Survey and California Geological Survey, 2006. Quaternary fault and fold database for the United States. Website: earthquakes.usgs.gov/regional/qfaults/ (accessed October 31, 2011).

²³ Ibid.

²⁴ Association of Bay Area Governments, 2010. *On Shaky Ground*, Mapping Updated from 2003 Report.

²⁵ Association of Bay Area Governments, 2003. *Earthquake Shaking Hazard Map, Entire San Andreas Fault System Scenario*. Website: quake.abag.ca.gov/shaking/maps/ (accessed December 12, 2011).

including seismic shaking hazard and measures to address these hazards. In addition, the following guidance for the design-level geotechnical investigation shall be addressed:

- Analysis presented in the geotechnical investigation shall conform to the California Division of Mines and Geology recommendations presented in the Guidelines for Evaluating Seismic Hazards in California. Briefly, the guidelines recommend that the investigation include: a site screening evaluation; evaluation of on- and off-site geologic hazards; quantitative evaluation of hazard potential; detailed field investigation; estimation of ground-motion parameters; evaluation of landslide, liquefaction, lateral-spreading and ground-displacement hazards; and recommendations to reduce identified hazards.
- Design review for the project shall include evaluation of fixtures, furnishings, and fasteners with the intent of minimizing collateral injuries to building occupants from falling fixtures or furnishings during the course of a violent seismic event.
- The investigation shall describe the proposed project's geotechnical conditions and address potential geohazards, including subsidence, collapse, soil expansion, and differential settlement. The investigation shall identify engineering techniques appropriate to minimize potential geohazard damage.
- All design measures, recommendations, design criteria, and specifications set forth in the design-level geotechnical investigation shall be implemented as a condition of project approval.

Liquefaction. Liquefaction of soils can occur when groundshaking causes saturated soils to lose strength due to an increase in pore pressure. ABAG has identified the liquefaction hazard within the project vicinity as “moderate.”²⁶ Liquefaction susceptibility depends on the engineering properties of the sediments below individual structures. Review of the official seismic hazard map for this area prepared by the California Geological Survey indicates the site is not within a mapped zone for which an evaluation of soil liquefaction is required.²⁷ Any site-specific liquefaction hazards at the project site would be addressed by the geotechnical investigation required by Mitigation Measure GEO-1, above. Therefore, with implementation of Mitigation Measure GEO-1, potential impacts associated with seismic-induced groundshaking would be reduced to a less-than-significant level.

Landslides. Slope stability issues can result in either slow slumping earth movements or rapid landslide events. The proposed project site is nearly level, and there are no adjacent hills.²⁸ The site is not located within a mapped landslide or landslide hazard area, or within an official zone of “Required Investigation” for seismically-induced landsliding.²⁹ Improvements proposed as part of the project do not include substantial mounding of earth or other substantive changes to grade that would create slope instability hazards. Therefore, persons or structures would not be adversely affected by landslides at the project site.

²⁶ Association of Bay Area Governments, 2003. *Earthquake Liquefaction Hazard Maps, San Andreas Fault*. Website: www.abag.ca.gov/cgi-bin/pickmapliq.pl (accessed December 12, 2011).

²⁷ California Geological Survey, 2006. *Seismic Hazard Zones Map, Palo Alto Quadrangle, 18 October*. Website: gmw.consrv.ca.gov/shmp/html/pdf_maps_no.html (accessed December 12, 2011).

²⁸ United States Geologic Survey, 1999. *Palo Alto 7.5 minute topographic quadrangle, map 37122-D2*.

²⁹ California Geological Survey, 2006, op. cit.

b) *Result in substantial soil erosion or the loss of topsoil? (Potentially Significant Unless Mitigation Incorporated)*

The proposed project would demolish the existing structure, include alteration of landscaping and pavement, and require site grading. Implementation of the proposed project may cause erosion impacts during construction and operations; this potential impact would be reduced to a less-than-significant level by implementation of Mitigation Measure HYD-1 (please refer to Section IX.a).

c) *Be located on a geologic 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? (Potentially Significant Unless Mitigation Incorporated)*

The project site is in a level area with an elevation of approximately 50 feet relative to the National Geodetic Vertical Datum (NGVD).³⁰ Soils at and adjacent to the project site, as mapped by the Natural Resource Conservation Service consist of the Botell-Urban land complex, 0 to 5 percent slopes.³¹

This soil is a well-drained clay loam greater than 80 inches thick.³² Although the presence of a residence at the site since the 1870s suggests that the site does not have significant geotechnical constraints, the proposed library building will be considerably larger and may have greater load characteristics than previous buildings at the site. Absent proper construction and geotechnical mitigation, the soils could have the potential for lateral spreading, subsidence, or collapse, causing damage to project improvements and/or risk to future library users and workers.

Mitigation Measure GEO-1, which requires analysis of the potential for unstable soils impacts as part of the design-level geotechnical investigation to be prepared for the proposed project, would reduce this potential impact to a less-than-significant level.

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? (Potentially Significant Unless Mitigation Incorporated)*

Expansive soils expand and contract in response to changes in soil moisture, most notably when near surface soils change from saturated to a low moisture content condition, and back again. Clayey loams, such as those mapped at the project site, have the potential to shrink and swell, which could potentially cause damage to trails, parking lots, and other project improvements. Mitigation Measure GEO-1, which requires analysis of the potential for soil expansion impacts as part of the design-level geotechnical investigation to be prepared for the proposed project, would reduce the potential impacts from expansive soils to a less-than-significant level.

³⁰ United States Geologic Survey, 1999, op. cit.

³¹ Natural Resources Conservation Service, 2011. Web Soil Survey: websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (accessed December 12, 2011).

³² Ibid.

- e) *Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? (No Impact)*

The proposed project does not include the installation or use of septic or on-site wastewater disposal systems, and the proposed library building would be connected to the West Bay Sanitary District's sanitary sewer system. Therefore, the proposed project would not result in any impacts associated with soils incapable of supporting alternative wastewater disposal systems.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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VII. GREENHOUSE GAS EMISSIONS. Would the project:

- | | | | | |
|--|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

- a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Potentially Significant Unless Mitigation Incorporated)*

Background. Global climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (such as precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. Global surface temperatures have risen by $0.74^{\circ}\text{C} \pm 0.18^{\circ}\text{C}$ over the last 100 years (1906 to 2005). The rate of warming over the last 50 years is almost double that over the last 100 years.³³ The prevailing scientific opinion on climate change is that most of the warming observed over the last 50 years is attributable to human activities. The increased amounts of carbon dioxide (CO₂) and other greenhouse gases (GHGs) are the primary causes of the human-induced component of warming. GHGs are released by the burning of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect.³⁴

³³ Intergovernmental Panel on Climate Change, 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.*

³⁴ The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduce the amount of heat that escapes, greenhouse gases like carbon dioxide, methane, and nitrous oxide in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, although an excess of greenhouse gas results in global warming, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The following are the gases that are widely seen as the principal contributors to human-induced global climate change.³⁵

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. While manmade GHGs include naturally-occurring GHGs such as CO₂, methane, and N₂O, some gases, such as HFCs, PFCs, and SF₆ are completely new to the atmosphere.

Certain other gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change over the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this analysis, the term “GHGs” will refer collectively to the gases listed above only.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to carbon dioxide, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of pounds or tons of “CO₂ equivalents” (CO₂eq). For example, sulfur hexafluoride is 22,800 times more potent at contributing to global warming than carbon dioxide.

Project GHG Emissions Analysis. Emissions estimates for the proposed project are discussed below and were calculated consistent with the methodology recommended in the BAAQMD’s *CEQA Air Quality Guidelines* dated May 2011.³⁶ Estimates of future GHG emissions do not account for all changes in technology that may reduce such emissions; therefore, the estimates are based on past performance and represent a scenario that is believed to be worse than that which is likely to be encountered (i.e., after energy-efficient technologies have been implemented).

³⁵ The greenhouse gases listed are consistent with the definition in Assembly Bill (AB) 32 (Government Code 38505).

³⁶ Bay Area Air Quality Management District, 2011. *Air Quality CEQA Guidelines*. May.

GHG emissions associated with implementation of the proposed project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. There would also be long-term regional emissions associated with vehicular traffic, energy consumption, and area sources (e.g., landscape equipment) within the project area.

Construction Activities. Construction activities would produce combustion emissions from various sources. During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are encouraged to quantify and disclose GHG emissions that would occur during construction.

Using the URBEMIS v.9.2.4 model, the total project construction emissions would be approximately 5,534 tons of CO₂. The model assumed the demolition of the Main House and an 18 month construction period. Model results are included in Appendix B.

Implementation of the construction emission control measures in Mitigation Measure AIR-1 would reduce GHG emissions during the construction period which would reduce construction GHG emissions to a less-than-significant level.

Mitigation Measure GCC-1: Implement Mitigation Measure AIR-1.

Operational GHG Emissions. The proposed project is a 13,500 square foot library development project. The project is considering sustainability features in their goal of achieving a LEED Platinum or Net Zero rating. The Town currently plans to work with a LEED accredited professional to incorporate sustainable strategies such as:

- a reduction in water use for both the building and the landscaping;
- generating renewable energy;
- optimizing on-site energy usage;
- promoting pedestrian and bicycle usage access of the site;
- providing convenient access to public transit;
- providing charging stations for electric vehicle usage;
- reducing construction waste and using materials with high recycled post consumer content; and
- using products and design strategies that result in a healthy indoor atmosphere for the building users.

Implementation of these measures would serve to reduce potential climate change impacts on the environment.

The URBEMIS v.9.2.4 and the BAAQMD’s GHG model called BGM were used to determine the project’s GHG emissions. As noted above, the project would include the demolition of the Main House. The sustainability features outlined above would reduce greenhouse gas emissions associated with the project; however, designs for the project have not been finalized indicating which of these measures will be implemented. Therefore, this analysis does not take any GHG emission reduction measures into account. Estimated emissions presented in Table 5 account for all GHG emissions associated with the project and do not account for existing energy use or vehicle trips associated with the Main House.

BGM model output is included in Appendix B. Results of the BGM model indicate that the total project operational emissions would be approximately 806 metric tons of CO₂e per year. Results indicate implementation of the proposed project would not result in significant GHG emissions, as shown in Table 5. Therefore, the project would not generate greenhouse gas emissions that would have a significant impact on the environment.

Table 5: Project Related Greenhouse Gas Emissions

Emission Source	Emissions (Metric Tons Per Year)				Percent of Total
	CO ₂	CH ₄	N ₂ O	CO ₂ e	
Transportation	--	--	--	700.61	86.91
Area Sources	0.23	0.00	0.00	0.2	0.03
Electricity	71.39	0.00	0.00	71.51	8.87
Natural Gas	21.44	0.00	0.00	21.50	2.67
Waste & Wastewater	0.94	0.00	0.00	0.94	0.12
Solid Waste	0.08	0.53	0.00	11.31	1.40
BAAQMD Threshold				1,000	
Total Annual Emissions	--	--	--	806.09	100.00
Exceed Threshold?	--	--	--	No	

Note: Column totals may vary slightly due to independent rounding of input data.

-- Estimates not available for this pollutant and/or category.

Source: LSA Associates, Inc., February 2012.

- b) *Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? (Less-Than-Significant Impact)*

Federal Regulations. Currently there are no adopted federal regulations to control global climate change. However, authority has been granted to the EPA that may change the voluntary approach to address this issue. On April 2, 2007, the United States Supreme Court ruled that the U.S. EPA has the authority to regulate CO₂ emissions under the federal Clean Air Act (CAA).

State Regulations. In June 2005, Governor Schwarzenegger established California’s GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals for the State of California: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050.

California’s major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the “Global Warming Solutions Act,” passed by the California State legislature on August 31, 2006.

This effort aims at reducing GHG emissions to 1990 levels by 2020. The ARB has established the level of GHG emissions in 1990 at 427 million metric tons (MMT) of CO₂eq. The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual 2020 emissions of 596 MMT. AB 32 requires ARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change. The Scoping Plan was approved by ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures.³⁷ Emission reductions that are projected to result from the recommended measures in the Scoping Plan are expected to total 174 MMT of CO₂eq, which would allow California to attain the emissions goal of 427 MMT of CO₂eq by 2020. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The measures in the Scoping Plan will not be binding until after they are adopted through the normal rulemaking process and therefore are only recommendations at this time. The ARB rulemaking process includes preparation and release of each of the draft measures, public input through workshops and a public comment period, followed by an ARB Board hearing and rule adoption.

Project Impacts. The California Environmental Protection Agency Climate Action Team (CAT) and the ARB have developed several reports to achieve the Governor's GHG targets that rely on voluntary actions of California businesses, local government and community groups, and State incentive and regulatory programs. These include the CAT's 2006 "*Report to Governor Schwarzenegger and the Legislature*," ARB's 2007 "*Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California*," and ARB's "*Climate Change Proposed Scoping Plan: a Framework for Change*." The reports identify strategies to reduce California's emissions to the levels proposed in Executive Order S-3-05 and AB 32.

The adopted Scoping Plan includes proposed GHG reductions from direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as cap-and-trade systems.

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 directed ARB to identify a list of "discrete early action GHG reduction measures" that can be adopted and made enforceable by January 1, 2010. In June 2007 ARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are measures that are required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The ARB adopted additional early action measures in October 2007 that tripled the number of discrete early action measures.

ARB's focus in identifying the 44 early action items was to recommend measures that ARB staff concluded were "expected to yield significant GHG emission reductions, are likely to be cost-effective and technologically feasible." The combination of early action measures is estimated to reduce State-wide GHG emissions by nearly 16 MMT. Accordingly, the 44 early action items focus on industrial production processes, agriculture, and transportation sectors. Early action items

³⁷ California Air Resources Board. 2008. *Climate Change Proposed Scoping Plan: a framework for change*. October.

associated with industrial production, transportation and agriculture do not apply to the proposed project.

The proposed project is a library development project which would not conflict with the State goal of reducing GHG emissions and would not conflict with the AB 32 Scoping Plan or the early action measures. The project would be subject to all applicable permit and planning requirements in place or adopted by the Town of Atherton. Therefore, the proposed project would not conflict with plans or policies related to the reduction of greenhouse gas emissions.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Responses in this section rely on a field reconnaissance by a BASELINE Environmental Consulting professional civil engineer performed on December 2, 2011, a regulatory information database report of hazardous material sites, and hazard mapping from State and local agencies.

- a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Less-Than-Significant Impact)*

The project site has been in residential use (i.e., the location of a residential building) since the 1870s, though the current building, constructed in 1959-1960, is now used for events and meetings and is located within a park. Demolition of this building and development of the project site with a new library building would not involve the routine transport, use, or disposal of significant quantities of hazardous materials. The project would routinely handle and use small quantities of commercially-available hazardous materials, such as household cleaning and landscaping supplies. However, these materials would not be expected to be used in sufficient quantities or contrary to normal use to pose a threat to human health or the environment. Redevelopment of the project site would therefore result in a less-than-significant impact on the public and the environment related to the routine transport, use, and handling of hazardous materials.

- 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? (Potentially Significant Impact Unless Mitigation Incorporated)*

Construction at the project site would require the use and transport of hazardous materials. These materials would include fuels, oils, and other chemicals used during construction activities. Improper use and transportation of hazardous materials could result in accidental releases or spills, potentially posing health risks to workers, the public, and environment.

Construction activities at the project site would require implementation of a Storm Water Pollution Prevention Plan (SWPPP) (please refer to Mitigation Measure HYD-1 in Section IX.a). The SWPPP would incorporate current Best Management Practices (BMPs) for construction, including site house-keeping practices, hazardous material storage, inspections, maintenance, worker training in pollution prevention measures, and containment of releases to prevent runoff via stormwater. Although designed to protect stormwater quality, the SWPPP would also reduce the potential impacts of hazardous materials releases during construction to a less-than-significant level.

Due to the age of the current Main House, it is possible that asbestos-containing materials (ACMs) and/or lead-based paint (LBP) may be present. Building materials such as thermal system insulation, surfacing materials, and asphalt and vinyl flooring materials installed in buildings prior to 1981 may

contain asbestos.³⁸ Prior to 1978, lead compounds were commonly used in interior and exterior paints for residential structures; however, lead compounds may be present in interior and exterior paints used for commercial and industrial buildings, regardless of construction date.³⁹ Lead and asbestos are State-recognized carcinogens.⁴⁰

Hazardous building materials on the project site may also include fluorescent lighting tubes and ballasts, mercury thermometers, and several other common items that are regulated as “universal wastes” by the State of California. Universal waste must be recycled and managed under the simple, streamlined universal waste handler standards for the State of California.⁴¹

Lead, asbestos, and other hazardous materials commonly present in buildings do not generally present a health risk, as long as they are properly maintained. However, during demolition these materials may be dispersed into the air, where they can affect construction workers and the nearby public. Implementation of the following mitigation measures would reduce potentially significant impacts associated with potential hazardous building materials at the project site to a less-than-significant level:

Mitigation Measure HAZ-1: A hazardous building materials survey shall be conducted at the project site by a qualified professional. All loose and peeling lead-based paint and asbestos-containing materials shall be abated by a certified contractor(s) in accordance with local, State, and federal requirements. All other hazardous materials, such as “universal wastes,” shall be removed from structures prior to demolition in accordance with Department of Toxic Substances Control (DTSC) regulations. The findings of the abatement activities shall be documented by a qualified environmental professional(s) and submitted to the Town of Atherton prior to demolition and construction activities for the proposed project.

Following construction, the project is not expected to generate or use significant quantities of hazardous materials. In addition, on-site handling and storage of hazardous materials would be undertaken according to all applicable local, State, and federal regulations. No upset or accident conditions resulting in the release of hazardous material into the environment can be reasonably expected to occur at the proposed new library building and therefore this impact would be less than significant in the operational phase.

- c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (**Potentially Significant Impact Unless Mitigation Incorporated**)*

A day care facility is located approximately 200 feet south of the project site and the Encinal Elementary School is located approximately 0.2 miles northeast of the project site. Improper use of hazardous materials during construction or improper demolition of the existing Main House building could result

³⁸ California Code of Regulations, Title 8, Section 5208.

³⁹ California Department of Toxic Substances Control, 2006. *Interim Guidance Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers*. June 9 (Revised).

⁴⁰ California Office of Environmental Health Hazard Assessment, 2011. *Safe Drinking Water and Toxic Enforcement Act of 1986, Chemicals Known to the State to Cause Cancer or Reproductive Toxicity*. May 20.

⁴¹ California Code of Regulations, Title 22, CCR Division 4.5.

in the release of lead, asbestos, or other hazardous materials near the day care or school. However, implementation of Mitigation Measure HYD-1 (refer to Section IX.a) and Mitigation Measure HAZ-1 would prevent any potential contamination from the project site from migrating off-site during construction and reduce this potential impact to a less-than-significant level.

- 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? (No Impact)*

A review of regulatory databases, including listed hazardous materials release sites compiled pursuant to Government Code 65962.5, did not identify any hazardous materials releases at or adjacent to the project site.⁴² Holbrook-Palmer Park was listed as a facility that stores vehicle fuels and generates and recycles waste oil and solvent.⁴³ Based on the site reconnaissance, these hazardous materials may be located in the Park Corporation Yard building and fenced area near the Carriage House, south of the project site, which has a placard indicating the storage of flammable materials. No evidence of hazardous materials releases from this area, such as soil staining, odors, or stressed vegetation, was noted during the site reconnaissance. Therefore, the project would result in no impact to the public or the environment related to a reported release or disposal of hazardous materials related to a listed site.

- 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? (No Impact)*

The Palo Alto Airport, which is the closest airport to the project site, is located approximately 5 miles east of the proposed project site. The project site does not lie within any restrictive area in the airport Master Plan.⁴⁴ Therefore, the proposed project would not result a safety hazard to people working or residing in the area due to the proximity of an airport.

- f) *For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? (No Impact)*

The proposed project is located in an urban area and is not within the vicinity of a private airstrip. Therefore, the proposed project would not result in a safety hazard to people working or residing in the area due to the proximity of a private airstrip.

