Appendix A

Notice of Preparation (NOP) and Responses to the NOP

Notice of Preparation

TO:	State Clearinghouse, San Mateo County	FROM:	County of San Mateo
	Clerk, and All Interested Parties		Parks Department
			455 County Center – Fourth Floor
			Redwood City, CA 94063

Subject: **Notice of Preparation of a Draft Environmental Impact Report**

The County of San Mateo is the Lead Agency requesting input for the preparation of an Environmental Impact Report (EIR) for the proposed Flood County Park Landscape Plan, a project pursuant to the California Environmental Quality Act (CEQA). The purpose of this notice of preparation is to solicit input on the scope and content of the draft EIR for the proposed project, pursuant to *CEQA Guidelines* Section 15082.

Project Title: Flood County Park Landscape Plan

Project Applicant: County of San Mateo Parks Department

Project Location: The project site consists of the 24.5-acre Flood County Park, located at 215 Bay Road in the City of Menlo Park in San Mateo County. This neighborhood park includes two County-owned parcels totaling 21.3 acres and two linear parcels owned by the City & County of San Francisco as part of its right-of-way for the Hetch Hetchy regional water distribution system. These linear parcels cut through the center of Flood County Park, on an east-west axis. The Town of Atherton is located adjacent to and southwest of the park, across Bay Road, and San Francisco is about 20 miles to the northwest.

Project Description: The proposed project consists of a Landscape Plan for the long-term redevelopment of San Mateo County's Flood County Park. On April 7, 2016, the County Parks and Recreation Commission voted to approve this plan as the Draft Preferred Alternative for improving Flood County Park. The Landscape Plan evolved through a series of community outreach efforts designed to identify community values, preferred uses, and site layout preferences.

It is anticipated that implementation of the Landscape Plan would occur in three phases: Phase I, Phase II), and Phase III. The Phase I improvements are expected to be completed in approximately the first two years. Table 1 lists the proposed recreational facilities in the Landscape Plan and their anticipated phasing:

Table 1
Proposed Recreational Facilities and Phasing

Phase	Improvements
Phase I	Baseball field replacement and bathroom
	Soccer/lacrosse field
	Two tennis courts
	Sand volleyball court replacement
	Basketball court
	Pump track
	Asphalt paths
	Adobe bathroom renovation
	Tree-lined promenade
	Drop off at playground area
	New utilities: water, electric, gas, greywater piping[1]
Phase II	Restrooms
	Demonstration gardens
	Playground replacement
	Individual picnic area renovations
	Gathering meadow (performance space)
Phase III	Conversion of adobe administrative building to open-air shade/market structure[2]
	Group picnic area renovations with shade shelters
	Completion of all pathways with exercise stations
	Gathering plazas
	Focal element (may incorporate existing water pump feature)

1. Purple piping may be installed for the future use of greywater.
2. The adobe administrative building is seismically unsafe as an enclosed, inhabited building, but would be partially preserved as an open-air market structure.

The largest recreational facilities would be sited in the northern portion of the park, where the existing ballfield would be reconstructed and the soccer/lacrosse field would be installed at the northeast corner, replacing the existing pétanque court and a portion of the existing tennis courts. The proposed athletic field improvements (i.e., a reconstructed ballfield and new soccer/lacrosse field) would increase use of the park relative to existing conditions. It is anticipated that organized activities at the athletic fields would occur no earlier than 9 a.m. and no later than 8 p.m. No additional lighting that would enable nighttime use of athletic facilities is proposed as part of the Landscape Plan, although path lights that could be manually turned on and off for special events may be installed.

Probable Environmental Effects: The County has determined that an EIR will be prepared for the proposed project. Based on a preliminary assessment of the project, the probable environmental impacts that will be analyzed as part of the EIR are in the issue areas of aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, and transportation/traffic.