- g) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Less-Than-Significant Impact)*

The Atherton General Plan establishes El Camino Real, Middlefield Road, Marsh Road, Alameda de las Pulgas, and Valparaiso Avenue as emergency evacuation routes (Policy 6.320).⁴⁵ Due to the nature and location (within an existing park) of the proposed project, no significant impairment or physical

⁴² Environmental Data Resources, 2011. *EDR Radius Map, inquiry number 3210942.1s*. November 21.

⁴³ *Ibid.*

⁴⁴ Palo Alto Airport, 2006. *Master Plan Report*. Website: countyairports.org/docs/MasterPlan/PAO_Masterplan-complete.pdf (accessed December 12, 2011).

⁴⁵ Atherton, Town of, 2002. *General Plan*. November 20.

interference with an adopted emergency response plan or emergency evacuation plan would be expected to occur.

- 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? (No Impact)*

The project site is in an urban area and is not within or adjacent to a mapped wildland fire hazard area.⁴⁶ Therefore, the proposed project would not expose people or structures to a significant impact related to loss, injury or death involving wildland fires.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

⁴⁶ California Department of Forestry and Fire Protection, 2008. San Mateo County, *Very High Fire Hazard Severity Zone map*. Website: frap.cdf.ca.gov/webdata/maps/san_mateo/fhszl_map.41.pdf (accessed December 12, 2011). November 24.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding of as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Responses in this section rely on a field reconnaissance by a BASELINE Environmental Consulting professional civil engineer performed on December 2, 2011 and hydrologic data and hazard mapping from State and local agencies.

a) *Violate any water quality standards or waste discharge requirements? (Potentially Significant Unless Mitigation Incorporated)*

The State Water Resources Control Board and nine Regional Water Quality Control Boards regulate water quality of surface water and groundwater bodies throughout California. In the Bay Area, including the project site, the San Francisco Bay Regional Water Quality Control Board (Water Board) is responsible for implementation the Water Quality Control Plan (Basin Plan). The Basin Plan establishes beneficial water uses for waterways and water bodies within the region.

Runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Program (established through the federal Clean Water Act). The NPDES program objective is to control and reduce pollutant discharges to surface water bodies. Compliance with NPDES permits is mandated by State and federal statutes and regulations. Locally, the NPDES Program is administered by the Water Board. According to the water quality control plans of the Water Board, any construction activities, including grading, that would result in the disturbance of 1 acre or more would require compliance with the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activity (Construction General Permit). The proposed library site is 13,500 square feet, approximately 0.3 acre in area. Therefore, the project would not meet the 1 acre threshold requiring NPDES compliance. However, the Water Board may, at its discretion, require compliance with the Construction General Permit for projects disturbing less than 1 acre that may adversely affect sensitive surface water bodies.⁴⁷

⁴⁷ Cecilio, Felix, 2011. San Francisco Regional Water Quality Control Board. Personal communication with Baseline Environmental Consulting. July 5.

Operation of the project would be subject to the Water Board's Municipal Regional Permit (MRP), implemented in October 2009 by Order R2-2009-0074. Provision C.3 of the MRP addresses new development and redevelopment projects. As project construction would replace more than 10,000 square feet and more than 50 percent of the existing impervious surface at the site, the entire project site, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire redevelopment project). A Stormwater Control Plan (SCP) must be prepared and submitted for the project site detailing design elements and implementation measures to meet MRP requirements. The project will be required to include Low Impact Development (LID) design measures and a Stormwater Facility Operation and Maintenance Plan must be prepared to ensure that stormwater control measures are inspected, maintained, and funded for the life of the project.

Locally, the Town of Atherton has stricter rules regarding stormwater runoff. The Atherton Stormwater Management and Discharge Control Ordinance (Municipal Code 8.50) requires compliance with established Best Management Practices (BMPs) for "any activity, operation, or facility which may cause or contribute to stormwater pollution or contamination," regardless of the size of the facility. The Atherton Grading, Erosion, and Sediment Control Ordinance (Municipal Code Chapter 8.54) requires preparation of construction and operation erosion and sediment control plans for all projects disturbing greater than 0.25 acre, storing greater than 50 cubic yards of soil, or creating greater than 5,000 square feet of impervious surface.

The Town has prepared a Manual of Standards for Storm Drainage (Storm Drainage Manual) to assist in compliance with these municipal ordinances. All development projects subject to the Grading, Erosion, and Sediment Control Ordinance are required to prepare a Drainage Area Master Plan, Stormwater Management Plan, and a Stormwater Pollution Prevention Plan (SWPPP). The Storm Drainage Manual includes specific BMPs and stormwater detention and treatment performance standards to ensure that new development complies with NPDES and MRP requirements.

Development of the project would result in approximately 7,000 square feet of additional impervious surfaces at the site. The project would replace the existing Main House building with a larger building for the new library and construct sidewalks and other hardscape in the library vicinity.

Stormwater runoff at the project site would be collected in Atherton Channel, which is parallel to Watkins Avenue near the project site, and would be conveyed to San Francisco Bay. The United States Environmental Protection Agency has classified San Francisco Bay as a 303(d)-listed impaired water body due to high levels of numerous contaminants and exotic species.⁴⁸ On November 16, 2005, the Water Board adopted Resolution No. R2-2005-0063, establishing a program to control diazinon and pesticide-related toxicity in Bay Area urban creeks, including Atherton Channel.

Construction activities associated with the proposed project would cause disturbance of soil during excavation work, which could adversely impact water quality. Contaminants from construction vehicles and equipment and sediment from soil erosion could increase the pollutant load in runoff being transported to receiving waters during development. Degradation of runoff water quality from project operation could adversely affect water quality in Atherton Channel, ultimately affecting San

⁴⁸ San Francisco Bay Water Quality Control Board, 2010. *San Francisco Bay Basin (Region 2) Water Quality Control Plan* (Basin Plan). Incorporating all amendments approved by the Office of Administrative Law as of December 31.

Francisco Bay. Implementation of the following mitigation measures would reduce potential construction- and operation-period impacts to water quality to a less-than-significant level.

Mitigation Measure HYD-1: Consistent with the requirements of the Town of Atherton Storm Drainage Manual, a Stormwater Pollution Prevention Plan (SWPPP) shall be prepared and implemented. The SWPPP shall be designed to reduce potential adverse impacts to surface water quality through the project construction period and shall address the following objectives:

- 1) All pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled;
- 2) Where not otherwise required to be under a Water Board permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; and
- 3) Site Best Management Practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) standard.

The SWPPP shall be prepared by a Qualified SWPPP Developer. The SWPPP shall include the minimum BMPs required for this type of project (based on final determination of the project's Risk Level status, to be determined as part of the Notice of Intent for coverage under the Construction General Permit). These include: BMPs for erosion and sediment control, site management/housekeeping/waste management, management of non-stormwater discharges, runoff and runoff controls, and BMP inspection/maintenance/repair activities. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction and the Town of Atherton Storm Drainage Manual.

The SWPPP shall include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations, and as appropriate (depending on the Risk Level), sampling of the site effluent and receiving waters. A Qualified SWPPP Practitioner shall be responsible for implementing the BMPs at the site and performing all required monitoring and inspection/ maintenance/repair activities.

Mitigation Measure HYD-2: The Town shall fully comply with the Water Board stormwater permit requirements, including Provision C.3 of the Water Board's Municipal Regional Permit (MRP). This will require preparation and implementation of a Stormwater Control Plan (SCP) for the project. The SCP would act as the overall program document designed to provide measures to mitigate potential water quality impacts associated with the operation of the proposed project, and would be designed to comply with both MRP and Town of Atherton requirements. At a minimum, the SCP for the project shall include:

- 1) An inventory and accounting of existing and proposed impervious areas.
- 2) Low Impact Development (LID) design details incorporated into the project. Specific LID design may include, but is not limited to: using pervious pavements and green roofs,

dispersing runoff to landscaped areas, and/or routing runoff to rain gardens, cisterns, swales, and other small-scale facilities distributed throughout the site.

- 3) Measures to address potential stormwater contaminants. These may include measures to cover or control potential sources of stormwater pollutants at the project site, such as parking and landscaped areas.
- 4) A Draft Stormwater Facility Operation and Maintenance Plan for the project site, which will include periodic inspection and maintenance of the storm drainage system. Persons responsible for performing and funding the requirements of this plan shall be identified. This plan must be finalized prior to construction of the proposed project.

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)? (Less-Than-Significant Impact)*

The proposed project would connect to the existing water delivery system and would not include the use of groundwater. The increase in impervious surface that would result from the project development could affect groundwater levels through a reduction in groundwater recharge through stormwater percolation. However, implementation of Mitigation Measure HYD-2, which requires LID details in project design, would reduce this potential impact to a less-than-significant level.

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? (Less-Than-Significant Impact)*

The proposed project would not alter the course of a stream or a river. The project site is in an urban area and although redevelopment of the site could affect local drainage patterns, compliance with construction- and operation-phase stormwater requirements (Mitigation Measures HYD-1 and HYD-2) would ensure that development of the project would not result in substantial erosion or siltation on- or off-site.

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? (Potentially Significant Unless Mitigation Incorporated)*

The proposed project is currently developed with existing structures and paved areas. No alteration of a stream or river is proposed. The proposed project would result in an increase in impervious surfaces (see discussion under Section IX.a, above); however, preparation and implementation of the SCP as part of Mitigation Measure HYD-2 would serve to reduce the rate and amount of surface runoff and would ensure that project design results in a less-than-significant impact related to on- or off-site flooding.

- 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 runoff? (Potentially Significant Unless Mitigation Incorporated)*

The proposed project would result in an increase in impervious surfaces (see discussion under Section IX.a, above). Implementation of a required SWPPP (Mitigation Measure HYD-1) and a SCP (Mitigation Measure HYD-2) would reduce potential pollutants in stormwater runoff to a less-than-significant level.

- f) *Otherwise substantially degrade water quality? (Potentially Significant Unless Mitigation Incorporated)*

Operation of the proposed project would not result in any substantial changes to on-site water quality, with the exception of potential impacts associated with stormwater runoff. Implementation of Mitigation Measures HYD-1 and HYD-2 would reduce potential impacts to water quality to a less-than-significant level.

- 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? (No Impact)*

The project site does not include housing and is not located within a 100-year flood hazard area as mapped by the Federal Emergency Management Agency (FEMA).⁴⁹ Therefore, no housing would be placed within a 100-year flood zone.

- h) *Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (No Impact)*

Please refer to Section IX.g. The project site is not located within the 100-year flood zone and redevelopment of the site would not impede or redirect potential flood flows.

- i) *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding of as a result of the failure of a levee or dam? (Less-Than-Significant Impact)*

Please refer to Section IX.g. In addition, the project site is not located within the potential inundation zones for the Searsville, Lagunita, or Bear Gulch dams, which retain the nearest bodies of water likely to inundate the project vicinity in the event of failure of a levee or dam.⁵⁰ Therefore, the proposed project would not pose a significant risk to people or structures as a result of levee or dam failure.

- j) *Inundation by seiche, tsunami, or mudflow? (No Impact)*

No enclosed surface water bodies, which might be subject to potential impacts from seiches, are located in the project vicinity. The location of the project site, located at an elevation of 50 feet

⁴⁹ Federal Emergency Management Agency, 2011. Stay Dry v2.0 data for Atherton, California. Website: hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload (accessed December 12, 2011).

⁵⁰ Association of Bay Area Governments, 2011. *Earthquake and Hazards Information GIS System, Dam Failure Inundation*. Website: gis.abag.ca.gov/Website/DamInundation/ (accessed December 12, 2011).

relative to the National Geodetic Vertical Datum (NGVD), and greater than 3 miles inland from San Francisco Bay, would not be subject to tsunami effects. The estimated runup from tsunamis in San Francisco Bay are estimated to be a maximum of about 15 feet above mean sea level near the Golden Gate and decreasing in height southward;⁵¹ therefore, tsunamis would not affect the project site. Please refer to Section VI.a for further information regarding mudflows, a type of landslide.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
X. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	■	□	□	□
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?	■	□	□	□
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	□	□	□	■

a) *Physically divide an established community? (Potentially Significant Impact)*

The proposed project would result in demolition of an existing event facility and development of a new library within the existing Holbrook-Palmer Park. The EIR will include a discussion of the project’s potential to physically divide an established community and an analysis of the of the project’s compatibility with existing park uses.

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? (Potentially Significant Impact)*

The project site is designated “Parks and Open Space” on the Town of Atherton General Plan Land Use and Circulation Plan Diagram and is zoned POS (Parks and Open Space) District. The project site is also identified as “Main House and Event Garden” on the Holbrook-Palmer Park Master Plan’s Parks Spaces Diagram. Amendments to the General Plan, Zoning, and Holbrook-Palmer Park Master Plan would be required to allow location of a new library within the park. The EIR will therefore discuss these proposed amendments and evaluate the consistency of the proposed project with applicable land use planning and regulatory policies.

⁵¹ Garcia, A.W. and J. R. Houston, 1975. *Type 16 Flood Insurance Study, Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound*. November.

- c) *Conflict with any applicable habitat conservation plan or natural community conservation plan? (No Impact)*

The project site is not subject to a habitat conservation plan or natural community conservation plan. Therefore, the proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan.

Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XI. MINERAL RESOURCES. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- 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? (No Impact)*

The project site is located within an urban area and within an existing park. Additionally, the San Mateo County General Plan Resources Map⁵² does not identify known mineral resources or mineral recovery sites within or adjacent to the project site. Therefore, the proposed project would not result in the loss of availability of a known mineral resource of value to the region or residents of the State or the loss of availability of a locally-important mineral resource recovery site.

- 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? (No Impact)*

Please refer to Section XI.a.

⁵² San Mateo, County of, 1986. *San Mateo County General Plan, Mineral Resources Map*. November.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE. Would the project result in:				
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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? (Potentially Significant Unless Mitigation Incorporated)*

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a ten-fold increase in acoustic energy, while 20 dB is 100 times more intense and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements which better represent how humans are more sensitive to

sound at night. These measurements include the day/night sound level (L_{dn}) and the Community Noise Equivalent Level (CNEL).⁵³

The Town of Atherton addresses noise in the Noise Element of the General Plan⁵⁴ and in the Noise Control Chapter of the Municipal Code.⁵⁵ The Atherton General Plan provides the Town's land use compatibility standards for community noise environments. The Town's normally acceptable standard for new library development is 55 dBA L_{dn} , while the Town considers environments with ambient noise levels of up to 65 dBA L_{dn} as conditionally acceptable for new library development.

The basic noise regulation of the Town of Atherton's Municipal Code Noise Control Ordinance sets permissible operational noise levels at 60 dBA from 7:00 a.m. to 10:00 p.m., as measured at any point on the receiving property. The Noise Control Ordinance also highlights that noise producing construction activities, including pickup and delivery of materials at the job site, are exempt from the basic noise regulation provided that such activities occur between the permissible construction hours of 8:00 a.m. and 5:00 p.m. on weekdays. Construction activities are prohibited within the Town on Saturday, Sunday and any holiday. Loud and raucous noise emanating from a construction site in the form of broadcast or amplified music or any other form, which is audible on any property other than the property from which it emanates, is prohibited at all times.

In addition, according to the Town's Noise Control Ordinance, projects are prohibited from producing noise that would exceed noise levels of 60 dBA L_{eq} during daytime hours (defined to be 7:00 a.m. to 10:00 p.m.) or 50 dBA L_{eq} during nighttime hours as measured at any location on a receiving property, unless otherwise exempted or permitted under the Municipal Code regulations.

Construction Noise Impacts. Construction at the proposed project site would require demolition of the existing 3,934 square foot Main House. Construction debris would be collected and off-hauled. The site is generally level and minimal grading is expected.

Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table 6 lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backhoes, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating

⁵³ L_{dn} is the 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m. CNEL is the 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 decibels to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m. Source: Harris, Cyril M. 1998. *Handbook of Acoustical Measurement and Noise Control*.

⁵⁴ Atherton, Town of, 2002. *General Plan*. November 20.

⁵⁵ Atherton, Town of, 2010. *Municipal Code*. December 15.

cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

As previously stated, the proposed project would require minimal grading and slab foundations are expected to be used for construction of the proposed library building. There would be no pile driving throughout construction of the proposed project.

Assuming each piece of construction equipment operates at some distance apart from the other equipment, the worst-case combined noise level during the site preparation phase of construction would be 91 dBA L_{max} at a distance of 50 feet from an active construction area. The closest existing sensitive receptors to the proposed site is the day care facility across the driveway south of the project site, whose nearest façade is located approximately 205 feet from the proposed project construction area. The next closest sensitive receptors to the proposed site are the single-family residences located approximately 350 feet south of the proposed project construction area. Park users could also be exposed to temporary high noise levels from construction activities ranging up to 91 dBA L_{max} at a distance of 50 feet from an active construction area. However, construction activities would be short-term and park users would not remain in the park for more than a few hours. In addition, with implementation of the following mitigation measure, construction related noise impacts to sensitive receptors in the project vicinity would be reduced to a less-than-significant level.

Mitigation Measure NOISE-1: The project shall comply with the following noise reduction measures:

- General on-site construction activities shall be restricted to the hours of 8:00 a.m. to 5:00 p.m. on weekdays, and shall not be permitted at all on Saturdays, Sundays or holidays.
- The construction contractor shall ensure compliance with the Town’s code 8.16.050 stating that loud and raucous noise emanating from the construction site in the form of broadcast or amplified music or any other form, which is audible on any property other than the property from which it emanates, shall be prohibited at all times.
- The construction contractor shall ensure that all construction equipment used on the project site are equipped with appropriate sound muffling equipment, which shall be properly maintained, and used at all times such equipment is in operation on the project site.
- The construction contractor shall locate equipment staging in areas that would create the greatest distance feasible between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

Table 6: Typical Construction Equipment Maximum Noise Levels

Type of Equipment	Range of Maximum Sound Levels (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Pile Drivers	81 to 96	93
Rock Drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	74 to 84	80
Scrapers	83 to 91	87
Haul Trucks	83 to 94	88
Cranes	79 to 86	82
Portable Generators	71 to 87	80
Rollers	75 to 82	80
Dozers	77 to 90	85
Tractors	77 to 82	80
Front-End Loaders	77 to 90	86
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Graders	79 to 89	86
Air Compressors	76 to 89	86
Trucks	81 to 87	86

Source: Bolt, Beranek & Newman, 1987. Noise Control for Buildings and Manufacturing Plants.

- The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site as much as is reasonably feasible.

Traffic Noise Impacts. The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions on roadway segments in the vicinity of the project site. The resultant noise levels were weighted and summed over a 24-hour period in order to determine the L_{dn} values. Table 7 shows the traffic noise levels for roadway segments in the project site vicinity under Existing and Existing Plus Project traffic conditions. Table 8 shows the projected traffic noise levels under Cumulative and Cumulative Plus Project traffic conditions. As shown in the modeling results, the project would not generate enough traffic to create a perceptible change (at least 3 dBA) in traffic noise in the vicinity of the project site above those existing without the project. A substantial long-term increase in traffic noise levels in the project vicinity is not expected as a result of project implementation.

On-site traffic noise levels along roadway segments adjacent to the project site would range up to 56.3 dBA L_{dn} under Existing Plus Project and Cumulative Plus Project conditions as measured at 50 feet from the centerline of the outermost travel lane. The nearest façade of the proposed library building would be located over 350 feet from the centerline of Watkins Avenue. With the resulting geometric spreading of this noise, projected traffic noise levels along this roadway segment would attenuate to below 41 dBA L_{dn} at the nearest façade of the proposed library building. These noise levels are well below the Town’s “normally acceptable” land use compatibility standard of 55 dBA L_{dn} for new library development. Therefore, project related traffic noise levels would not expose persons to noise levels in excess of established standards.

Table 7: Project Area Traffic Noise Levels

	Existing		Existing Plus Project		
	ADT ^a	LDN ^b	ADT ^a	LDN ^b	Increase over Existing
Dinkelspiel Station Lane - Fair Oaks Lane to Watkins Avenue	500	49.1	400	48.2	-0.9
Watkins Avenue - El Camino Real to Dinkelspiel Station Lane	1,700	54.5	2,300	55.8	1.3
Watkins Avenue – Dinkelspiel Station Lane to Palmer Park Entrance	2,000	55.2	2,500	56.1	0.9
Watkins Avenue - Palmer Park Entrance to Palmer Park Exit	2,000	55.2	2,500	56.1	0.9
Watkins Avenue - Palmer Park Exit to Middlefield Road	2,000	55.2	2,600	56.3	1.1
Middlefield Road - Marsh Road to Watkins Avenue	17,500	63.5	17,700	63.6	0.1
Middlefield Road - Watkins Avenue to James Avenue	17,600	63.5	18,100	63.7	0.2

^a Average Daily Trips.

^b The day/night sound level (L_{dn}) traffic noise level at 50 feet from centerline of outermost travel lane.

Source: LSA Associates, Inc., February 2012.

Table 8: Cumulative Traffic Noise Levels

	Cumulative		Cumulative Plus Project			
	ADT ^a	LDN ^b	ADT ^a	LDN ^b	Increase over Existing	Increase over Cumulative
Dinkelspiel Station Lane - Fair Oaks Lane to Watkins Avenue	500	49.1	400	48.2	-0.9	-0.9
Watkins Avenue - El Camino Real to Dinkelspiel Station Lane	1,700	54.5	2,300	55.8	1.3	1.3
Watkins Avenue – Dinkelspiel Station Lane to Palmer Park Entrance	2,000	55.2	2,500	56.1	0.9	0.9
Watkins Avenue - Palmer Park Entrance to Palmer Park Exit	2,000	55.2	2,500	56.1	0.9	0.9
Watkins Avenue - Palmer Park Exit to Middlefield Road	2,000	55.2	2,600	56.3	1.1	1.1
Middlefield Road - Marsh Road to Watkins Avenue	20,500	64.2	20,700	64.2	0.7	0.0
Middlefield Road - Watkins Avenue to James Avenue	20,500	64.2	21,100	64.3	0.8	0.1

^a Average Daily Trips.

^b The day/night sound level (L_{dn}) traffic noise level at 50 feet from centerline of outermost travel lane.

Source: LSA Associates, Inc., February 2012.

Stationary Noise Impacts. Development of the proposed project would introduce new stationary noise sources to the existing environment. These stationary noise sources would include new mechanical equipment (such as heating, air conditioning, and ventilation (HVAC) systems) and parking lot noise (such as car doors slamming and people conversing). Noise levels from these new noise sources would be similar to what is currently experienced on and in the vicinity of the site from existing ambient noise sources within the park. In addition, due to distance attenuation (the project site is located over 200 feet from the closest off-site sensitive receptor), any project-related stationary noise sources would not result in an exceedance of the Town’s basic noise regulation standards of the Noise Ordinance. Therefore, project related stationary noise would not expose persons to noise levels in excess of established standards.

Railroad Noise Impacts. The Caltrain rail line runs through the Town of Atherton, bordering the western edge of Holbrook-Palmer Park, with the Atherton Train Station located northwest of the project area at Fair Oaks Lane. The proposed project site is located approximately 960 feet from the centerline of the Caltrain rail line. The closest at grade crossings where warning horns must be sounded are the crossings at Fair Oaks Lane and Watkins Avenue. For purposes of this analysis, future activity on the Caltrain rail line is expected to remain equivalent to existing conditions.

Based on the Caltrain train schedule⁵⁶ available at the time of preparation of this study, the resulting noise levels along the rail line range up to 82.4 dBA L_{dn} at 50 feet from the railroad centerline when the trains sound their warning horns prior to passing at-grade railroad crossings. This would expose the proposed project site to noise levels ranging up to approximately 57 dBA L_{dn} . These train noise levels are below the Town’s “conditionally acceptable” land use compatibility standard of 65 dBA L_{dn} for new library development. According to the Town’s Noise Element of the General Plan,

⁵⁶ Based on the number of train passings at the Dinkelspiel Station listed on the Caltrain website. (www.caltrain.com/stations/athertonstation.html).

environments with noise levels in the “conditionally acceptable” range for new development must perform a detailed acoustic analysis and set forth design measures to reduce impacts to proposed noise sensitive indoor spaces. Based on the EPA’s Protective Noise Levels (EPA 550/9-79-100, November 1978), with a combination of walls, doors, and windows, standard construction for northern California buildings would provide more than 25 dBA in exterior to interior noise reduction with windows closed and 15 dBA or more with windows open. Therefore, even with windows open in the new proposed library, interior noise levels from train noise sources would be reduced to below the EPA recommended interior noise level standard of 45 dBA L_{dn} (i.e., 57 dBA - 15 dBA = 42 dBA). Therefore, noise associated with railroad operations would not expose persons to noise levels in excess of established standards and the railroad noise impact on sensitive receptors of the proposed library land use would be less than significant.

b) *Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels? (Potentially Significant Unless Mitigation Incorporated)*

The proposed project would not involve pile driving activities and is expected to result in minimal grading and site preparation work. However, construction activities associated with implementation of the proposed project could temporarily expose persons in the vicinity of the proposed project site to ground borne vibration or ground borne noise levels. Implementation of Mitigation Measure NOISE-1 would reduce this potential impact to a less-than-significant level. Typical ground borne vibration levels measured at a distance of 25 feet from heavy construction equipment in full operation, such as vibratory rollers, range up to approximately 0.2 PPV.⁵⁷ This vibration level would not cause damage to residential buildings of normal northern California construction. However, this level could exceed construction vibration impact criteria⁵⁸ for structures extremely sensitive to vibration damage, such as some historic structures. The closest sensitive structure to the project construction area is the Water Tower. The nearest façade of this structure is located approximately 80 feet from the proposed project construction boundary. Restricting the operation of heavy equipment such as large vibratory roller compactors, large bulldozers, and loaded trucks from operating within 40 feet of such structures would ensure that vibration levels would be reduced to below 0.10 PPV, which is below the recommended vibration impact criteria of 0.12 PPV for structures considered extremely susceptible to vibration damage. Therefore, implementation of the following mitigation measure would ensure that this impact is less than significant.

Mitigation Measure NOISE-2: The construction contractor shall ensure that no heavy construction equipment operates within 40 feet of any of structures in the project vicinity that are considered extremely susceptible to vibration damage, including the Water Tower and Carriage House.

Other potential sources of ground borne vibration in the project vicinity include rail activity on the Caltrain tracks located over 960 feet from the project site. Disturbance due to ground borne vibration and noise are usually contained to areas within about 100 feet of railroad vibration sources.⁵⁹ Therefore, due to the distance between the project site and the tracks, ground borne vibration and ground

⁵⁷ PPV is the peak particle velocity measured in inches per second.

⁵⁸ Federal Transit Administration, 2006. U.S. Department of Transportation. *Transit Noise and Vibration Impact Assessment*. May.

⁵⁹ Ibid.

borne noise levels resulting from railroad activity along the Caltrain rail line would be less than significant.

No permanent noise sources that would expose persons to excessive ground borne vibration or noise levels are proposed as part of the project. Therefore, implementation of the proposed project would not permanently expose persons within or around the project site to excessive ground borne vibration.

- c) *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? (**Less-Than-Significant Impact**)*

Noise sources associated with the long-term use of the proposed project would include parking lot and mechanical equipment, such as heating and air conditioning systems. These noise sources would be very similar to the existing noise from the current land uses within Holbrook-Palmer Park and would not generate a perceptible increase in ambient noise levels above those that already exist at the project site. In acoustics, every doubling of an equal sound energy results in a 3 dBA increase in combined noise level. Implementation of the proposed project would not result in a doubling of existing stationary noise sources in the project vicinity. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Therefore, noise from new project-related stationary noise sources would not result in a perceptible change (at least 3 dBA) in ambient noise levels in the vicinity of the project site above those existing without the project.

Based on the traffic noise modeling results shown in Table 7, the project would not generate enough traffic to create a perceptible change in traffic noise levels in the vicinity of the project. As such, project related traffic noise levels would not result in a substantial increase in ambient noise levels over those existing without the project. Therefore, no substantial long-term increase in ambient noise levels is expected as a result of project implementation.

- d) *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (**Less-Than-Significant Impact**)*

Construction activities associated with implementation of the proposed project could temporarily increase ambient noise levels. Increased ambient noise levels would be intermittent and short term, and would not be considered significant. Additionally, implementation of Mitigation Measure NOISE-1 would further ensure that construction related noise would be less than significant.

- 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? (**No Impact**)*

The Palo Alto Airport, which is the closest airport to the project site, is located approximately 5 miles east of the proposed project site. The San Carlos airport is located approximately 5.5 miles north-west of the proposed project site. At these distances and due to the flight approach patterns for these airports, the proposed project site is outside the 55 dBA CNEL noise contour for these airports. The proposed project would not be located in an airport land use plan or within 2 miles of a public or public use airport. Therefore, implementation of the proposed project would not expose persons within the project site to excessive aircraft-related noise levels.

- 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? (No Impact)*

The project site is not located within the vicinity of a private airstrip. Therefore, the proposed project would not expose persons on the project site to excessive noise levels from a private airstrip.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XIII. POPULATION AND HOUSING. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 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)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- 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)? (No Impact)*

The proposed project consists of the development of a new library within the existing Holbrook-Palmer Park and does not include new housing units. In addition, the new library would replace the existing Atherton library located at 2 Dinkelspiel (Station) Lane and expand to meet the needs of the existing service population, as well as future demand. The current library staff, which consists of 8 part- and full-time staff (4.625 full time equivalents), would continue to provide services at the new location and no new staff would be added. Thus, the project would not directly induce population growth in the area.

The project site is located in an urban area within an existing park. The site is already served by existing utility connections and public service systems and would not necessitate road or other infrastructure extensions. Thus the project would not indirectly induce population growth in the area.

- b) *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? (No Impact)*

The proposed project would develop a library in Holbrook-Palmer Park. While the existing Main House, which is currently used for community events, meetings, and classes, would be demolished, this building has not been used as a residence since approximately 1965. Since that time the structure has been converted to accommodate existing uses and is no longer a functional residence. The

proposed project would not result in the removal of housing, and would not necessitate the construction of replacement housing elsewhere.

- c) *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? (No Impact)*

Please refer to Section XIII.b. The proposed project would not displace people, and would not necessitate the construction of replacement housing elsewhere.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XIV. PUBLIC SERVICES.

- a) 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 public services:

i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Parks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) *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 public services: Fire protection, police protection, schools, parks, other public facilities? (Potentially Significant Impact)*

Fire Services. Fire protection services to the project site are currently provided by the Menlo Park Fire Protection District (Fire District). The Fire District serves the communities of Atherton, Menlo Park and East Palo Alto in addition to some unincorporated areas of San Mateo County. The Fire District has a mutual aid agreement with neighboring fire departments and districts, which ensures provision of fire services at appropriate levels even during periods of unusually high activity. Ambulance service in San Mateo County is provided by American Medical Response.

The Fire District is currently staffed with 108 firefighters, with an average of 36 firefighters on duty in a given day. No reductions in staffing levels are currently anticipated and all stations are fully staffed. The Fire District's current response time goal is 6 minutes from call to arrival. Currently the Fire District is meeting this goal for 90 percent of calls.⁶⁰

Fire Station 3 is the first responder to emergencies at the project site and is located at 32 Almendral Avenue in Atherton, which is a little less than 1 mile northwest of the project site. This station is staffed with three firefighters. Fire Station 1 is the second responder to the site and is located at 700 Oak Grove Avenue in Menlo Park, a little less than 1 mile southwest of the site. This station is staffed with six firefighters. Fire Station 1 houses the nearest ambulance to the project site. Station 5, at 4101 Fair Oaks Avenue in Menlo Park, is a little over 1 mile northeast of the site and would also be available to respond to emergencies at the site.⁶¹

Development of the proposed project is not anticipated to substantially increase the demand for emergency services to the project site. Library services are already provided nearby and would be transferred to the new library facility. The existing structure on the site, which currently provides public meeting, office, storage and event space would be demolished and replaced with the new library.

The Fire District has reviewed the proposed project and determined that any minor increases in demand for fire protection services resulting from development of the proposed project would not exceed the ability of existing staff and equipment to provide service at adequate levels.⁶² The proposed project would not require new fire service facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire services. As such, development of the proposed project would result in a less-than-significant impact to fire and emergency medical services.

In addition, as part of the building permit review process, all departments and agencies responsible for providing services are consulted to determine their ability to provide services to proposed development projects. The Fire District will have the opportunity to review specific design plans for the proposed project once they are developed and will require and verify that adequate emergency access is provided and that the project complies with the current fire code prior to project construction, including the provision of adequate fire flow and location of fire hydrants.

⁶⁰ Aus, Geoffrey, 2012. Division Chief, Fire Marshal, Menlo Park Fire Protection District. Written communication with LSA Associates, Inc. January 25.

⁶¹ Ibid.

⁶² Ibid.

Police Services. Police services within Atherton are provided by the Atherton Police Department (APD). The APD operates from its headquarters at 83 Ashfield Road, located less than ½ mile northwest of the project site. Currently, the APD is budgeted for 19 sworn staff although the department currently employs only 18 sworn staff. Staff includes 1 chief, 1 lieutenant, 5 sergeants, and 11 patrol officers. There are also six non-sworn staff, including three dispatchers; one communications and records supervisor; one community service officer/dispatcher; and one executive assistant to the chief. Additionally, the ADP has eight per diem dispatchers, who fill in when full time dispatchers are absent, and four reserve officers, who function as Peace Officers. Three volunteers assist with the Drug Abuse Resistance Education (D.A.R.E.) program.⁶³ While the ADP does not use a population benchmark to assess staffing levels, the national average is approximately 2.5 officers per 1,000 people. With a population of 6,914,⁶⁴ current staffing levels result in a ratio of 2.6 officers per 1,000 people. This is slightly above the national average.

Calls for services range from Priority 1 calls, which have the highest priority, to Priority 3 calls, which have the lowest priority. The APD is currently meeting its goal for Priority 1 calls, which is less than 8 minutes from call to arrival. In the last 8 months, the APD received 1,774 Priority 1 calls with an average response time of 5 minutes.⁶⁵ Response statistics for incidents⁶⁶ at Holbrook-Palmer Park show that over a 3-year period, the APD responded to 931 incidents, for an average of 255 incidents per year and 21 per month. Those incidents include but are not limited to: assault, theft, vandalism, possession of a concealed weapon (firearm), warrant arrests, fire alarms, homeless encampment removal, ordinance violations (off leash dogs and noise complaints), suspicious people/vehicles, hit and run collisions, and non-injury vehicle collisions. However, the vast majority (approximately 62 percent) of incidents at the park involve officers conducting after hour security checks of the buildings and the park grounds, only about 1 percent of calls were classified as Priority 1 calls.⁶⁷

Over the past 3-year period, the APD responded to 49 incidents at the existing library located at 2 Dinkelspiel (Station) Lane, for an average of 16 per year and 1 to 2 per month. These incidents included burglar alarms, suspicious people/vehicles, complaints of improper use of computers, subpoena service, ordinance violations, and traffic and parking problems.⁶⁸

Calls for police services are generally related to the number of people utilizing a certain site or facility; therefore, it can be reasonably expected that if the number of people visiting the new library (and incidentally the park) would increase, then the number of calls for service would also increase. It is assumed that the larger library facility would attract a greater number of people than the existing library due to the increased size and improved services and facilities and that overall, calls for service in the area would likely increase to some extent. However, calls for service to the existing library site would be reduced since it is not expected to be open to the public on a regular basis and library-

⁶³ Flint, Edwin, 2012. Police Chief, Atherton Police Department. Written Communication with Neal Martin, Town Planner. December 21.

⁶⁴ U.S. Census Bureau. *2010 Census*. Website: factfinder2.census.gov (accessed January 23, 2012).

⁶⁵ Atherton Police Department, 2012. Incident Times By Priority: 07/01/2011 – 02/27/2012. February 28.

⁶⁶ The APD defines an “incident” as any situation requiring police attention. In addition to criminal activity, an incident also includes routine patrols.

⁶⁷ Flint, Edwin, 2012, op. cit.

⁶⁸ Ibid.

related calls would be diverted to the park site. In addition, some library visitors may already be visiting the park.

In considering the potential for an increase in number of calls for police services that may be associated with the new library, call data for several existing library facilities in neighboring communities was evaluated. Results for two of these libraries are discussed here as representative examples and for informational purposes. Over the past three year period, the Redwood City Main Library, located at 1044 Middlefield Road and the largest library in the vicinity, experienced 2,026 incidents, or an average of approximately 675 per year and 56 per month.⁶⁹ The Redwood City Main Library is approximately 45,000 square feet in size and was constructed in 1988.⁷⁰ The recently constructed, approximately 22,500-square-foot Redwood Shores Library located at 399 Marine Parkway in Redwood City experienced 720 calls for service over a three year period, or an average of 240 calls per year and 20 per month.⁷¹ Clearly, it can be reasonably assumed that the number of calls for service can be related to the size of any particular library, even when other factors are not considered (such as location).

Given the above data, it could be conservatively assumed that with an increase in size from 6,038 to 13,500 square feet, average increases in calls for service at the new library could double or even triple, for an increase from 1 to 2 per month to 2 to 6 per month, increasing overall calls to the park from an average of 21 month to about 27 per month (or a 20 percent increase). While calls to the site could increase and place additional demands on police services, development of the proposed project is not anticipated to substantially increase the demand for services to the project site such that calls (particularly Priority 1 calls) cannot be reasonably accommodated within the response time goal of 8 minutes and by existing staffing and facilities. In addition, as previously discussed, current staffing consists of 18 sworn officers, with 1 budgeted position currently unstaffed. Library services are already provided nearby and would be transferred to the new library facility, which will be expanded and designed to better accommodate the existing service population. The proposed project would not require new police service facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for police services. As such, development of the proposed project would result in a less-than-significant impact to police services.

In addition, as part of the building permit review process, all departments and agencies responsible for providing services are consulted to determine their ability to provide services to proposed development projects. The APD will have the opportunity to review specific design plans for the proposed project once they are developed and will require and verify that adequate emergency access is provided and that crime prevention in site design standards (e.g., that building orientation or new landscaping does not limit visibility in the area) are met prior to project construction. The APD has specially trained staff in Crime Prevention Through Environmental Design (CPTED) and would be consulted during the site design process. Additional lighting, surveillance cameras, and the proper placement of plants and trees to create defensible space are all part of CPTED.

⁶⁹ Incident response data was provided by the APD for the period between December 20, 2008 to December 20, 2011.

⁷⁰ Redwood City, City of, 2012. Library Information, Local History Room. Website: www.redwoodcity.org/library/info/localhistoryroom.html (accessed February 10).

⁷¹ Incident response data was provided by the APD for the period between December 20, 2008 to December 20, 2011.

School Services. Elementary school (K-8) education for Atherton students is provided by the Menlo Park City School District, Redwood City School District and Las Lomas Elementary District. High school (9-12) education is provided by the Sequoia Union High School District.⁷²

Since development of the proposed project would result in the construction of a new library and would not include new residential development, the proposed project would not result in a direct population increase, such that new students would be generated. As such, the project would not increase demand for school services or require the construction or expansion of school facilities.

Park Services. The proposed project would relocate and expand existing library services to Holbrook-Palmer Park, which serves as the community’s main source for active and passive recreational uses. The proposed project would demolish the existing Main House, which currently functions as a meeting facility for both public use. Some existing uses (e.g., meetings, classes, and events) currently accommodated at the Main House would be absorbed by other facilities in the park. The proposed project, including demolition of an existing facility and construction of new library, may increase the demand for park services which could in turn result in adverse physical impacts within the park. The EIR will evaluate this potential impact. Also refer to Section XV.a and XV.b.