Pursuant to *CEQA Guidelines* Section 15082(b), your comments regarding the scope and content of the environmental analysis must be submitted no later than 30 days after receipt of this notice. The public review period is from November 17, 2016, until December 16, 2016. Please send your comments no later than December 16 directly to:

Sam Herzberg, AICP, Senior Planner
County of San Mateo Parks Department
455 County Center – Fourth Floor
Redwood City, CA 94063

Fax: (650) 599-1721
Email: sherzberg@smcgov.org

The County will also hold a public scoping meeting at 7 p.m. on December 6th, 2016, in the Cypress Room of the Arrillaga Family Recreation Center, 700 Alma Street, Menlo Park, CA 94025. The meeting will provide an opportunity to disseminate information, identify issues, and discuss the scope of environmental review and alternatives to be included in the EIR. For more project information, contact Sam Herzberg, AICP, Senior Planner, at (650) 363-1823 or sherzberg@smcgov.org

Date 11/8/16

Signature

Title Senior Planner, AICP, Parks Department

Telephone (650) 363-1823

From: Alice Newton <alicenewton62@hotmail.com>
Sent: Thursday, August 4, 2016 12:19 PM
To: parkscommission@smcgov.org
Cc: wslocum@smcgov.org; itorres@smcgov.org
Subject: Neighbors' concerns regarding some aspects of the Preferred Plan for Flood Park

August 4, 2016

From: Neighbors of Flood Park

Subject: Concerns regarding some aspects of the Preferred Plan for Flood Park

To San Mateo County Parks Commissioners:

- Marico C. Enriques, Chair
- Barbara Bonilla
- Neil Merrilees
- Medo O. Okelo, Vice Chair
- Michael J. Cooney
- Kevin Huo, Youth Commissioner

Copies sent to Warren Slocum, County Supervisor, and Irving Torres, Legislative Aide to Warren Slocum

Dear Commissioners:

We, residents of the Flood Triangle neighborhood of Menlo Park, are writing to you at this time to reiterate and clarify our concerns about certain aspects of the "Preferred Plan" for Flood Park as presented by the SM County Parks Department and approved in concept at the April 7, 2016 meeting. We believe that the locations of the full-size lacrosse/soccer field, new volleyball courts, and new trail 30 feet or closer to backyards on Del Norte Avenue and Iris Lane will negatively impact the quality of life in our neighborhood and should be located further within the park. Noise from shouting and referee's whistles at ballgames can carry several blocks and most local ball fields are not located this close to back yards. The fields in the Plan will likely be used daily year round including all day Saturdays and Sundays. The afternoon breezes usually blow from west to east, i.e. from the park toward our neighborhood carrying sounds. Common mitigation techniques such as bushes will likely not protect our neighborhood sufficiently from noise. Also, locating the lacrosse/soccer field at the far end of the parking lot will be very inconvenient for dropping off players resulting in our neighborhood pedestrian gate at the corner of the park becoming a drop-off/pick-up place which would create daily traffic, parking, and safety issues on our streets. The gate would have to be locked which would deprive neighbors who walk the easy access they appreciate. We have been advised that the locations of these noisy sports immediately behind our yards will likely lower our property values.

There are 23 homes on Del Norte Ave., and residents of 22 of these homes (96%) object to the placement of the new full-size lacrosse/soccer field so close to their properties. Immediately bordering the park are 17 homes on Del Norte Ave. and Iris Lane plus one on Bay Road and only one of these is supportive of the current plan. There are 12 homes on Iris Lane and all neighbors reached, (8 out of 12 contacted) are also concerned with noise, parking, traffic, and safety on our streets with the plan as proposed. The majority of these homes are owner occupied and many owners have lived here several decades. At the April 7th meeting, there were 18 letters from neighbors about these concerns in your packet and 3 additional letters that were not included which we requested be added. Also included was a list of 38 names from 30 homes on our streets and nearby that share the above concerns about the new plan. Many of these people spoke about these concerns at the April 7th meeting. Several letters also were submitted from concerned neighbors on adjoining streets. Nettie Wjsman reported these neighborhood statistics when she spoke at your 4/7/16 meeting, but they were not included in the minutes of that meeting.