Other Public Facilities. Development of the proposed project would not result in a direct population increase, and as such, would not result in increased demand for other public services, including community centers or public health care facilities. The proposed project includes construction of a new library at the project site. Library services are already provided nearby and would be transferred to the new library facility, which will be expanded and designed to better accommodate the existing and future service population. Therefore, the proposed project would not increase the demand for library services rather, it would improve existing services and more adequately serve existing and future demand. Therefore, potential impacts to other public services would be less than significant.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	■	□	□	□
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?	■	□	□	□

⁷² California Department of Education, 2011. *Data Quest*. Website: www.ed-data.k12.ca.us/ (accessed December 6).

- a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Potentially Significant Impact)*

The proposed project includes the demolition of the Main House within Holbrook-Palmer Park and construction of a new library. The Main House is currently used for various community events, meetings, and classes and is also used as a rental facility for other events. Some of the existing public uses would be absorbed by other existing facilities within the park. Potential impacts of the proposed project on existing parks and recreational services and amenities at the project site, within Atherton, and the region will be evaluated in the EIR. Potential increases in demand for other existing facilities within the park will also be discussed in the EIR, to the extent that such increases could result in the substantial physical deterioration of such facilities.

- 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? (Potentially Significant Impact)*

Please refer to Section XV.a. The EIR will evaluate the proposed project’s potential to increase demand such that new or expanded recreational facilities would be required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVI. TRANSPORTATION/TRAFFIC. Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	■	□	□	□
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	□	□	□	■
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?	□	□	□	■
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	■	□	□	□

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted polices, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a) <i>Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? (Potentially Significant Impact)</i>				

The proposed project would generate new vehicular traffic within and in the vicinity of Holbrook-Palmer Park and could cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. A Traffic Impact Study was prepared in September 2011 and considered possible development of the new library at the project site, as well as other locations. The results of this study will be summarized in the EIR. New data and information collected and developed to supplement the findings of the Traffic Impact Study will also be included.

The EIR will include impact analysis at the following intersections:

1. Fair Oaks Lane/Dinkelspiel (Station) Lane
2. Watkins Avenue/Middlefield Road
3. Watkins Avenue/Holbrook-Palmer Park Exit
4. Watkins Avenue/Holbrook-Palmer Park Entrance
5. Watkins Avenue /Dinkelspiel (Station) Lane
6. Watkins Avenue/El Camino Real

Intersection level of service (LOS) calculations at the study intersections will be conducted for Existing Conditions, Existing Plus Project Conditions, Cumulative Conditions, and Cumulative Plus Project Conditions.

Parking conditions at the project site and vicinity and the adequacy of available parking within the park will also be addressed in the EIR.

- b) *Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? (No Impact)*

The closest San Mateo County Congestion Management Program (CMP) intersection is approximately 2 miles northwest and northeast of the project site. Because library traffic would generally

utilize the surrounding local roadways and there are no CMP intersections within the vicinity of the project site, none would be affected by the proposed project.⁷³

- 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? (No Impact)*

The Palo Alto Airport, which is the closest airport to the project site, is located approximately 5 miles east of the proposed project site. The San Carlos airport is located approximately 5.5 miles north-west of the proposed project site. The proposed project would not result in the construction of buildings that would be sufficiently high or configured in a way that would affect air traffic patterns. Therefore, the proposed project would not result in a substantial safety risk associated with a change in air traffic patterns.

- d) *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (Potentially Significant Impact)*

The proposed project could alter existing vehicular, emergency, pedestrian, and bicycle access to and through the park. The EIR will evaluate proposed design features and issues of on-site circulation.

- e) *Result in inadequate emergency access? (Potentially Significant Impact)*

Please refer to Section XVI.d. The EIR will evaluate the proposed project’s potential to result in inadequate emergency access.

- f) *Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? (Potentially Significant Impact)*

Transit access in the vicinity of the site is via San Mateo County Transit District (SamTrans) buses or Caltrain; which provides limited weekend-only service to Atherton on its San Francisco-San Jose line. The EIR will analyze the project’s compliance with adopted policies, plans, and programs supporting alternative transportation in further detail.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVII. UTILITIES AND SERVICE SYSTEMS. Would the project:

- a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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⁷³ City/County Association of Governments of San Mateo County, 2011. *Draft Final San Mateo County Congestion Management Program*. September.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, State, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
a) <i>Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (Less-Than-Significant Impact)</i>				

Wastewater treatment services in Atherton are provided by the Fair Oaks Sanitary District (FOSD) and the West Bay Sanitary District (WBSD). Wastewater treatment services at the project site are provided through a partnership between the WBSD, which maintains the wastewater conveyance system for the cities of Menlo Park, Atherton, Portola Valley and unincorporated San Mateo and Santa Clara counties, and the South Bayside System Authority (SBSA), which oversees wastewater treatment responsibility for southern San Mateo County sewer agencies, including WBSD.

All wastewater collected within the Town is transported to the WBSD Menlo Park Pumping Station and from there to the SBSA regional treatment plant in Redwood City. The WBSD's average daily flow during dry weather is approximately 4.5 million gallons per day (mgd). The average flow increases during wet weather due to rainwater infiltration into sewer lines. The WBSD's dry weather allocation from the SBSA is 7.975 mgd.⁷⁴ Thus, WBSD's allocation is currently at 56 percent of capacity. The project site is currently served by utility infrastructure, including sanitary sewer and water lines.

⁷⁴ Kitajima, Bill, 2011. West Bay Sanitary District. Written communication with LSA Associates, Inc. December 19.

The proposed project includes the development of a new library and demolition of the existing Main House. Wastewater generated on the site would be from restrooms located within the new building, which would replace existing public restrooms in the existing Main House. The Main House also currently includes a kitchen used to cater events. Any additional wastewater generated by the proposed project would be minimal and would not exceed the capacity of the wastewater treatment plant, which has available capacity to serve demand occurring within the Town's General Plan. As a result, the proposed project would not exceed the wastewater treatment requirements established by the Regional Water Quality Control Board.

- 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? (Less-Than-Significant Impact)*

Wastewater Infrastructure. As discussed above, the proposed project would generate a minimal amount of wastewater, which would not exceed the capacity of the existing wastewater treatment plant or existing sewer infrastructure serving the project site. As previously stated, the WBSD average daily wastewater flow during dry weather is approximately 4.5 mgd. Any additional wastewater generated by the proposed project would represent only a small percentage of the WBSD's allocated treatment capacity by the SBSA. Therefore, the increase in wastewater generated by the proposed project would not require the construction of new wastewater treatment facilities, or the expansion of existing facilities.

The proposed project would connect to an existing 6-inch sanitary sewer line which runs from the Pavilion all the way to the main line sewer system on Watkins Avenue (approximately 750 feet). This line was installed in 2008 and has sufficient capacity to accommodate the proposed project.⁷⁵

Water Infrastructure. As discussed below in Section XVII.d, the proposed project would not substantially increase demand for water and would not exceed the capacity of the existing water treatment plant. Therefore, increased water demand by the proposed project would not require the construction of new water treatment facilities, or the expansion of existing facilities.

The proposed project would connect to an existing 2-inch water line located approximately 500 feet north of the Main House along the park exit driveway. The park grounds are watered with non-potable water supplies using two on-site wells.⁷⁶ Because the proposed project will not substantially increase water demand at the project site, these lines are anticipated to have sufficient capacity to accommodate the proposed project.

- 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? (Potentially Significant Unless Mitigation Incorporated)*

⁷⁵ Tyler, Steve, 2011. Superintendent, Town of Atherton Public Works. Written communication with Neal Martin, Town Planner. December 14.

⁷⁶ Tyler, Steve, 2011. Superintendent, Town of Atherton Public Works. Written communication with Neal Martin, Town Planner. December 21.

Please refer to Section IX.e. Implementation of a Stormwater Control Plan (Mitigation Measure HYD-2) would ensure that new drainage facilities would adequately reduce potential pollutants in stormwater runoff to a less-than-significant level.

- d) *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? (Less-Than-Significant Impact)*

The Bear Gulch District (BGD), a subsidiary of the California Water Service Company (Cal Water), provides water service to the Town of Atherton and the communities of Portola Valley and Woodside, and portions of Menlo Park and Redwood City. BGD receives water from two sources: local surface water (10 percent) and imports from the San Francisco Public Utilities Commission (SFPUC) (90 percent). Local surface water comes from the watershed in the Woodland hills and is collected and treated at Cal Water's reservoir/treatment plant in Atherton. Maximum capacity of the treatment plant is 6 mgd.⁷⁷ Although the treatment plant is occasionally off-line when local surface water is not in demand and capacity varies, it is not anticipated that the proposed project would increase demand such that capacity of the treatment plant would be adversely affected.

Highly dependent on factors like annual precipitation, local surface diversions were 1,084 acre feet per year (AFY) in 2010; Cal Water projects that water supply from local surface diversions will be 1,260 AFY through to 2040. Cal Water has an annual purchase from SFPUC of 39,967 AFY, which is shared among BGD, Mid-Peninsula District, and South San Francisco District. For BGD, imports from the SFPUC were 11,824 AFY in 2010. Cal Water projects that water supply from SFPUC imports will increase incrementally to 12,900 AFY in 2040. Total water supply in 2040 is projected to be 14,160 AFY.⁷⁸ Currently, there are no planned water improvement projects that would affect the proposed project.⁷⁹

The new library would not substantially increase the use of potable water at the project site. The new library would provide new restroom facilities to replace the existing public restrooms located at the Main House. Additionally, the existing Main House includes a kitchen utilized to cater events. Landscaping is watered using non-potable water from on-site wells. Given water usage typical to a library development, the BGD has no concerns about their ability to deliver water to the project site via existing entitlements.⁸⁰ Therefore, development of the proposed project would not substantially increase the Town's demand for water delivery services from BGD.

- e) *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (Less-Than-Significant Impact)*

Please refer to Section XVI.a for a discussion of the project's impacts to wastewater treatment. The proposed project would generate a minimal amount of wastewater and therefore would not exceed the

⁷⁷ Molder, Paul, 2011. Assistant District Manager, California Water Company, Bear Gulch District. Written communication with LSA Associates, Inc. December 15.

⁷⁸ Water Resource Planning Group. 2011. California Water Service Company. *2010 Urban Water Management Plan: Bear Gulch District*.

⁷⁹ Molder, Paul, 2011. op. cit.

⁸⁰ Ibid.

capacity of the exiting wastewater treatment plant, resulting in a less-than-significant impact on the capacity of existing wastewater treatment facilities.

- f) *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (Less-Than-Significant Impact)*

The Town is a member of the South Bayside Waste Management Authority (SBWMA), a joint-powers authority comprised primarily of cities within San Mateo County. SBWMA contracts with Recology San Mateo, on behalf of its member agencies including the Town, to provide curbside recycling, garbage, and compost and yard waste services to all residential and commercial customers in the Town. Non-hazardous solid waste is taken to the Ox Mountain Sanitary Landfill for processing and recyclables are taken to the San Carlos Transfer Station prior to shipment to recycling markets. The Transfer Station has a permitted disposal capacity of 3,000 tons per day.

The Ox Mountain Sanitary Landfill is located in unincorporated San Mateo County. The landfill has a total estimated capacity of 37.9 million cubic yards. As of 2000, the landfill's total estimated used capacity was approximately 6.7 million cubic yards, or 17.8 percent of the landfill's total capacity. The landfill has a permitted throughput of 3,598 tons per day and is anticipated to have sufficient capacity until 2018, which is its expected closure date.⁸¹

The proposed project would transfer existing library uses to the project site and remove the existing Main House. The size of the current library would also be expanded to better accommodate the existing service population. However, it is not anticipated that the new library would generate substantially more solid waste than that already generated by the existing facility. Therefore, the small amount of additional waste that may be generated by the proposed project would not exceed the capacity of the Ox Mountain Sanitary Landfill and the landfill would be able to accommodate the additional waste generated by the proposed project.

- g) *Comply with federal, State, and local statutes and regulations related to solid waste? (Less-Than-Significant Impact)*

Recology San Mateo would provide recycling services and green waste collection to the project site (as it already provides these services to the existing park), thereby reducing solid waste generated by the proposed project. Since the Town is the proponent of the proposed project, the Town would ensure compliance with all statutes and regulations related to solid waste.

⁸¹ Department of Resources Recycling and Recovery, 2011. *Active Landfills Profile for Ox Mountain Sanitary Landfill*. Website: www.calrecycle.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=41&FACID=41-AA-0002 (accessed December 10).

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.

- | | | | | |
|---|---|--------------------------|--------------------------|--------------------------|
| 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, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | ■ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Does the project have impacts that 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 of past projects, the effects of other current projects, and the effects of probable future projects.) | ■ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ■ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| a) <i>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, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? (Potentially Significant Impact)</i> | | | | |

As discussed in Section IV, development of the proposed project would not: 1) substantially reduce the habitat of a fish or wildlife species; 2) cause a fish or wildlife species population to drop below self-sustaining levels; 3) threaten to eliminate a plant or animal community; or 4) reduce the number or restrict the range of a rare or endangered plant or animal. As discussed in Section V, the proposed project may impact historic resources. The EIR will address the potential of the proposed project to otherwise degrade the quality of the environment as it relates to environmental issues of concern not addressed in this Initial Study.

- b) *Does the project have impacts that 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 of past projects, the effects of other current projects, and the effects of probable future projects.) (Potentially Significant Impact)*

With the mitigation measures recommended in this report, impacts to air quality; biological resources; cultural and paleontological resources; geology and soils; global climate change; hydrology and water quality; and noise would be individually limited and not cumulatively considerable in the context of

impacts associated with other pending and planned development projects. These construction-period impacts are typical of infill development projects and the impacts of the project would be reduced to a less-than-significant level through implementation of the standard mitigation measures recommended in this report.

However, as discussed in this Initial Study, potentially significant impacts related to aesthetics; historic resources; land use and planning; recreation; and transportation and traffic may result from the proposed project. These impacts, as well as any cumulatively considerable impacts that may result from the proposed project, will be evaluated in the EIR.

- c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (Potentially Significant Impact)*

The EIR will address the project's potential to result in any environmental effects that would cause substantial direct or indirect adverse effects on human beings.

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**INITIAL STUDY
APPENDIX A**

**HEALTH RISK ASSESSMENT
AND AIR QUALITY DATA**



MEMORANDUM

DATE: February 16, 2012

TO: Neal Martin, Town of Atherton

FROM: Theresa Wallace, Project Manager
Amy E. Fischer, Associate

SUBJECT: Atherton Library Project Construction Emission Health Risk Assessment

LSA has prepared this Health Risk Assessment (HRA) to evaluate the health risk impacts of construction of the proposed library project. Sensitive receptors in the project vicinity include a day care facility and single-family residential land uses. The closest existing sensitive receptors to the proposed site is the day care facility across the driveway south of the project site, whose nearest façade is located approximately 200 feet from the proposed project construction area. This day care facility follows the local school district calendar, and is therefore closed during the summer months and open only approximately 190 days per year. The next closest sensitive receptors to the proposed site are the single-family residences located approximately 350 feet south of the proposed project construction area.

METHODOLOGY

According to the Bay Area Air Quality Management District (BAAQMD) *Air Quality CEQA Guidelines*,¹ any proposed project that would expose persons to substantial levels of Toxic Air Contaminants (TACs) resulting in (a) a cancer risk level greater than 10 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of greater than 0.3 micrograms per cubic meter of annual average PM_{2.5} through the siting of new source or a new receptor would be considered to have a significant air quality impact. The use of diesel construction equipment on the project site, such as front-end loaders, backhoes, cranes, forklifts and trucks results in the emissions of diesel particulate matter (DPM), a TAC known to have potential health effects. The project site is located in a suburban area in close proximity to existing residential uses.

This assessment was conducted using the Environmental Protection Agency (EPA) dispersion model SCREEN3. This model provides conservative estimates of concentrations considering site and source geometry, source strength, distance to receptor, and building wake effects on plume distribution. The SCREEN3 model was developed to provide an easy-to-use method of obtaining pollutant concentration estimates where upper-bound estimates are required or where meteorological data is unavailable. It is a useful tool in proving that an impact is not significant (i.e., if a screening-level analysis demonstrates an impact not significant, its conservative nature provides confidence in this conclusion). Screening-level modeling is less useful in concluding that an impact is significant. When a screening-level analysis indicates a significant impact, this conclusion normally points to the need for a more sophisticated (and less conservative) method of analysis using a model such as ISCST3 or AERMOD.

¹ Bay Area Air Quality Management District, 2011. *Air Quality CEQA Guidelines*, May.

For the purposes of evaluating the health impacts from construction of the project, this HRA analysis followed the methodology of the BAAQMD's guidance document: *Recommended Methods for Screening and Modeling Local Risks and Hazards*.² The document was released in May of 2011 with the purpose of assisting lead agencies in conducting a risk and hazard analysis as part of the environmental review process for proposed land use projects. It provides Bay Area specific guidance on how to screen projects and provides specific inputs for HRA modeling. The document compliments and helps implement the BAAQMD *Air Quality CEQA Guidelines* and thresholds of significance for particulate matter and toxic air contaminants.

Table 1: BAAQMD Significance Threshold Levels

Risks and Hazards Single Source Impacts (New Source / Receptor)	
Cancer Risk	>10 in one million
Acute / Chronic Hazard Indices	>1.0
PM _{2.5}	>0.3 ug/m ³

Source: BAAQMD, 2011

Emission Estimates. The HRA was conducted as recommended in the California Office of Environmental Health Hazard Assessment (OEHHA) Guidelines, by the ARB,³ and the BAAQMD.⁴ It consists of several steps including: determine the PM₁₀ emission factor, emission rate, and concentration at receptor locations; translate the PM₁₀ concentrations into health risk values; and compare the health risk values to thresholds to determine significance.

Emission factors for equipment emissions were estimated using the ARB's OFFROAD2007 and EMFAC2007 models. Both models include assumptions of technological and regulatory changes that will reduce emission rates over time. The HRA only allows for a single emission rate for the entire 70-year health risk evaluation period. Therefore, a worst-case set of emission factors from the year 2011 was used to represent the long-term 70-year evaluation period.

Total project construction is anticipated to take 18 months. The PM₁₀ emission rate was determined by estimating the necessary construction equipment pieces, as shown in Tables 2 and 3, combined with the OFFROAD2007 and EMFAC2007 emissions factors.

² Bay Area Air Quality Management District, 2010. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. June.

³ Air Resources Board, 2005. *HARP Model Documentation, Appendix K, Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Engines*. February.

⁴ Bay Area Air Quality Management District, 2010. *CEQA Construction Screening Approach*, May 2010, *Health Risk Screening Analysis Guidelines*, January 2010, and *Recommended Methods for Screening and Modeling Local Risks and Hazards*, May 2010.

Table 2: Equipment Usage and Diesel Particulate Emissions

Equipment Type	Number of units	Usage Duration (weeks)	Hours Used per Day	PM ₁₀ Emission Factor (lbs/hr)	PM ₁₀ Emissions Rate (lbs/day)
Demolition					
Crushing/Proc. Equipment	1	5	5	3.00E-01	0.28
Other Material Handling Equipment	1	5	5	1.50E-01	0.32
Rubber Tired Dozers	2	5	7	1.50E-01	1.66
Tractors/Loaders/Backhoes	1	5	6	3.00E-01	0.30
Total					2.7
Earthwork					
Grader	1	5	5	2.20E-01	0.39
Rubber-Tired Dozer	1	5	5	1.50E-01	0.59
Tractor/Loader/Backhoe	2	5	7	3.00E-01	0.69
Concrete/Ind. Saw	1	5	6	3.00E-01	0.32
Total					2.1
Construction					
Tractor/Loader/Backhoe	1	58	6	3.00E-01	0.30
Crane	1	58	5	1.50E-01	0.34
Forklift	2	58	6	3.00E-01	0.66
Generator Set	1	58	7	3.00E-01	0.39
Total					2.1
Painting & Paving					
Cement & Mortar Mixer	4	4	7	3.00E-01	1.57
Paving Machine	1	4	7	3.00E-01	0.41
Roller	1	4	6	3.00E-01	0.33
Tractor/Loader/Backhoe	1	4	6	3.00E-01	0.30
Generator Set	1	4	7	3.00E-01	0.39
Total					3.1

lbs/hr = pounds per hour

lbs/day = pounds per day

PM₁₀ = particulate matter less than 10 microns in size

Source: LSA Associates, Inc., February 2012.

Table 3: Support Equipment Usage and Diesel Particulate Emissions

Equipment Type	Number of Units	Miles per Day	PM ₁₀ Emission Factor (gms/mile)	PM ₁₀ Emissions Rate (lbs/day)
Mechanic Truck	1	10	0.04	0.00088
Fuel Truck	1	10	0.04	0.00088
Foreman Truck	1	10	0.04	0.00088
Delivery Trucks	10	30	0.035	0.023
Worker Commute	40	50	0.02	0.088
Total				0.11

gms/mile = grams per mile

lbs/day = pounds per day

PM₁₀ = particulate matter less than 10 microns in size

Source: LSA Associates, Inc., February 2012.

While the construction equipment will operate all over the site, for the purposes of this analysis, all diesel truck exhaust was modeled as if it came from a single spot on-site. This technique was used because it facilitates modeling and generates health-risk values that are more conservative than the

reality of spreading the equipment emissions over the site. The SCREEN3 input parameters are shown in Table 4. The receptor height was set to approximate the ground floor of the nearest receptor.

Table 4: SCREEN3 Input Parameters

Source Type	=	Volume
Emission Rate (g/s)	=	1.00
Source Height (m)	=	3.00
Init. Lateral Dimension (m)	=	4.65
Init. Vertical Dimension (m)	=	4.65
Receptor Height (m)	=	2.00
Urban/Rural Option	=	Urban

g/s = grams per second

m = meters

Source: LSA Associates, Inc., 2012.

Table 5 shows the SCREEN3 PM₁₀ concentrations at a range of locations using the PM₁₀ emission rates from Tables 2 and 3. The nearest sensitive receptor is the day care facility approximately 60 meters (200 feet) to the east of the project site. Concentrations increase with distance due to the nature of the air dispersion and the plume effect; the peak concentration occurs at approximately 20 meters (65 feet) distance then taper off. The SCREEN3 model output is attached.

Table 5: SCREEN3 Modeling Results

Distance (m)	PM ₁₀ Concentrations (µg/m ³)	
	24-Hour	Annual
20	12.5	0.24
25	11.1	0.21
30	10.0	0.19
35	9.0	0.17
40	8.1	0.16
45	7.4	0.14
50	6.8	0.13
60	5.7	0.11
70	4.9	0.094
80	4.3	0.082
90	3.7	0.072
100	3.3	0.063
200	1.3	0.025
300	0.7	0.014
400	0.5	0.0091
500	0.3	0.0065

Note: PM_{2.5} concentrations derived from PM₁₀ concentrations using the PM_{2.5} fraction of PM₁₀ value of 0.92 from the ARB.

m = meters

PM₁₀ = particulate matter less than 10 microns in size

µg/m³ = micrograms per cubic meter

Source: LSA Associates, Inc., February 2012.

Assuming that the emissions of PM₁₀ exactly represents DPM, the peak PM₁₀ concentration from Table 5 is translated to the health risk value shown in Table 6 using the OEHHA methodology as described in the following equations:

$$\text{Inhalation cancer risk} = ((C_{\text{air}} * \text{DBR} * A * \text{EF} * \text{ED} * 1 \times 10^{-6}) / \text{AT}) * \text{Inhalation Cancer Potency Factor}$$

where:

C _{air} =	Concentration of PM ₁₀ in air		µg/m ³
DBR =	Daily Breathing Rate	581	(L/kg-day)
A =	Inhalation Absorption factor	1	
EF =	Exposure Frequency	190	(days/year)
ED =	Exposure Duration	18	(months)
AT =	Average Time period of exposure	25,550	(days)
Diesel PM ₁₀ =	Inhalation Cancer Potency Factor	1.1	(mg/kg-day ⁻¹)

µg/m³ = micrograms per cubic meter

Daily Breathing Rate of 581 L/kg-day is specified for child age receptors as indicated in the BAAQMD guidelines.

L/kg-day = liters per kilograms of body weight per day

mg/kg-day⁻¹ = milligrams of diesel PM₁₀ per the inverse of kilograms of body weight per day (Cancer potency factors are expressed in units of inverse dose as a potency slope.)

PM₁₀ = particulate matter less than 10 microns in size

OEHHA recommends weighting cancer risk by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years, and by a factor of 3 for exposures that occur from 2 years to 15 years of age. As the closest off-site sensitive receptor is the day care facility, a CRAF factor of 3 was applied to all the carcinogens in the model.

The chronic risk level is then calculated as follows:

$$\text{Inhalation chronic risk} = C_{\text{air}} / \text{Inhalation Chronic REL}$$

where: Inhalation Chronic REL = 5.0

IMPACTS

The only TAC expected to be emitted in any substantial quantity is diesel exhaust particulate. Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. However, according to ARB's rulemaking,⁵ the available data from studies of humans exposed to diesel exhaust are not sufficient for deriving an acute

⁵ Air Resources Board, 1998. *Identifying Particulate Emissions from Diesel-Fueled Engines as a Toxic Air Contaminant.*

noncancer health risk guidance value. While the lungs are a major target organ for diesel exhaust, studies of the gross respiratory effects of diesel exhaust in exposed workers have not provided sufficient exposure information to establish a short-term noncancer health risk guidance value for respiratory effects. Therefore, the potential for short-term acute exposure from project-related toxic emissions would be less than significant.

The results for carcinogenic and chronic impacts are shown in Table 6. Results of the analysis indicate that the maximum exposed individual (MEI) inhalation cancer risk at the closest off-site sensitive receptor would be 5.9 in 1 million which is less than the threshold of 10 in 1 million. The maximum chronic hazard index would be 0.055, which is also below the threshold of 1.0.

Table 6 also shows that the peak 24-hour concentration of PM_{2.5} from the equipment exhaust of construction operations is 2.7 µg/m³. This converts to a peak annual PM_{2.5} concentration of 0.052 µg/m³ which is below the BAAQMD significance threshold of 0.3 µg/m³.

Table 6: Inhalation Health Risks from Construction Sources

Distance (m)	Carcinogenic Inhalation Health Risk with CRAF	Chronic Inhalation Health Index	PM _{2.5} Concentrations (µg/m ³) (Annual)
20	13	0.12	0.21
25	11	0.11	0.19
30	10	0.096	0.18
35	9.2	0.086	0.16
40	8.3	0.078	0.14
45	7.6	0.071	0.13
50	6.9	0.065	0.12
60	5.9	0.055	0.10
70	5	0.047	0.086
80	4.4	0.041	0.075
90	3.8	0.036	0.065
100	3.4	0.032	0.058
200	1.4	0.013	0.023
300	0.75	0.007	0.013
400	0.49	0.0046	0.0084
500	0.35	0.0032	0.0059
Threshold	10 in a million	1.0	0.3

Notes: Shaded cells represent the distance to and concentration levels at the closest off-site sensitive receptor. CRAF = Cancer Risk Adjustment Factor

Source: LSA Associates, Inc., February 2012

HEALTH RISK SUMMARY

Results of the construction HRA for the closest sensitive receptor are summarized in the Table 7 below. The exposure to the nearby day care facility to project construction emissions would result in a maximum risk level that is below the BAAQMD's carcinogenic criteria of significance (10 in 1 million). As indicated, the project would not exceed any of the established BAAQMD thresholds; therefore, health risks from project-related construction air emissions would be less than significant

Table 7: Health Risks from Construction Emissions

Location	Carcinogenic Inhalation Health Risk with CRAF	Chronic Inhalation Health Index	PM_{2.5} Concentration (µg/m³)
Day Care Center (200 feet from project site)	5.9 in 1 million	0.055	0.1
Threshold	10 in a million	1.0	0.3

Source: LSA Associates, Inc., February 2012.

Attachment: SCREEN3 Model Data

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\AFischer\Desktop\Atherton\aq_atherton library.urb924(rev).urb924

Project Name: Atherton Library

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2014 TOTALS (tons/year unmitigated)	0.16	1.22	0.88	0.00	0.06	0.07	0.13	0.01	0.06	0.07	167.38
2015 TOTALS (tons/year unmitigated)	0.20	0.40	0.33	0.00	0.00	0.02	0.02	0.00	0.02	0.02	65.90

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.02	0.02	0.16	0.00	0.00	0.00	28.83

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.66	0.92	8.29	0.01	1.73	0.33	930.02

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.68	0.94	8.45	0.01	1.73	0.33	958.85

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\AFischer\Desktop\Atherton\aq_atherton_library.urb924(rev).urb924

Project Name: Atherton Library

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (lbs/day unmitigated)	4.93	35.59	24.98	0.00	3.22	2.04	5.26	0.68	1.87	2.55	4,521.49
2015 TOTALS (lbs/day unmitigated)	9.12	6.16	5.12	0.00	0.01	0.35	0.36	0.00	0.32	0.33	1,013.33

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.21	0.15	1.66	0.00	0.01	0.01	159.41

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.37	4.34	44.34	0.05	9.51	1.81	5,340.98

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.58	4.49	46.00	0.05	9.52	1.82	5,500.39

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
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2/10/2012 8:00:12 AM

Time Slice 1/1/2014-1/27/2014	0.87	5.99	5.17	0.00	0.00	0.39	0.40	0.00	0.36	0.36	802.44
Active Days: 19											
Demolition 01/01/2014-01/28/2014	0.87	5.99	5.17	0.00	0.00	0.39	0.40	0.00	0.36	0.36	802.44
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.04	0.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.14
Time Slice 1/28/2014-1/28/2014	3.31	25.11	16.75	0.00	3.21	1.28	4.49	0.67	1.18	1.85	3,151.91
Active Days: 1											
Demolition 01/01/2014-01/28/2014	0.87	5.99	5.17	0.00	0.00	0.39	0.40	0.00	0.36	0.36	802.44
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.04	0.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.14
Fine Grading 01/28/2014-03/24/2014	2.44	19.12	11.57	0.00	3.20	0.89	4.09	0.67	0.82	1.49	2,349.46
Fine Grading Dust	0.00	0.00	0.00	0.00	3.20	0.00	3.20	0.67	0.00	0.67	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	0.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.14

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Time Slice 1/29/2014-3/21/2014	2.44	19.12	11.57	0.00	3.20	0.89	4.09	0.67	0.82	1.49	2,349.46
Active Days: 38											
Fine Grading 01/28/2014-03/24/2014	2.44	19.12	11.57	0.00	3.20	0.89	4.09	0.67	0.82	1.49	2,349.46
Fine Grading Dust	0.00	0.00	0.00	0.00	3.20	0.00	3.20	0.67	0.00	0.67	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	0.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.14
Time Slice 3/24/2014-3/24/2014	<u>4.93</u>	<u>35.59</u>	<u>24.98</u>	<u>0.00</u>	<u>3.22</u>	<u>2.04</u>	<u>5.26</u>	<u>0.68</u>	<u>1.87</u>	<u>2.55</u>	<u>4,521.49</u>
Active Days: 1											
Asphalt 03/24/2014-04/16/2014	1.58	9.66	8.22	0.00	0.01	0.78	0.78	0.00	0.71	0.72	1,168.59
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.51	9.54	6.74	0.00	0.00	0.77	0.77	0.00	0.71	0.71	979.23
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.61
Paving Worker Trips	0.04	0.08	1.47	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.75
Building 03/24/2014-07/02/2015	0.91	6.80	5.18	0.00	0.01	0.37	0.38	0.00	0.34	0.35	1,003.44
Building Off Road Diesel	0.88	6.70	4.39	0.00	0.00	0.37	0.37	0.00	0.34	0.34	893.39
Building Vendor Trips	0.01	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.80
Building Worker Trips	0.02	0.04	0.72	0.00	0.00	0.00	0.01	0.00	0.00	0.00	88.25
Fine Grading 01/28/2014-03/24/2014	2.44	19.12	11.57	0.00	3.20	0.89	4.09	0.67	0.82	1.49	2,349.46
Fine Grading Dust	0.00	0.00	0.00	0.00	3.20	0.00	3.20	0.67	0.00	0.67	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	0.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.14

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Time Slice 3/25/2014-4/16/2014 Active Days: 17	2.49	16.47	13.41	0.00	0.01	1.15	1.16	0.01	1.06	1.06	2,172.03
Asphalt 03/24/2014-04/16/2014	1.58	9.66	8.22	0.00	0.01	0.78	0.78	0.00	0.71	0.72	1,168.59
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.51	9.54	6.74	0.00	0.00	0.77	0.77	0.00	0.71	0.71	979.23
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.61
Paving Worker Trips	0.04	0.08	1.47	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.75
Building 03/24/2014-07/02/2015	0.91	6.80	5.18	0.00	0.01	0.37	0.38	0.00	0.34	0.35	1,003.44
Building Off Road Diesel	0.88	6.70	4.39	0.00	0.00	0.37	0.37	0.00	0.34	0.34	893.39
Building Vendor Trips	0.01	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.80
Building Worker Trips	0.02	0.04	0.72	0.00	0.00	0.00	0.01	0.00	0.00	0.00	88.25
Time Slice 4/17/2014-12/31/2014 Active Days: 185	0.91	6.80	5.18	0.00	0.01	0.37	0.38	0.00	0.34	0.35	1,003.44
Building 03/24/2014-07/02/2015	0.91	6.80	5.18	0.00	0.01	0.37	0.38	0.00	0.34	0.35	1,003.44
Building Off Road Diesel	0.88	6.70	4.39	0.00	0.00	0.37	0.37	0.00	0.34	0.34	893.39
Building Vendor Trips	0.01	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.80
Building Worker Trips	0.02	0.04	0.72	0.00	0.00	0.00	0.01	0.00	0.00	0.00	88.25
Time Slice 1/1/2015-5/15/2015 Active Days: 97	0.85	6.16	5.04	0.00	0.01	0.35	0.36	0.00	0.32	0.33	1,003.48
Building 03/24/2014-07/02/2015	0.85	6.16	5.04	0.00	0.01	0.35	0.36	0.00	0.32	0.33	1,003.48
Building Off Road Diesel	0.83	6.06	4.31	0.00	0.00	0.35	0.35	0.00	0.32	0.32	893.39
Building Vendor Trips	0.01	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.80
Building Worker Trips	0.02	0.04	0.67	0.00	0.00	0.00	0.01	0.00	0.00	0.00	88.29

2/10/2012 8:00:12 AM

Time Slice 5/18/2015-7/2/2015 Active Days: 34	9.12	6.16	5.12	0.00	0.01	0.35	0.36	0.00	0.32	0.33	1,013.33
Building 03/24/2014-07/02/2015	0.85	6.16	5.04	0.00	0.01	0.35	0.36	0.00	0.32	0.33	1,003.48
Building Off Road Diesel	0.83	6.06	4.31	0.00	0.00	0.35	0.35	0.00	0.32	0.32	893.39
Building Vendor Trips	0.01	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.80
Building Worker Trips	0.02	0.04	0.67	0.00	0.00	0.00	0.01	0.00	0.00	0.00	88.29
Coating 05/17/2015-07/02/2015	8.26	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.85
Architectural Coating	8.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.85

Phase Assumptions

Phase: Demolition 1/1/2014 - 1/28/2014 - Type Your Description Here

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 1/28/2014 - 3/24/2014 - Default Fine Site Grading Description

Total Acres Disturbed: 0.62

Maximum Daily Acreage Disturbed: 0.16

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

2/10/2012 8:00:12 AM

- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 3/24/2014 - 4/16/2014 - Default Paving Description

Acres to be Paved: 0.16

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/24/2014 - 7/2/2015 - Default Building Construction Description

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 5/17/2015 - 7/2/2015 - Default Architectural Coating Description

- Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
- Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
- Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
- Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

2/10/2012 8:00:12 AM

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Library	3.37	4.34	44.34	0.05	9.51	1.81	5,340.98
TOTALS (lbs/day, unmitigated)	3.37	4.34	44.34	0.05	9.51	1.81	5,340.98

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acresage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Library		55.00	1000 sq ft	13.50	742.50	5,537.19
					742.50	5,537.19

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.4	99.4	0.2
Light Truck < 3750 lbs	12.7	0.8	96.8	2.4
Light Truck 3751-5750 lbs	19.9	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0

<u>Vehicle Fleet Mix</u>				
Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

<u>Travel Conditions</u>						
	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Library				5.0	2.5	92.5

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\AFischer\Desktop\Atherton\aq_atherton library.urb924(rev).urb924

Project Name: Atherton Library

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Library	3.37	4.34	44.34	0.05	9.51	1.81	5,340.98
TOTALS (lbs/day, unmitigated)	3.37	4.34	44.34	0.05	9.51	1.81	5,340.98

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Library		55.00	1000 sq ft	13.50	742.50	5,537.19
					742.50	5,537.19

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.4	99.4	0.2
Light Truck < 3750 lbs	12.7	0.8	96.8	2.4

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	19.9	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Library				5.0	2.5	92.5

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Operational Changes to Defaults

Summary Report for Winter Emissions (Pounds/Day)

File Name: C:\Documents and Settings\AFischer\Desktop\Atherton\aq_atherton library.urb924(rev).urb924

Project Name: Atherton Library

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2014 TOTALS (lbs/day unmitigated)	4.93	35.59	24.98	0.00	3.22	2.04	5.26	0.68	1.87	2.55	4,521.49
2015 TOTALS (lbs/day unmitigated)	9.12	6.16	5.12	0.00	0.01	0.35	0.36	0.00	0.32	0.33	1,013.33

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.09	0.13	0.11	0.00	0.00	0.00	156.60

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	4.09	6.46	47.53	0.05	9.51	1.81	4,606.06

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	4.18	6.59	47.64	0.05	9.51	1.81	4,762.66

Screening Health Risk From Diesel Exhaust Particulate and PM_{2.5} Worksheet

Construction Parameters
 18 months duration
 7 hrs/day
 6 days/week
 50 weeks/year
 0.27 lbs/day
 121 gm/day

Inhalation cancer risk = $(Cair * DBR * A * EF * ED * 1 \times 10^{-6}) / (AT * ICR)$
 Inhalation Cancer Potency factor

Health Risk Parameters

DBR	581	Daily breathing rate	(L/kg-day)
A	1	Inhalation absorption factor	
EF	190	Exposure frequency	(days/yr)
ED		Exposure duration	(years)
AT	25,550	Avg. time period of exposure	(days)
Diesel PM ₁₀	1.1	Inhalation Cancer Potency factor	(mg/kg-d) ⁻¹
Diesel PM _{2.5}	5.0	Inhalation Chronic REL	(ug/m ³)

SCREEN input parameters:

SIMPLE TERRAIN INPUTS:			
SOURCE TYPE	=	VOLUME	
EMISSION RATE (G/S)	=	1.00000	
SOURCE HEIGHT (M)	=	3.0000	
INIT. LATERAL DIMEN (M)	=	4.6500	
INIT. VERTICAL DIMEN (M)	=	4.6500	
RECEPTOR HEIGHT (M)	=	2.0000	
URBAN/RURAL OPTION	=	URBAN	

CRAF 3

Construction Health Risks

Dist (m)	Utilized 1-Hr conc. ug/m ³	70-Year Adult		PM _{2.5} Concentrations (ug/m ³)	
		Inhalation Cancer Risk # in a million	Inhalation Chronic Risk Factor	24-Hr Annual	Annual
20	6524	13	0.12	11	0.21
25	5807	11	0.11	10	0.19
30	5203	10	0.096	9.2	0.18
35	4688	9.2	0.086	8.5	0.16
40	4248	8.3	0.078	7.5	0.14
45	3867	7.6	0.071	6.8	0.13
50	3535	6.9	0.065	6.2	0.12
60	2990	5.9	0.055	5.3	0.1
70	2564	5	0.047	4.5	0.086
80	2224	4.4	0.041	3.9	0.075
90	1949	3.8	0.036	3.4	0.065
100	1723	3.4	0.032	3	0.058
200	692	1.4	0.013	1.2	0.023
300	382.8	0.75	0.007	0.67	0.013
400	248.2	0.49	0.0046	0.44	0.0084
500	176.9	0.35	0.0032	0.31	0.0059

1hr to Annual conversion 0.08 (from EPA)
 1-hr to 24-hr conversion 0.4 (from EPA)
 fraction of PM₁₀ 0.92 (from ARB)

02/09/12
 09:45:36

*** SCREEN MODEL RUN ***
 *** VERSION DATED 96043 ***

Construction Equipment Exhaust

SIMPLE TERRAIN INPUTS:
 SOURCE TYPE = VOLUME
 EMISSION RATE (G/S) = 1.00000
 SOURCE HEIGHT (M) = 3.0000
 INIT. LATERAL DIMEN (M) = 4.6500
 INIT. VERTICAL DIMEN (M) = 4.6500
 RECEPTOR HEIGHT (M) = 2.0000
 URBAN/RURAL OPTION = URBAN

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY FLUX = .000 M⁴S⁻³; MOM. FLUX = .000 M⁴S⁻².