We want to describe for you the 2015-2016 process of the "Re-Imagining Flood Park" project as we experienced it. The San Mateo County Parks Department hosted two meetings in May/June 2015 getting ideas and feedback from local communities and one in September at which three designs based on input from the May/June meetings were presented and voted on. On December 9th and 16th, with very short notice to the communities, (email notices sent on 12/3), a new "Preferred Plan" was presented that was quite different than those voted on in September. One of the main changes was that it included a full-size lacrosse/soccer field that was just 30 ft. from the back yards of homes on Del Norte and Iris Lane. This new plan was not on the Parks Department website prior to the meetings in December. Following the September meeting, the Parks Department website had indicated that there would be another place to comment on line before the final plan would be submitted for approval. Many people were following this project online and could not attend the meetings, yet after the December meetings, there was no way to comment online. Consequently, what followed was a flurry of concerned emails in December and January from our neighbors to the Parks Department staff. The Parks Department had planned to present a final plan to you, the Commissioners on February 4, 2016. However, they postponed the presentation after receiving so many questions and concerns from our neighborhood.

At the community meeting in September (just one meeting held) people were asked to vote on 3 plans, stated to have been created from “hundreds” of online surveys (220) and people attending the meetings in May and June (150). Votes by raised hands were tallied at the meeting thus:

Central Park - 37 votes (this plan contained a youth soccer field as well as the existing ball field)

Arts and Culture - 13 votes (existing ball field only)

Natural - 21 votes (existing ball field only)

The total votes for the 2 plans without the soccer field was 34 votes, just 3 less than the 37 for the Central Park plan containing the youth soccer field. Also of note is that soccer was listed as a medium priority in the September presentation per the surveys, and lacrosse was not on the list at all. In December, these 2 sports fields were suddenly described as high priority desires.

Still hoping that the Parks Dept. would present a revised design to the Parks Commissioners on April 7th and wanting to have a voice in the process, a few of us neighbors invited the Parks Dept. staff to walk through the park together and discuss various options for relocating the fields, volleyball courts, and new trail. The response to this was an invitation from the Parks Dept. to the whole neighborhood to have a walk-through on March 19th. Despite short notice again, (notices for this meeting show a postmark date of 3/10, but arrived in mail boxes around 3/16), there were 40+ neighbors attending the meeting, many of whom were very unhappy with the "Preferred Plan." At this vociferous meeting, Marlene Finley, Parks Department Director, finally said, "We got it." with regard to placing noisy activities near neighbors. However, they presented the same "Preferred Plan" at the 4/7 Parks Commissioners' Meeting where it was approved in concept, and an EIR planned.

Needless to say, this is frustrating to the neighbors on Del Norte Avenue, Iris Lane, and nearby streets who want the new amenities to benefit the general public without having negative impacts on our neighborhood. We believe there are other possible locations for the sports fields that should be considered, possibly a multipurpose field within the existing ball field, as well as other locations where a youth soccer field could be built with minimal loss of trees.* Perhaps the Flood School property could be annexed and used for the lacrosse/soccer field.The community expressed the importance of preserving trees at the Sept. 1st meeting, yet the current location proposed for the full-size lacrosse/soccer field would require cutting down a grove of redwood trees in the northeastern corner designed by former Flood Park Ranger Pam Noyer to buffer the neighbors from freeway noise. Keeping the volleyball courts and eastern trail farther within the park (such as where they are now) should be relatively easy to do. We believe these things can be and must be accomplished to fulfill new desires while respecting the needs of neighbors of the park and preserving the natural character that makes Flood Park unique and important in this urban environment.