*** FULL METEOROLOGY ***

***** SCREEN AUTOMATED DISTANCES *****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M ³)	STAB (M/S)	U10M (M/S)	U5TK (M/S)	MX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
20	6524	5	1	1	10000	3	6.8	6.1	NO
25	5807	5	1	1	10000	3	7.34	6.45	NO
30	5203	5	1	1	10000	3	7.88	6.81	NO
35	4688	5	1	1	10000	3	8.41	7.16	NO
40	4248	5	1	1	10000	3	8.94	7.51	NO
45	3867	5	1	1	10000	3	9.47	7.86	NO
50	3535	5	1	1	10000	3	10.01	8.2	NO
60	2990	5	1	1	10000	3	11.06	8.89	NO
70	2564	5	1	1	10000	3	12.12	9.56	NO
80	2224	5	1	1	10000	3	13.17	10.23	NO
90	1949	5	1	1	10000	3	14.22	10.89	NO
100	1723	5	1	1	10000	3	15.26	11.54	NO
200	692	5	1	1	10000	3	25.48	17.68	NO
300	382.8	5	1	1	10000	3	35.53	23.23	NO
400	248.2	5	1	1	10000	3	44.88	28.34	NO
500	176.9	5	1	1	10000	3	54.11	33.06	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 20. M:

20. 6524. 5 1.0 1.0 10000.0 3.00 6.80 6.10 NO

DWASH= MEANS NO CALC MADE (CONC = 0)

DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED

DWASH=SS MEANS SCHULMAN-SCHREIBER DOWNWASH USED

DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

***** SUMMARY OF SCREEN MODEL RESULTS *****

***** SUMMARY OF SCREEN MODEL RESULTS *****

CALCULATION MAX CONC DIST TO TERRAIN PROCEDURE (UG/M³) MAX (M) HT (M)

SIMPLE TERRAIN 6524 20. 0.

CONSTRUCTION EXHAUST WORKSHEET

2011	Dismantle	IP	# of units	Duration (weeks)	Hours per Day	EPA Tier 3 EF Diesel Emission Factors (g/HP-hr)	Peak Emission Rates (lbs/day)	
							PM10	PM10
	Crushing/Proc. Equipment	85	1	5	5	3.00E-01	0.0195	0.28
	Other Material Handling	196	1	5	5	1.50E-01	0.0225	0.32
	Rebar Tired Diggers	338	2	5	6	1.50E-01	0.1151	0.207
	Tractor/Loader Backhoe	75	2	5	6	3.00E-01	0.0207	0.30
			# of units	Miles per day	EMFAC2007-2011 Factors	Speed (mph)	Average Emission Rates (lbs/day)	PM10
MDT	Mechanic Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Flat Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Foreman Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Water Truck		1	5	10	0.061	9.0779E-05	0.0101
LDA	Worker Commute		40	50	0.02	0.088	0.266	0.266
			# of units	Duration (weeks)	Hours per Day	EPA Tier 3 EF Diesel Emission Factors (g/HP-hr) <td colspan="2">Total Demolition</td>	Total Demolition	
	Generator	162	1	5	5	2.20E-01	0.29	0.39
	Tractor/Loader Backhoe	75	1	5	6	3.00E-01	0.0482	0.69
	Concrete Pad Saw	81	1	5	7	3.00E-01	0.32	0.223
			# of units	Miles per day	EMFAC2007-2011 Factors	Speed (mph)	Average Emission Rates (lbs/day)	PM10
MDT	Mechanic Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Flat Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Foreman Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Delivery Trucks		10	5	30	0.035	0.01597222	0.023
LDA	Worker Commute		40	50	0.02	0.088	0.269	0.269
			# of units	Duration (weeks)	Hours per Day	EPA Tier 3 EF Diesel Emission Factors (g/HP-hr) <td colspan="2">Total Earthwork</td>	Total Earthwork	
	Generator	75	1	5	6	3.00E-01	0.34	0.40
	Tractor/Loader Backhoe	83	2	5	6	3.00E-01	0.66	0.277
	Excavator	84	1	5	7	3.00E-01	0.597	0.3133
	Generator Set		# of units	Miles per day	EMFAC2007-2011 Factors	Speed (mph)	Average Emission Rates (lbs/day)	PM10
MDT	Mechanic Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Flat Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Foreman Truck		1	5	10	0.04	6.1111E-05	0.0088
MDT	Delivery Trucks		10	5	30	0.035	0.01852778	0.023
LDA	Worker Commute		40	50	0.02	0.088	0.269	0.269
			# of units	Duration (weeks)	Hours per Day	EPA Tier 3 EF Diesel Emission Factors (g/HP-hr) <td colspan="2">Total Construction</td>	Total Construction	
	Generator & Motor Mixer	85	4	4	7	3.00E-01	1.57	0.0675
	Paving Machine	89	1	4	7	3.00E-01	0.41	0.0229
	Roller	84	1	4	6	3.00E-01	0.33	0.0185
	Tractor/Loader Backhoe	75	1	4	6	3.00E-01	0.165	0.0216
	Generator Set		# of units	Miles per day	EMFAC2007-2011 Factors	Speed (mph)	Average Emission Rates (lbs/day)	PM10
MDT	Mechanic Truck		1	4	10	0.04	4.8889E-05	0.0008
MDT	Flat Truck		1	4	10	0.04	4.8889E-05	0.0008
MDT	Foreman Truck		1	4	10	0.04	4.8889E-05	0.0008
MDT	Delivery Trucks		10	4	30	0.035	0.00127778	0.023
LDA	Worker Commute		40	50	0.02	0.088	0.269	0.269

Total Painting & Paving		SCAQMD Threshold	
construction days per week	6	gms/lb	453.59
total construction months	18	Emission Rates (lbs/year)	11
construction days per month	22	Construction	46
		Painting & Paving	68
		Total	115

Title : San Francisco Air Basin Avg Annual CYr 2011
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2010/06/30 15:36:41
 Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
 Season : Annual
 Area : San Francisco

 Year: 2011 -- Model Years 1967 to 2011 Inclusive -- Annual
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

San Francisco	Basin Average	Basin Average
Speed	LDA	LDT
MPH	0	0
	1	5
	10	15
	20	25
	30	35
	40	45
	50	55
	60	65

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Total Organic Gases	Temperature: 50F	Relative Humidity: 50%
Speed	LDA	LDT
MPH	0	0
	1	5
	10	15
	20	25
	30	35
	40	45
	50	55
	60	65

Pollutant Name: Methane	Temperature: 50F	Relative Humidity: 50%
Speed	LDA	LDT
MPH	0	0
	1	5
	10	15
	20	25
	30	35
	40	45
	50	55
	60	65

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
0	0	0	0.009	0.047	0	0	0.003
1	0.011	0.013	0.018	0.026	0.026	0.003	0.013
5	0.009	0.011	0.016	0.026	0.026	0.003	0.011
10	0.007	0.009	0.012	0.022	0.024	0.003	0.009
15	0.005	0.007	0.009	0.019	0.024	0.002	0.007
20	0.004	0.006	0.008	0.016	0.023	0.002	0.006
25	0.004	0.005	0.006	0.015	0.023	0.002	0.005
30	0.003	0.004	0.006	0.015	0.023	0.002	0.004
35	0.003	0.004	0.005	0.014	0.023	0.002	0.004
40	0.003	0.004	0.005	0.014	0.023	0.002	0.004
45	0.003	0.003	0.005	0.014	0.023	0.002	0.004
50	0.003	0.004	0.005	0.014	0.023	0.002	0.004
55	0.003	0.004	0.005	0.014	0.023	0.002	0.004
60	0.003	0.004	0.006	0.014	0.023	0.003	0.004
65	0.004	0.005	0.006	0.014	0.023	0.003	0.005

Pollutant Name: Sulfur Dioxide Temperature: 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
0	0	0	0.009	0.047	0	0	0.003
1	0.008	0.008	0.009	0.023	0.009	0.004	0.009
5	0.008	0.008	0.009	0.023	0.009	0.004	0.009
10	0.008	0.008	0.009	0.023	0.009	0.004	0.009
15	0.008	0.008	0.009	0.023	0.009	0.004	0.009
20	0.008	0.008	0.009	0.023	0.009	0.004	0.009
25	0.008	0.008	0.009	0.023	0.009	0.004	0.009
30	0.008	0.008	0.009	0.023	0.009	0.004	0.009
35	0.008	0.008	0.009	0.023	0.009	0.004	0.009
40	0.008	0.008	0.009	0.023	0.009	0.004	0.009
45	0.008	0.008	0.009	0.023	0.009	0.004	0.009
50	0.008	0.008	0.009	0.023	0.009	0.004	0.009
55	0.008	0.008	0.009	0.023	0.009	0.004	0.009
60	0.008	0.008	0.009	0.023	0.009	0.004	0.009
65	0.008	0.008	0.009	0.023	0.009	0.004	0.009

Pollutant Name: PM10 - Tire Wear Temperature: 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
0	0	0	0	0	0	0	0
1	0.008	0.008	0.009	0.023	0.009	0.004	0.009
5	0.008	0.008	0.009	0.023	0.009	0.004	0.009
10	0.008	0.008	0.009	0.023	0.009	0.004	0.009
15	0.008	0.008	0.009	0.023	0.009	0.004	0.009
20	0.008	0.008	0.009	0.023	0.009	0.004	0.009
25	0.008	0.008	0.009	0.023	0.009	0.004	0.009
30	0.008	0.008	0.009	0.023	0.009	0.004	0.009
35	0.008	0.008	0.009	0.023	0.009	0.004	0.009
40	0.008	0.008	0.009	0.023	0.009	0.004	0.009
45	0.008	0.008	0.009	0.023	0.009	0.004	0.009
50	0.008	0.008	0.009	0.023	0.009	0.004	0.009
55	0.008	0.008	0.009	0.023	0.009	0.004	0.009
60	0.008	0.008	0.009	0.023	0.009	0.004	0.009
65	0.008	0.008	0.009	0.023	0.009	0.004	0.009

Pollutant Name: PM10 - Brake Wear Temperature: 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
0	0	0	0.057	1.114	0	0	0.048
1	0.062	0.118	0.128	1.187	0.829	0.048	0.132
5	0.049	0.094	0.104	1.187	0.829	0.048	0.115
10	0.032	0.062	0.069	0.836	0.6	0.038	0.078
15	0.022	0.043	0.048	0.58	0.451	0.031	0.054
20	0.016	0.031	0.035	0.427	0.35	0.027	0.04
25	0.012	0.024	0.027	0.358	0.282	0.024	0.032
30	0.01	0.019	0.022	0.308	0.235	0.023	0.026
35	0.008	0.016	0.019	0.274	0.203	0.023	0.023
40	0.007	0.015	0.017	0.256	0.182	0.023	0.021
45	0.007	0.014	0.016	0.252	0.168	0.025	0.02

Pollutant Name: PM10 Temperature: 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
0	0	0	0.009	0.047	0	0	0.003
1	0.013	0.013	0.013	0.02	0.013	0.006	0.013
5	0.013	0.013	0.013	0.02	0.013	0.006	0.013
10	0.013	0.013	0.013	0.02	0.013	0.006	0.013
15	0.013	0.013	0.013	0.02	0.013	0.006	0.013
20	0.013	0.013	0.013	0.02	0.013	0.006	0.013
25	0.013	0.013	0.013	0.02	0.013	0.006	0.013

Pollutant Name: PM10 - Brake Wear Temperature: 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
0	0	0	0	0	0	0	0
1	0.013	0.013	0.013	0.02	0.013	0.006	0.013
5	0.013	0.013	0.013	0.02	0.013	0.006	0.013
10	0.013	0.013	0.013	0.02	0.013	0.006	0.013
15	0.013	0.013	0.013	0.02	0.013	0.006	0.013
20	0.013	0.013	0.013	0.02	0.013	0.006	0.013
25	0.013	0.013	0.013	0.02	0.013	0.006	0.013

Pollutant Name: PM10 Temperature: 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
0	0	0	0.009	0.047	0	0	0.003
1	0.008	0.008	0.009	0.023	0.009	0.004	0.009
5	0.008	0.008	0.009	0.023	0.009	0.004	0.009
10	0.008	0.008	0.009	0.023	0.009	0.004	0.009
15	0.008	0.008	0.009	0.023	0.009	0.004	0.009
20	0.008	0.008	0.009	0.023	0.009	0.004	0.009
25	0.008	0.008	0.009	0.023	0.009	0.004	0.009

Pollutant Name: PM2.5											Temperature: 50F Relative Humidity: 50%																						
Speed MPH	LDA			LDT			MDT			HDT			UBUS			MCY			ALL														
	30	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.02	0.013	0.02	0.013	0.013	0.013	0.006	0.006	0.013	0.006	0.013	0.013	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.02	0.013	0.02	0.013	0.013	0.013	0.006	0.006	0.013	0.006	0.013	0.013	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002
40	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.02	0.013	0.02	0.013	0.013	0.013	0.006	0.006	0.013	0.006	0.013	0.013	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002
45	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.02	0.013	0.02	0.013	0.013	0.013	0.006	0.006	0.013	0.006	0.013	0.013	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002
50	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.02	0.013	0.02	0.013	0.013	0.013	0.006	0.006	0.013	0.006	0.013	0.013	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002
55	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.02	0.013	0.02	0.013	0.013	0.013	0.006	0.006	0.013	0.006	0.013	0.013	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002
60	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.02	0.013	0.02	0.013	0.013	0.013	0.006	0.006	0.013	0.006	0.013	0.013	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002
65	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.02	0.013	0.02	0.013	0.013	0.013	0.006	0.006	0.013	0.006	0.013	0.013	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002

Pollutant Name: PM2.5 - Brake Wear											Temperature: 50F Relative Humidity: 50%																						
Speed MPH	LDA			LDT			MDT			HDT			UBUS			MCY			ALL														
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.057	0.109	0.119	0.119	1.092	0.762	0.036	0.122	0.122	0.036	0.122	0.122	0.036	0.122	0.122	0.036	0.122	0.122	0.036	0.122	0.122	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
5	0.045	0.087	0.096	0.096	1.092	0.762	0.036	0.106	0.106	0.036	0.106	0.106	0.036	0.106	0.106	0.036	0.106	0.106	0.036	0.106	0.106	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
10	0.03	0.057	0.064	0.064	0.769	0.552	0.029	0.072	0.072	0.029	0.072	0.072	0.029	0.072	0.072	0.029	0.072	0.072	0.029	0.072	0.072	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
15	0.02	0.04	0.045	0.045	0.534	0.414	0.024	0.05	0.05	0.024	0.05	0.05	0.024	0.05	0.05	0.024	0.05	0.05	0.024	0.05	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
20	0.015	0.029	0.033	0.033	0.393	0.322	0.02	0.037	0.037	0.02	0.037	0.037	0.02	0.037	0.037	0.02	0.037	0.037	0.02	0.037	0.037	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
25	0.011	0.022	0.025	0.025	0.33	0.259	0.018	0.029	0.029	0.018	0.029	0.029	0.018	0.029	0.029	0.018	0.029	0.029	0.018	0.029	0.029	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
30	0.009	0.018	0.02	0.02	0.283	0.216	0.017	0.024	0.024	0.017	0.024	0.024	0.017	0.024	0.024	0.017	0.024	0.024	0.017	0.024	0.024	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
35	0.008	0.015	0.017	0.017	0.252	0.187	0.017	0.021	0.021	0.017	0.021	0.021	0.017	0.021	0.021	0.017	0.021	0.021	0.017	0.021	0.021	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
40	0.007	0.014	0.015	0.015	0.235	0.167	0.018	0.019	0.019	0.015	0.019	0.019	0.018	0.019	0.019	0.018	0.019	0.019	0.018	0.019	0.019	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
45	0.006	0.013	0.014	0.014	0.231	0.155	0.019	0.018	0.018	0.014	0.018	0.018	0.019	0.018	0.018	0.019	0.018	0.018	0.019	0.018	0.018	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
50	0.006	0.013	0.014	0.014	0.241	0.149	0.022	0.019	0.019	0.014	0.019	0.019	0.022	0.019	0.019	0.022	0.019	0.019	0.022	0.019	0.019	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
55	0.007	0.013	0.014	0.014	0.262	0.148	0.026	0.02	0.02	0.014	0.02	0.02	0.026	0.02	0.02	0.026	0.02	0.02	0.026	0.02	0.02	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
60	0.007	0.014	0.016	0.016	0.296	0.152	0.032	0.022	0.022	0.016	0.022	0.022	0.032	0.022	0.022	0.032	0.022	0.022	0.032	0.022	0.022	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
65	0.008	0.016	0.018	0.018	0.342	0.162	0.042	0.025	0.025	0.018	0.025	0.025	0.042	0.025	0.025	0.042	0.025	0.025	0.042	0.025	0.025	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005

Pollutant Name: PM2.5 - Tire Wear											Temperature: 50F Relative Humidity: 50%																						
Speed MPH	LDA			LDT			MDT			HDT			UBUS			MCY			ALL														
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.002	0.002	0.002	0.002	0.006	0.006	0.001	0.002	0.002	0.002	0.006	0.006	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005
5	0.002	0.002	0.002	0.002	0.006	0.006	0.001	0.002	0.002	0.002	0.006	0.006	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.003	0.005	0.005	0.005	0.005

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
0	0	0	0	0	0	0	0
1	7.928	6.342	4.488	3.374	3.33	27.531	7.217
5	9.245	7.394	5.149	3.374	3.33	27.531	8.367
10	12.224	9.776	6.902	5.072	5.006	32.922	11.047
15	15.573	12.454	8.909	7.216	7.124	38.216	14.058
20	19.117	15.286	11.068	9.719	9.597	43.078	17.242
25	22.615	18.081	13.23	12.389	12.237	47.149	20.382
30	25.78	20.611	15.207	14.949	14.771	50.065	23.221
35	28.322	22.643	16.805	17.073	16.876	51.497	25.495
40	29.987	23.973	17.849	18.455	18.25	51.198	26.974
45	30.598	24.462	18.219	18.882	18.68	49.046	27.498
50	30.088	24.054	17.869	18.285	18.097	45.101	27.008
55	28.51	22.793	16.843	16.759	16.594	39.638	25.555
60	26.029	20.81	15.26	14.539	14.401	33.148	23.291
65	22.897	18.305	13.292	11.937	11.828	26.279	20.448

Title : San Francisco Air Basin Avg Annual CYr 2011
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/30 15:37:57
Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
Season : Annual
Area : San Francisco

Year: 2011 -- Model Years 1967 to 2011 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

San Francisco Basin Average Basin Average

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Methane Temperature: 50F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.007	0.008	0.011	0.046	0.015	0.135	0.011
10	0.011	0.013	0.020	0.061	0.020	0.143	0.016
20	0.018	0.022	0.035	0.090	0.030	0.162	0.027
30	0.025	0.031	0.049	0.116	0.039	0.182	0.036
40	0.032	0.039	0.062	0.140	0.048	0.205	0.045
50	0.037	0.045	0.073	0.161	0.055	0.231	0.053
60	0.042	0.051	0.083	0.178	0.061	0.246	0.059
120	0.050	0.058	0.087	0.127	0.042	0.174	0.062
180	0.033	0.040	0.071	0.136	0.044	0.168	0.046
240	0.034	0.042	0.075	0.144	0.047	0.180	0.049
300	0.036	0.044	0.079	0.152	0.050	0.193	0.052
360	0.038	0.046	0.083	0.160	0.052	0.205	0.054
420	0.040	0.049	0.087	0.167	0.055	0.217	0.057
480	0.042	0.051	0.091	0.175	0.057	0.229	0.059
540	0.044	0.053	0.095	0.182	0.060	0.241	0.062
600	0.045	0.055	0.099	0.189	0.062	0.252	0.064
660	0.047	0.057	0.102	0.196	0.064	0.264	0.067
720	0.049	0.059	0.106	0.203	0.066	0.276	0.069

Pollutant Name: Diesel - mi/gal Temperature: 50F Relative Humidity: 50%

Pollutant Name: Carbon Monoxide Temperature: 50F Relative Humidity: ALL

Time
min LDA LDT MDT HDT UBUS MCY ALL

5	1.000	1.356	2.346	7.980	2.192	5.278	1.694
10	1.821	2.496	4.418	12.991	3.743	5.961	2.990
20	3.377	4.658	8.337	22.408	6.655	7.291	5.442
30	4.821	6.662	11.955	31.017	9.313	8.573	7.708
40	6.154	8.507	15.272	38.818	11.717	9.807	9.787
50	7.374	10.193	18.288	45.811	13.866	10.993	11.680
60	8.483	11.721	21.004	51.995	15.761	12.132	13.387
120	11.381	14.784	19.888	30.790	8.674	13.289	14.496
180	6.864	9.370	14.324	32.836	9.166	10.933	9.977
240	7.304	9.947	15.147	34.782	9.640	12.881	10.601
300	7.707	10.477	15.909	36.628	10.095	14.623	11.177
360	8.074	10.961	16.610	38.373	10.531	16.158	11.706
420	8.403	11.399	17.249	40.018	10.948	17.486	12.187
480	8.696	11.790	17.828	41.563	11.347	18.607	12.620
540	8.951	12.134	18.346	43.007	11.727	19.521	13.005
600	9.169	12.433	18.803	44.352	12.089	20.229	13.343
660	9.351	12.684	19.198	45.596	12.431	20.730	13.633
720	9.495	12.889	19.533	46.740	12.755	21.025	13.875

Pollutant Name: Oxides of Nitrogen Temperature: 50F Relative Humidity: ALL

Time
min LDA LDT MDT HDT UBUS MCY ALL

5	0.222	0.364	0.869	0.745	0.295	0.230	0.370
10	0.257	0.414	1.017	1.106	0.440	0.264	0.441
20	0.318	0.504	1.280	1.741	0.696	0.325	0.566
30	0.369	0.578	1.496	2.259	0.904	0.376	0.670
40	0.409	0.637	1.667	2.659	1.066	0.418	0.751
50	0.439	0.681	1.793	2.943	1.180	0.450	0.811
60	0.458	0.710	1.873	3.109	1.246	0.472	0.848
120	0.483	0.756	1.979	3.181	1.275	0.486	0.891
180	0.517	0.805	2.018	3.168	1.270	0.479	0.927

240	0.513	0.799	2.005	3.148	1.262	0.468	0.921
300	0.507	0.791	1.984	3.122	1.252	0.453	0.911
360	0.500	0.779	1.957	3.089	1.240	0.436	0.899
420	0.490	0.764	1.922	3.050	1.224	0.416	0.883
480	0.479	0.746	1.881	3.005	1.207	0.392	0.864
540	0.466	0.725	1.832	2.952	1.186	0.366	0.842
600	0.451	0.700	1.777	2.893	1.163	0.337	0.817
660	0.434	0.673	1.715	2.828	1.138	0.305	0.789
720	0.415	0.643	1.645	2.756	1.110	0.270	0.757

Pollutant Name: Carbon Dioxide Temperature: 50F Relative Humidity: ALL

Time
min LDA LDT MDT HDT UBUS MCY ALL

5	11.172	13.634	17.934	7.773	2.367	22.525	12.614
10	13.375	16.365	22.170	11.158	3.610	25.039	15.282
20	18.153	22.280	31.209	17.852	6.070	29.946	21.008
30	23.428	28.801	41.006	24.449	8.496	34.692	27.254
40	29.199	35.926	51.560	30.946	10.889	39.277	34.020
50	35.466	43.655	62.872	37.346	13.249	43.700	41.305
60	42.230	51.990	74.940	43.647	15.574	47.961	49.110
120	90.080	110.722	156.113	71.172	25.706	67.551	102.714
180	102.940	126.579	179.148	81.929	29.818	69.947	117.446
240	115.576	142.155	201.658	92.052	33.688	72.204	131.880
300	127.990	157.448	223.644	101.541	37.316	74.322	146.016
360	140.180	172.459	245.106	110.395	40.701	76.301	159.854
420	152.147	187.188	266.043	118.615	43.843	78.141	173.393
480	163.892	201.635	286.457	126.201	46.742	79.842	186.634
540	175.413	215.799	306.346	133.152	49.399	81.405	199.577
600	186.711	229.682	325.711	139.469	51.814	82.828	212.221
660	197.786	243.282	344.552	145.151	53.986	84.113	224.567
720	208.638	256.600	362.868	150.199	55.915	85.259	236.615

Pollutant Name: Sulfur Dioxide Temperature: 50F Relative Humidity: ALL

Time
min LDA LDT MDT HDT UBUS MCY ALL

600 0.011 0.021 0.018 0.007 0.003 0.025 0.015
 660 0.011 0.022 0.019 0.007 0.003 0.025 0.015
 720 0.012 0.022 0.019 0.007 0.003 0.025 0.015

Title : San Francisco Air Basin Avg Annual CYr 2011
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2010/06/30 15:37:57
 Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
 Season : Annual
 Area : San Francisco

 Year: 2011 -- Model Years 1967 to 2011 Inclusive -- Annual
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

San Francisco Basin Average Basin Average

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Methane Temperature: 50F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (al

5 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 10 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 20 0.000 0.000 0.000 0.001 0.000 0.000 0.000 0.000
 30 0.000 0.000 0.001 0.001 0.000 0.001 0.000 0.000
 40 0.000 0.000 0.001 0.001 0.000 0.001 0.000 0.000
 50 0.000 0.001 0.001 0.001 0.000 0.001 0.001 0.001
 60 0.001 0.001 0.001 0.001 0.000 0.001 0.001 0.001
 120 0.001 0.001 0.002 0.001 0.000 0.001 0.001 0.001
 180 0.001 0.001 0.002 0.001 0.000 0.001 0.001 0.001
 240 0.001 0.002 0.002 0.001 0.000 0.001 0.001 0.001
 300 0.001 0.002 0.002 0.002 0.001 0.001 0.002 0.002
 360 0.001 0.002 0.003 0.002 0.001 0.001 0.002 0.002
 420 0.002 0.002 0.003 0.002 0.001 0.001 0.002 0.002
 480 0.002 0.002 0.003 0.002 0.001 0.001 0.002 0.002
 540 0.002 0.002 0.003 0.002 0.001 0.001 0.002 0.002
 600 0.002 0.002 0.003 0.002 0.001 0.001 0.002 0.002
 660 0.002 0.003 0.004 0.002 0.001 0.001 0.002 0.002
 720 0.002 0.003 0.004 0.002 0.001 0.001 0.003 0.003

Pollutant Name: PM2.5 Temperature: 50F Relative Humidity: ALL

Pollutant Name: PM2.5 Temperature: 50F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.001	0.001	0.001	0.001	0.000	0.010	0.001
10	0.001	0.002	0.002	0.001	0.000	0.008	0.002
20	0.002	0.004	0.003	0.002	0.001	0.007	0.003
30	0.003	0.006	0.005	0.002	0.001	0.005	0.004
40	0.004	0.007	0.006	0.003	0.001	0.004	0.005
50	0.005	0.009	0.008	0.003	0.001	0.003	0.006
60	0.005	0.010	0.009	0.004	0.002	0.003	0.007
120	0.008	0.015	0.013	0.005	0.002	0.007	0.010
180	0.008	0.016	0.014	0.005	0.002	0.010	0.011
240	0.009	0.017	0.015	0.006	0.002	0.013	0.012
300	0.009	0.018	0.016	0.006	0.002	0.016	0.013
360	0.010	0.019	0.016	0.006	0.002	0.019	0.013
420	0.010	0.020	0.017	0.006	0.003	0.021	0.014
480	0.011	0.020	0.018	0.007	0.003	0.022	0.014
540	0.011	0.021	0.018	0.007	0.003	0.024	0.015

Pollutant Name: Methane Temperature: ALL Relative Humidity: ALL

Temp
degF LDA LDT MDT HDT UBUS MCY ALL

50 0.000 0.000 0.000 0.000 0.000 0.000 0.000

 Title : San Francisco Air Basin Avg Annual CYr 2011
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2010/06/30 15:37:57
 Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
 Season : Annual
 Area : San Francisco

San Francisco Basin Average Basin Average

Table 5a: Partial Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Methane Temperature: ALL Relative Humidity: ALL

Temp
degF LDA LDT MDT HDT UBUS MCY ALL

50 0.000 0.000 0.000 0.000 0.000 0.000 0.000

 Title : San Francisco Air Basin Avg Annual CYr 2011
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2010/06/30 15:37:57
 Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
 Season : Annual
 Area : San Francisco

San Francisco Basin Average Basin Average

Table 6a: Partial Day Resting Loss Emissions (grams/hour)

Pollutant Name: Methane Temperature: ALL Relative Humidity: ALL

Temp
degF LDA LDT MDT HDT UBUS MCY ALL

50 0.000 0.000 0.000 0.000 0.000 0.000 0.000

 Title : San Francisco Air Basin Avg Annual CYr 2011
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2010/06/30 15:37:57
 Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
 Season : Annual
 Area : San Francisco

San Francisco Basin Average Basin Average

Table 5b: Multi-Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Methane Temperature: ALL Relative Humidity: ALL

Temp
degF LDA LDT MDT HDT UBUS MCY ALL

50 0.000 0.000 0.000 0.000 0.000 0.000 0.000

 Title : San Francisco Air Basin Avg Annual CYr 2011
 Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2010/06/30 15:37:57
 Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
 Season : Annual
 Area : San Francisco

 Year: 2011 -- Model Years 1967 to 2011 Inclusive -- Annual
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

San Francisco Basin Average Basin Average

Table 6b: Multi-Day Resting Loss Emissions (grams/hour)

Pollutant Name: Methane Temperature: ALL Relative Humidity: ALL
 Temp degF LDA LDT MDT HDT UBUS MCY ALL
 50 0.000 0.000 0.000 0.000 0.000 0.000 0.000

LDA LDT MDT HDT UBUS MCY ALL
 % VMT 0.532 0.329 0.090 0.038 0.004 0.008 1.000
 % TRIP 0.518 0.298 0.118 0.056 0.001 0.009 1.000
 % VEH 0.551 0.319 0.078 0.021 0.001 0.031 1.000

Title : San Francisco Air Basin Avg Annual CYr 2011
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2010/06/30 15:37:57
 Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
 Season : Annual
 Area : San Francisco

 Year: 2011 -- Model Years 1967 to 2011 Inclusive -- Annual
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

San Francisco Basin Average Basin Average

Table 8: Evaporative Running Loss Emissions (grams/minute)

Pollutant Name: Methane Temperature: 50F Relative Humidity: ALL
 Time min LDA LDT MDT HDT UBUS MCY ALL
 1 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 2 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 3 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 4 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 5 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 10 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 15 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 20 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 25 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 30 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 35 0.000 0.000 0.000 0.000 0.000 0.000 0.000

Title : San Francisco Air Basin Avg Annual CYr 2011
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2010/06/30 15:37:57
 Seen Year: 2011 -- All model years in the range 1967 to 2011 selected
 Season : Annual
 Area : San Francisco

 Year: 2011 -- Model Years 1967 to 2011 Inclusive -- Annual
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

San Francisco Basin Average Basin Average

Table 7: Estimated Travel Fractions

Pollutant Name: Temperature: ALL Relative Humidity: ALL

40 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 45 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 50 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 55 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 60 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

EPA Nonroad2008 PM10 Emissions Data

HP	PM10 g/HP-hr									
	Tier 0 ^a	Tier 1	Tier 2	Tier 3	Tier 4	Tier 4 ^b	Tier 4 ^c	Tier 4 ^d	Tier 4 ^e	Tier 4 ^f
<0 to 11	1	0.4424	0.5	na	0.28	OFFROAD cert	OFFROAD cert	OFFROAD cert	OFFROAD cert	TI Blank ^h
11 to 16	11	0.2665	0.2665	na	0.28	OFFROAD cert	OFFROAD cert	OFFROAD cert	OFFROAD cert	TI Blank ^h
16 to 25	16	0.2665	0.2665	na	0.28	OFFROAD cert	OFFROAD cert	OFFROAD cert	OFFROAD cert	TI Blank ^h
25 to 50	25	0.8	0.3889	na	0.0184	OFFROAD cert	OFFROAD cert	OFFROAD cert	OFFROAD cert	TI Blank ^h
50 to 75	50	0.722	0.473	0.3	0.0092	EF data	EF data	EF data	EF data	TI Blank ^h
75 to 100	75	0.402	0.18	0.22	0.0092	EF data	EF data	EF data	EF data	TI Blank ^h
100 to 175	100	0.402	0.2399	0.15	0.0092	EF data	EF data	EF data	EF data	TI Blank ^h
175 to 300	175	0.402	0.2088	0.15	0.0092	EF data	EF data	EF data	EF data	TI Blank ^h
300 to 600	300	0.402	0.2301	0.15	0.0092	EF data	EF data	EF data	EF data	TI Blank ^h
600 to 750	600	0.402	0.1924	0.1316	na	0.0276	EF data	EF data	EF data	TI Blank ^h
>750 except gen sets	750	0.402	0.1924	0.1316	na	0.0276	EF data	EF data	EF data	TI Blank ^h
Gen sets >750 to 1200		0.402	0.1924	0.1316	na	0.0184	EF data	EF data	EF data	TI Blank ^h
Gen sets >1200		0.402	0.1924	0.1316	na	0.0184	EF data	EF data	EF data	TI Blank ^h

^a Tier 0 represents 1988- MY engines for MY's prior to Tier 1. Separate EPls are also provided for Base (pre 1988 MY) engines. For 50hp engines, Base EF = Tier 0 EF. For >50hp engines, Base EF = Tier 0 EF plus 0.0005 g/HP-hr.
^b Numbers in brackets correspond to the engine subcode, which is briefly described here. For more details regarding the options, consult the text. The derivation of the highway-based compliance margins are discussed in Appendix E.
^c For >25 to 75 hp engines, there is also a transitional Tier 4 PM standard of 0.22 g/HP-hr in 2008-2012. The corresponding PM EF in NONROAD is 0.20 g/HP-hr.
^d For all engines >750hp, there is also a transitional Tier 4 PM standard of 0.075 g/HP-hr in 2011-2014. The corresponding PM EF in NONROAD is 0.069 g/HP-hr.
^e Tier 4 emission factors are considered to be transient, rather than steady-state.
^f For 4 emission factors are considered to be transient, rather than steady-state.

**INITIAL STUDY
APPENDIX B**

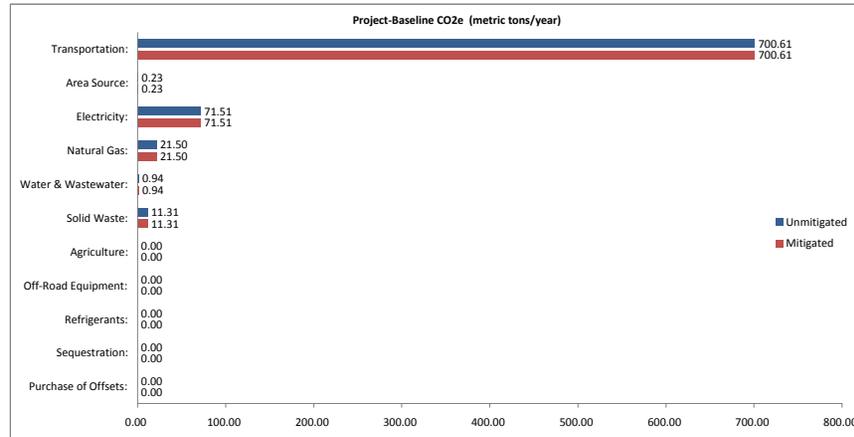
GREENHOUSE GAS EMISSIONS DATA

Summary Results

Project Name: Atherton Library
 Project and Baseline Years: 2020 N/A

Results	Unmitigated Project-Baseline CO2e (metric tons/year)	Mitigated Project-Baseline CO2e (metric tons/year)
Transportation:	700.61	700.61
Area Source:	0.23	0.23
Electricity:	71.51	71.51
Natural Gas:	21.50	21.50
Water & Wastewater:	0.94	0.94
Solid Waste:	11.31	11.31
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	806.09	806.09

Baseline is currently: **OFF**
 Baseline Project Name:
 Go to Settings Tab to Turn On Baseline



Detailed Results

Unmitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				700.61	86.91%
Area Source:	0.23	0.00	0.00	0.23	0.03%
Electricity:	71.39	0.00	0.00	71.51	8.87%
Natural Gas:	21.44	0.00	0.00	21.50	2.67%
Water & Wastewater:	0.94	0.00	0.00	0.94	0.12%
Solid Waste:	0.08	0.53	N/A	11.31	1.40%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				806.09	100.00%

Baseline	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				0.00	N/A
Area Source:	0.00	0.00	0.00	0.00	N/A
Electricity:	0.00	0.00	0.00	0.00	N/A
Natural Gas:	0.00	0.00	0.00	0.00	N/A
Water & Wastewater:	0.00	0.00	0.00	0.00	N/A
Solid Waste:	0.00	0.00	N/A	0.00	N/A
Agriculture:	0.00	0.00	0.00	0.00	N/A
Off-Road Equipment:	0.00	0.00	0.00	0.00	N/A
Refrigerants:	N/A	N/A	N/A	0.00	N/A
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				0.00	0.00%

* Several adjustments were made to transportation emissions after they have been imported from URBEMIS. After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley" regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs (CH4, N2O, and HFCs [from leaking air conditioners]). Finally, CO2e is adjusted to account for the low carbon fuels rule.

Transportation

Baseline is Currently: OFF

Unmitigated Transportation	Target Year:		Project-Baseline
	2020	2011	
	Project	Baseline	
Operational Emissions from URBEMIS (CO2 tons/year)	925.81	0.00	
Metric Ton Adjustment (CO2 metric tons/year)	840.12	0.00	
Pavley Regulation Adjustment (CO2 metric tons/year)	717.22	0.00	
US EPA Adjustment (CO2e metric tons/year)	754.96	0.00	
Low Carbon Fuels Rule Adjustment (CO2e metric tons/year)	700.61	0.00	
Total (CO2e metric tons/year):			700.61

Mitigated Transportation	Target Year:		Project-Baseline
	2020	2011	
	Project	Baseline	
Operational Vehicles from URBEMIS (CO2 tons/year):	925.81	0.00	
Metric Ton Adjustment (CO2 metric tons/year):	840.12	0.00	
Pavley Regulation Adjustment (CO2 metric tons/year):	717.22	0.00	
US EPA Adjustment (CO2e metric tons/year):	754.96	0.00	
Low Carbon Fuels Adjustment (CO2e metric tons/year):	700.61	0.00	
Total (CO2e metric tons/year):			700.61

The BGM User's Manual describes in detail each step used to convert URBEMIS's transportation CO2 emissions to total CO2e. These steps include converting from English to Metric units, adjusting for the Pavley Rule, converting CO2 to CO2e, and adjusting for the Low Carbon Fuels Rule.