Since the new Assistant Director of the Parks Dept., Sarah Birkeland, began working on April 18th, we wanted to meet her and describe our concerns so we invited her to meet with a few of us in the park. She and Carla Schoof met with three of us at Flood Park on May 16th. We discussed the problems we neighbors anticipate with the above aspects of the Preferred Plan and considered alternative suggestions.* We neighbors requested that 1 or 2 public meetings (preferably 2) be held for information and feedback after the draft EIR is available with ample advance notice of the dates. It is our understanding per Park Rules that meeting notices should be posted at least 2 weeks in advance of meetings. This did not occur for the December or March meetings. At least a 45 day period for public feedback is desirable after completion of the EIR. If the Parks Dept. should organize a task force of interested community groups to help with plans for the park, our neighborhood group would like to participate. Apparently, such a task force had been considered, but not activated. Many of us have lived next to (or near) the park for several decades. We cherish Flood Park and it's role in enhancing life in our communities, and we want to continue to be actively involved as plans for it evolve.

We urge you to support reconsideration of the “Preferred Plan" design.

* Suggested alternative locations for the full-size lacrosse/soccer field measured by neighbor Nettie Wijsman are attached.

Respectfully,

Nettie Wijsman, 1037 Del Norte Ave.
Alice Newton, 1023 Del Norte Ave.
Danny Meehan 1023 Del Norte Ave.
Whitney Thwaite 1059 Del Norte Ave.
Joan Caldwell 1063 Del Norte Ave.
Joan Hilse 1073 Del Norte Ave.
Doug Bui, 319 Oakwood Place
Bill Lampkin 1155 Tehama Ave.

From: Alice Newton [mailto:alicenewton62@hotmail.com]
Sent: Friday, December 16, 2016 9:29 AM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Subject: Thoughts regarding the EIR of the new design of Flood Park

Hello Mr. Herzberg:

I appreciated your interest in the concerns of neighbors of Flood Park in our break-out group at the scoping meeting on Dec. 6th. Most of the neighbors of the Flood Triangle area living immediately adjacent to the park on Del Norte Ave. Iris Lane, or Bay Road are homeowners and many have lived here for several decades or more. We have lived here almost 30 years and have known many of them this long. Together, we have enjoyed the beauty of our tree-lined streets, the natural environment of Flood Park, and years of neighborhood friendships. We have also experienced cut-through traffic, speeders, and street parking over the years. Occasionally there is a noisy activity in the park.

Regarding noise impacts:

What will be the impact of noise from increased park activities on the adjacent neighborhoods? - Our property is adjacent to the eastern park fence. Occasionally we hear happy shouts from party people in or near the Redwood picnic area. This is rarely a problem. However, if **the lacrosse/soccer field** is located near the east fence we anticipate hearing loud shouting and loud whistles possibly every day of the week. This would be a miserable situation for the neighbors near that side of the park. **Swapping locations of the baseball field and lacrosse/soccer field** would help lessen the noise reaching our properties since noise from shouting and whistles is fairly continuous in soccer, but is sporadic in baseball. Drop-offs and pick-ups of soccer players by the parking lot would be easier and safer.

The **new location of the volleyball courts close to the east fence** will be very noisy for nearby properties as well. Please leave them where they are currently or find a location in the interior of the park. **What will be the impact on current regular volleyball players of decreasing the number of courts from 4 to 2?**

The new trail design along the east fence is too close to yards. We already get noise, dust, and weed seeds regularly when the existing trail within the park is blown. Having this closer would be worse. **Please move the exercise station farther from backyards too.** Also, that southeastern corner of the park is a natural area of large redwood trees where people come for peace and quiet – a less developed part of the park. A quiet church group meets there on Sundays during good weather. **The new trail design appears to go right through this now more secluded area. Also, installing a new paved trail there could disturb the shallow interconnected roots of these old redwood trees.**

Regarding traffic impacts:

What will be the impact on traffic on Bay Road? Will accessibility for emergency vehicles be affected? What will be the impact on the intersection of Ringwood and Bay Road?