Reference

U.S. EPA assumption that GHG emissions from other pollutants - CH4, N2O, and hydrofluorocarbons (HFCs) from leaking air conditioners account for 5 percent of emissions from vehicles, after accounting for global warming potential of each GHG.

Jump to the Following Transportation Related Tabs:

[Transportation Detail for Operational Mitigation](#)
[Land Use Detail](#)

Area Source

Baseline is currently: OFF

Unmitigated Area Source			Project-Baseline
	Project	Baseline	
Landscaping Emissions from URBEMIS (CO2 metric tons/year):	0.227	0.000	
Hearth Emissions from URBEMIS (CO2 metric tons/year):	0.000	0.000	
Wood Burning Fireplaces (N2O metric tons/year):	0.000	0.000	
Natural Gas Fireplaces (N2O metric tons/year):	0.000	0.000	
Wood Burning Stoves (CH4 metric tons/year):	0.000	0.000	
Natural Gas Fireplaces (CH4 metric tons/year):	0.000	0.000	
Total (CO2e metric tons/year):	0.227	0.000	
Total (CO2e metric tons/year):			0.227

Mitigated Area Source			Project-Baseline
	Project	Baseline	
Landscaping Emissions from URBEMIS (CO2 metric tons/year):	0.227	0.000	
Hearth Emissions from URBEMIS (CO2 metric tons/year):	0.000	0.000	
Wood Burning Fireplaces (N2O metric tons/year):	0.000	0.000	
Natural Gas Fireplaces (N2O metric tons/year):	0.000	0.000	
Wood Burning Stoves (CH4 metric tons/year):	0.000	0.000	
Natural Gas Fireplaces (CH4 metric tons/year):	0.000	0.000	
Total (CO2e metric tons/year):	0.227	0.000	
Total (CO2e metric tons/year):			0.227

The URBEMIS area source calculations include five separate categories: 1) natural gas fuel combustion, 2) hearth fuel combustion, 3) landscape maintenance equipment, 4) consumer products, and 5) architectural coatings. This Area Source tab imports CO2 emissions calculated by URBEMIS for hearths and landscape maintenance equipment only. BGM then calculates N2O and CH4 emissions for woodstoves and fireplaces and uses the resulting emissions to calculate CO2e. The consumer products and architectural coatings categories within URBEMIS do not generate GHG emissions and, consequently, are not used by BGM. Also, URBEMIS' estimate of CO2 from natural gas fuel combustion is not used by BGM. Instead, BGM calculates natural gas use and the resulting CO2 emissions in the Electricity and Natural Gas tab.

Electricity and Natural Gas

Baseline is currently: OFF

Unmitigated Electricity			
	Project	Baseline	Project-Baseline
CO2 metric tons/year CO2:	71.394	0.000	
CH4 metric tons/year CH4:	0.001	0.000	
N2O metric tons/year:	0.000	0.000	
CO2e metric tons/year:	71.509	0.000	
CO2e metric tons/year:			71.51

Unmitigated Natural Gas			
	Project	Baseline	Project-Baseline
CO2 metric tons/year:	21.44	0.000	
CH4 metric tons/year:	0.00	0.000	
N2O metric tons/year:	0.00	0.000	
CO2e metric tons/year:	21.50	0.000	
CO2e metric tons/year:			21.50

Mitigated Electricity			
	Project	Baseline	Project-Baseline
CO2 metric tons/year CO2:	71.394	0.000	
CH4 metric tons/year CH4:	0.001	0.000	
N2O metric tons/year:	0.000	0.000	
CO2e metric tons/year:	71.509	0.000	
CO2e metric tons/year:			71.51

Mitigated Natural Gas			
	Project	Baseline	Project-Baseline
CO2 metric tons/year:	21.441	0.000	
CH4 metric tons/year:	0.002	0.000	
N2O metric tons/year:	0.000	0.000	
CO2e metric tons/year:	21.495	0.000	
CO2e metric tons/year:			21.50

Project Climate Zone Location: Zone 4 Zone 5

*** Select Mitigation Measures on the Mitigation Tab ==>

[Mitigation](#)

Clear All User Overrides

Water and Wastewater

Baseline is currently: OFF

Unmitigated Water and Wastewater			
	Project	Baseline	Project-Baseline
CO2 metric tons/year:	0.9390	0.0000	
CH4 metric tons/year:	0.0000	0.0000	
N2O metric tons/year:	0.0000	0.0000	
CO2e metric tons/year:	0.9405	0.0000	
CO2e metric tons/year:			0.94

Mitigated Water and Wastewater			
	Project	Baseline	Project-Baseline
CO2 metric tons/year:	0.9390	0.0000	
CH4 metric tons/year:	0.0000	0.0000	
N2O metric tons/year:	0.0000	0.0000	
CO2e metric tons/year:	0.9405	0.0000	
CO2e metric tons/year:			0.94

*** Select Mitigation Measures on the Mitigation Tab ==> [Mitigation](#)

Clear All User Overrides

	User Override of Model Estimates (af/yr)	Model Estimate (af/yr)	Total Gallons/year	Indoor Gallons/Year	Outdoor Gallons/year	Mitigated Indoor Gallons/Year	Mitigated Outdoor Gallons/year	Total Mitigated kwh/year
Baseline Water Demand		0.00	0	0.00	0.00	0.00	0.00	
Project Water Demand		1.68	549,003	340,571.45	208,432.00	340,571.45	208,432.00	
Net Increase in Water Demand		1.68	549,003	340,571.45	208,432.00	340,571.45	208,432.00	
						1842.83	729.51	2,572.34

Household Size	
Single Family	Multi-family
2.94	2.65

Land Use Type	Square feet per employee
1 Warehouse	1,700.00
2 Public Assembly	1,300.00
3 Lodging	1,300.00
4 Food Sales	1,000.00
5 Retail and Service	900.00
6 Education	766.00
7 Public Order and Safety	750.00
8 Food Service	600.00
9 Other	550.00
10 Health Care	500.00
11 Office	400.00

Energy Information Administration Special Topics 1995 Building Activities Other, Square feet per employee. http://www.eia.doe.gov/emeu/consumptionbriefs/cbecs/pbawebbsite/office/office_howmanyempl.html

Solid Waste

Baseline is currently: OFF

Unmitigated Solid Waste			
	Project	Baseline	Project - Baseline
Truck Haul CO2 (metric tons/year):	0.08	0.00	
Truck Haul CH4 (metric tons/year):	0.0000	0.0000	
Truck Haul CO2e (metric tons/year):	0.08	0.00	
Landfill Offgasing (CO2e metric tons/year):	11.23	0.00	
Total Solid Waste (CO2e metric tons/year):	11.31	0.00	
Total Solid Waste (CO2e metric tons/year):			11.31

Mitigated Solid Waste			
	Project	Baseline	Project - Baseline
Truck Haul CO2 (metric tons/year):	0.08	0.00	
Truck Haul CH4 (metric tons/year):	0.0000	0.0000	
Truck Haul CO2e (metric tons/year):	0.08	0.00	
Landfill Offgasing (CO2e metric tons/year):	11.23	0.00	
Total Solid Waste (CO2e metric tons/year):	11.31	0.00	
Total Solid Waste (CO2e metric tons/year):			11.31

*** Select Mitigation Measures on the Mitigation Tab ==>

[Mitigation](#)

Project Landfill disposal option:

Select 1 of 3 options

Landfilling only
 Landfilling with Flaring to Burn Methane
 Landfilling with Energy Recovery

Clear All User Overrides

Baseline Landfill disposal option:

Select 1 of 3 options

Landfilling only
 Landfilling with Flaring to Burn Methane
 Landfilling with Energy Recovery

**INITIAL STUDY
APPENDIX C**

NOISE DATA

TABLE Existing-01
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
 ROADWAY SEGMENT: Dinkelspiel Station Lane - Fair Oaks Lane to Watkins Avenue
 NOTES: Atherton Library - Existing

** ASSUMPTIONS **

AVERAGE DAILY TRAFFIC: 500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	NIGHT
---	----
AUTOS	88.08
M-TRUCKS	9.34
H-TRUCKS	0.19
	0.66
	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

** CALCULATED NOISE LEVELS **

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 49.15

DISTANCE (FEET)	FROM ROADWAY CENTERLINE TO Ldn
70 Ldn	60 Ldn
---	----
65 Ldn	55 Ldn
---	----
0.0	0.0
	0.0

TABLE Existing-02
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
 ROADWAY SEGMENT: Watkins Avenue - El Camino Real to Dinkelspiel Station Lane
 NOTES: Atherton Library - Existing

** ASSUMPTIONS **

AVERAGE DAILY TRAFFIC: 1700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	NIGHT
---	----
AUTOS	88.08
M-TRUCKS	9.34
H-TRUCKS	1.65
	0.19
	0.66
	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

** CALCULATED NOISE LEVELS **

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.46

DISTANCE (FEET)	FROM ROADWAY CENTERLINE TO Ldn
70 Ldn	60 Ldn
---	----
65 Ldn	55 Ldn
---	----
0.0	0.0
	0.0
	51.6

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - Dinkelspiel Station Lane to Palmer Park Entrance
NOTES: Atherton Library - Existing

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 2000 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY ---
NIGHT -----
AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.17
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn -----
65 Ldn -----
60 Ldn -----
55 Ldn -----
0.0 0.0 57.4

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - Palmer Park Entrance to Palmer Park Exit
NOTES: Atherton Library - Existing

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 2000 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY ---
NIGHT -----
AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.17
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn -----
65 Ldn -----
60 Ldn -----
55 Ldn -----
0.0 0.0 57.4

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - Palmer Park Exit to Middlefield Road
NOTES: Atherton Library - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	NIGHT
---	----
AUTOS	88.08 9.34
M-TRUCKS	1.65 0.19
H-TRUCKS	0.66 0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn
65 Ldn
60 Ldn
55 Ldn

0.0
0.0
0.0
57.4

TABLE Existing-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Middlefield Road - Marsh Road to Watkins Avenue
NOTES: Atherton Library - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	NIGHT
---	----
AUTOS	88.08 9.34
M-TRUCKS	1.65 0.19
H-TRUCKS	0.66 0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn
65 Ldn
60 Ldn
55 Ldn

0.0
55.2
113.8
242.8

TABLE Existing-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Middlefield Road - Watkins Avenue to James Avenue
NOTES: Atherton Library - Existing

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 17600 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY NIGHT
--- ---
AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.54
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 65 Ldn 60 Ldn 55 Ldn

0.0 55.4 114.2 243.7

TABLE Existing Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Dinkelspiel Station Lane - Fair Oaks Lane to Watkins Avenue
NOTES: Atherton Library - Existing Plus Project

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 400 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY NIGHT
--- ---
AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 48.18
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 65 Ldn 60 Ldn 55 Ldn

0.0 0.0 0.0 0.0

TABLE Existing Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - El Camino Real to Dinkelspiel Station Lane
NOTES: Atherton Library - Existing Plus Project

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 2300 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY NIGHT
--- ---
AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT) : 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.77
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 65 Ldn 60 Ldn 55 Ldn

0.0 0.0 0.0 63.0

TABLE Existing Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Dinkelspiel Station Lane to Palmer Park Entrance
NOTES: Atherton Library - Existing Plus Project

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 2500 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY NIGHT
--- ---
AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT) : 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.14
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 65 Ldn 60 Ldn 55 Ldn

0.0 0.0 0.0 66.5

TABLE Existing Plus Project-04
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
 ROADWAY SEGMENT: Watkins Avenue - Palmer Park Entrance to Palmer Park Exit
 NOTES: Atherton Library - Existing Plus Project

** ASSUMPTIONS **

AVERAGE DAILY TRAFFIC: 2500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	---	NIGHT	----
AUTOS	88.08	9.34	
M-TRUCKS	1.65	0.19	
H-TRUCKS	0.66	0.08	

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

** CALCULATED NOISE LEVELS **

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn	---	---	---
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	66.5

TABLE Existing Plus Project-05
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
 ROADWAY SEGMENT: Watkins Avenue - Palmer Park Exit to Middlefield Road
 NOTES: Atherton Library - Existing Plus Project

** ASSUMPTIONS **

AVERAGE DAILY TRAFFIC: 2600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	---	NIGHT	----
AUTOS	88.08	9.34	
M-TRUCKS	1.65	0.19	
H-TRUCKS	0.66	0.08	

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

** CALCULATED NOISE LEVELS **

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn	---	---	---
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	68.3

TABLE Existing Plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Middlefield Road - Marsh Road to Watkins Avenue
NOTES: Atherton Library - Existing Plus Project

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 17700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY NIGHT

AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 65 Ldn 60 Ldn 55 Ldn

0.0 55.6 114.7 244.6

TABLE Existing Plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Middlefield Road - Watkins Avenue to James Avenue
NOTES: Atherton Library - Existing Plus Project

*** ASSUMPTIONS ***

AVERAGE DAILY TRAFFIC: 18100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY NIGHT

AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 65 Ldn 60 Ldn 55 Ldn

0.0 56.3 116.3 248.2

TABLE Cumulative-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Dinkelspiel Station Lane - Fair Oaks Lane to Watkins Avenue
NOTES: Atherton Library - Cumulative

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 500 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY NIGHT

AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 49.15
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 60 Ldn 55 Ldn

0.0 0.0 0.0

TABLE Cumulative-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - El Camino Real to Dinkelspiel Station Lane
NOTES: Atherton Library - Cumulative

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 1700 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY NIGHT

AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.46
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 60 Ldn 55 Ldn

0.0 0.0 0.0

TABLE Cumulative-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Dinkelspiel Station Lane to Palmer Park Entrance
Watkins Avenue - Cumulative
NOTES: Atherton Library - Cumulative

*** ASSUMPTIONS ***
AVERAGE DAILY TRAFFIC: 2000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	NIGHT
---	-----
AUTOS	88.08 9.34
M-TRUCKS	1.65 0.19
H-TRUCKS	0.66 0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn	70 Ldn	65 Ldn	60 Ldn	55 Ldn
---	-----	-----	-----	-----
0.0	0.0	0.0	0.0	57.4

TABLE Cumulative-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - Palmer Park Entrance to Palmer Park Exit
NOTES: Atherton Library - Cumulative

*** ASSUMPTIONS ***

AVERAGE DAILY TRAFFIC: 2000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	NIGHT
---	-----
AUTOS	88.08 9.34
M-TRUCKS	1.65 0.19
H-TRUCKS	0.66 0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn	70 Ldn	65 Ldn	60 Ldn	55 Ldn
---	-----	-----	-----	-----
0.0	0.0	0.0	0.0	57.4

TABLE Cumulative-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - Palmer Park Exit to Middlefield Road
NOTES: Atherton Library - Cumulative

** ASSUMPTIONS **

AVERAGE DAILY TRAFFIC: 2000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY NIGHT

--- ---

AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

** CALCULATED NOISE LEVELS **

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 60 Ldn 55 Ldn

0.0 0.0 57.4

TABLE Cumulative-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Middlefield Road - Marsh Road to Watkins Avenue
NOTES: Atherton Library - Cumulative

** ASSUMPTIONS **

AVERAGE DAILY TRAFFIC: 20500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY NIGHT

--- ---

AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

** CALCULATED NOISE LEVELS **

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 60 Ldn 55 Ldn

0.0 60.7 126.2 269.6

TABLE Cumulative-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Middlefield Road - Watkins Avenue to James Avenue
NOTES: Atherton Library - Cumulative

* * * ASSUMPTIONS * * *
AVERAGE DAILY TRAFFIC: 20500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * * CALCULATED NOISE LEVELS * * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn	70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	60.7	126.2	269.6	

TABLE Cumulative + Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Dinkelspiel Station Lane - Fair Oaks Lane to Watkins Avenue
NOTES: Atherton Library - Cumulative + Project

* * * ASSUMPTIONS * * *

AVERAGE DAILY TRAFFIC: 400 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

DAY	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * * CALCULATED NOISE LEVELS * * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 48.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn	70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0	0.0

TABLE Cumulative + Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - El Camino Real to Dinkelspiel Station Lane
NOTES: Atherton Library - Cumulative + Project

* * ASSUMPTIONS * *
AVERAGE DAILY TRAFFIC: 2300 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY NIGHT

AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT) : 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.77
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 65 Ldn 60 Ldn 55 Ldn

0.0 0.0 0.0 63.0

TABLE Cumulative + Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
ROADWAY SEGMENT: Watkins Avenue - Dinkelspiel Station Lane to Palmer Park Entrance
NOTES: Atherton Library - Cumulative + Project

* * ASSUMPTIONS * *
AVERAGE DAILY TRAFFIC: 2500 SPEED (MPH): 30 GRADE: .5
TRAFFIC DISTRIBUTION PERCENTAGES
DAY NIGHT

AUTOS 88.08 9.34
M-TRUCKS 1.65 0.19
H-TRUCKS 0.66 0.08
ACTIVE HALF-WIDTH (FT) : 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *
Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.14
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
70 Ldn 65 Ldn 60 Ldn 55 Ldn

0.0 0.0 0.0 66.5

TABLE Cumulative + Project-04
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
 ROADWAY SEGMENT: Watkins Avenue - Palmer Park Entrance to Palmer Park Exit
 NOTES: Atherton Library - Cumulative + Project

*** ASSUMPTIONS ***
 AVERAGE DAILY TRAFFIC: 2500 SPEED (MPH): 30 GRADE: .5
 TRAFFIC DISTRIBUTION PERCENTAGES
 DAY NIGHT

 AUTOS 88.08 9.34
 M-TRUCKS 1.65 0.19
 H-TRUCKS 0.66 0.08
 ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
 Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.14
 DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
 70 Ldn 65 Ldn 60 Ldn 55 Ldn

 0.0 0.0 0.0 66.5

TABLE Cumulative + Project-05
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
 ROADWAY SEGMENT: Watkins Avenue - Palmer Park Exit to Middlefield Road
 NOTES: Atherton Library - Cumulative + Project

*** ASSUMPTIONS ***
 AVERAGE DAILY TRAFFIC: 2600 SPEED (MPH): 30 GRADE: .5
 TRAFFIC DISTRIBUTION PERCENTAGES
 DAY NIGHT

 AUTOS 88.08 9.34
 M-TRUCKS 1.65 0.19
 H-TRUCKS 0.66 0.08
 ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
 Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.31
 DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
 70 Ldn 65 Ldn 60 Ldn 55 Ldn

 0.0 0.0 0.0 68.3

TABLE Cumulative + Project-06
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
 ROADWAY SEGMENT: Middlefield Road - Marsh Road to Watkins Avenue
 NOTES: Atherton Library - Cumulative + Project

*** ASSUMPTIONS ***
 AVERAGE DAILY TRAFFIC: 20700 SPEED (MPH): 30 GRADE: .5
 TRAFFIC DISTRIBUTION PERCENTAGES
 DAY NIGHT
 --- -
 AUTOS 88.08 9.34
 M-TRUCKS 1.65 0.19
 H-TRUCKS 0.66 0.08
 ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
 Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.24
 DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
 70 Ldn 60 Ldn 55 Ldn
 --- -
 0.0 61.1 127.0 271.4

TABLE Cumulative + Project-07
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 02/07/2012
 ROADWAY SEGMENT: Middlefield Road - Watkins Avenue to James Avenue
 NOTES: Atherton Library - Cumulative + Project

*** ASSUMPTIONS ***
 AVERAGE DAILY TRAFFIC: 21100 SPEED (MPH): 30 GRADE: .5
 TRAFFIC DISTRIBUTION PERCENTAGES
 DAY NIGHT
 --- -
 AUTOS 88.08 9.34
 M-TRUCKS 1.65 0.19
 H-TRUCKS 0.66 0.08
 ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

*** CALCULATED NOISE LEVELS ***
 Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.33
 DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn
 70 Ldn 60 Ldn 55 Ldn
 --- -
 0.0 61.8 128.6 274.8