How will cars be prevented from cutting through Flood Triangle streets? (See attached Flood Triangle street map. Ignore the numbered sections.) - During commute hours when Bay Road is usually congested, some people driving eastward want to avoid the busy Bay Road/Ringwood intersection or get ahead of the line by cutting through Del Norte, Oakwood Place, and the short parts of Sonoma or Ringwood on the north side of Bay Road. (The no-left turn sign 7-9 a.m. on Bay Rd. at Del Norte for eastbound traffic helps some in the mornings, but cars often ignore it and MP police only occasionally enforce it.) Some go through the neighborhood to Van Buren for a fast route to Willow Road. Cars coming westward to Ringwood or heading to Marsh Road often take Van Buren from Willow and then up through the neighborhood to turn onto Bay Road from Del Norte Ave. This situation will be exacerbated by increased traffic coming to the park. People transporting players to the ball fields after school hours which will overlap with business commute hours and cars lining up on Bay Road to enter the parking lot in the park on weekends as well as weekdays.

What will be the impact of various new sports fields and courts on the availability of space and parking for picnics & large gatherings? How will overflow parking be handled?

How will cars be prevented from parking on Flood Triangle streets? People who regularly come to the park such as the groups of volleyball players who come M-F want to avoid the parking lot fee so they park on Bay Rd., Del Norte, Iris Lane, Van Buren and other streets. The signs restricting parking on Fri/Sat/Sun Oct. 31- April 1 help somewhat, but 1) the placement and arrows on some signs are confusing, 2) they are rarely enforced by the MPPD, 3) they are not bilingual. Increased park use and perhaps inadequate number of parking spaces in the lot, will exacerbate this.

What will be the impact on the pedestrian gate on Iris Lane? This gate is useful to neighbors who walk to the park. However, if used as a drop-off place for users of the ballfields, there would be major traffic and parking issues. It would also not be a safe place for kids to hang out waiting for pickup. The gate is already used by people parking nearby to avoid the parking lot fee, and residents there complain of trash left. Perhaps if the gate were digitally locked, residents could prove their address and get a free "fast-track" type of pass.

What will be the impact on the pedestrian gate on Bay Road near Del Norte Avenue? - Cars should not be allowed to stop here in the bike lane like they do now to load/unload or even stay a while. Parents would want to drop off or pick up kids here. Doing so forces bicyclists into the traffic lane. They should also not be allowed to stop on the side of Bay Rd. opposite the gate for the same reason. This gate is used by many pedestrians and I do not think this gate should be locked, but the no-stopping regulation would have to have clear signs (bilingual) and be enforced.

Regarding dropoffs/pickups of sports players – perhaps a separate area could be located in the park near Bay Road for this purpose. It might require moving the payment booth and widening the current entrance so cars going in to drop off kids would enter to the right of cars coming to park. That would enable the kids to be dropped of on the side of the park and not have to cross the parking lot. There could be benches there, maybe a grassy area to kick balls around, maybe tables for doing homework while waiting to be picked up. Please shade these benches and tables so they will be comfortable on hot days. Please have water bottle refill fountains here and elsewhere.

Regarding the playgrounds: For safety reasons, please ensure visibility from all the play areas to each other, i.e. adults should be able to see the kids in all the play areas. No bushes between them. Keeping the hot sun off the structures is important and fences are important to prevent toddlers from wandering. Low picnic tables at the playgrounds would be great. (Burgess Park's playground is our favorite for all these reason.)

<u>What is the impact of combining a full-size lacrosse field with a full-size soccer field on the park design?</u> A full-size soccer field can be smaller and more readily located farther from eastside backyards.   Soccer and baseball commonly share multi-use fields. Lacrosse and baseball are played in the same season and cannot share a field.

<u>What is the impact on safety of players and on air quality at the field and neighborhoods of using artificial turf on the sports fields?</u> Wind usually blows west to east from the park toward the Flood Triangle neighborhood.

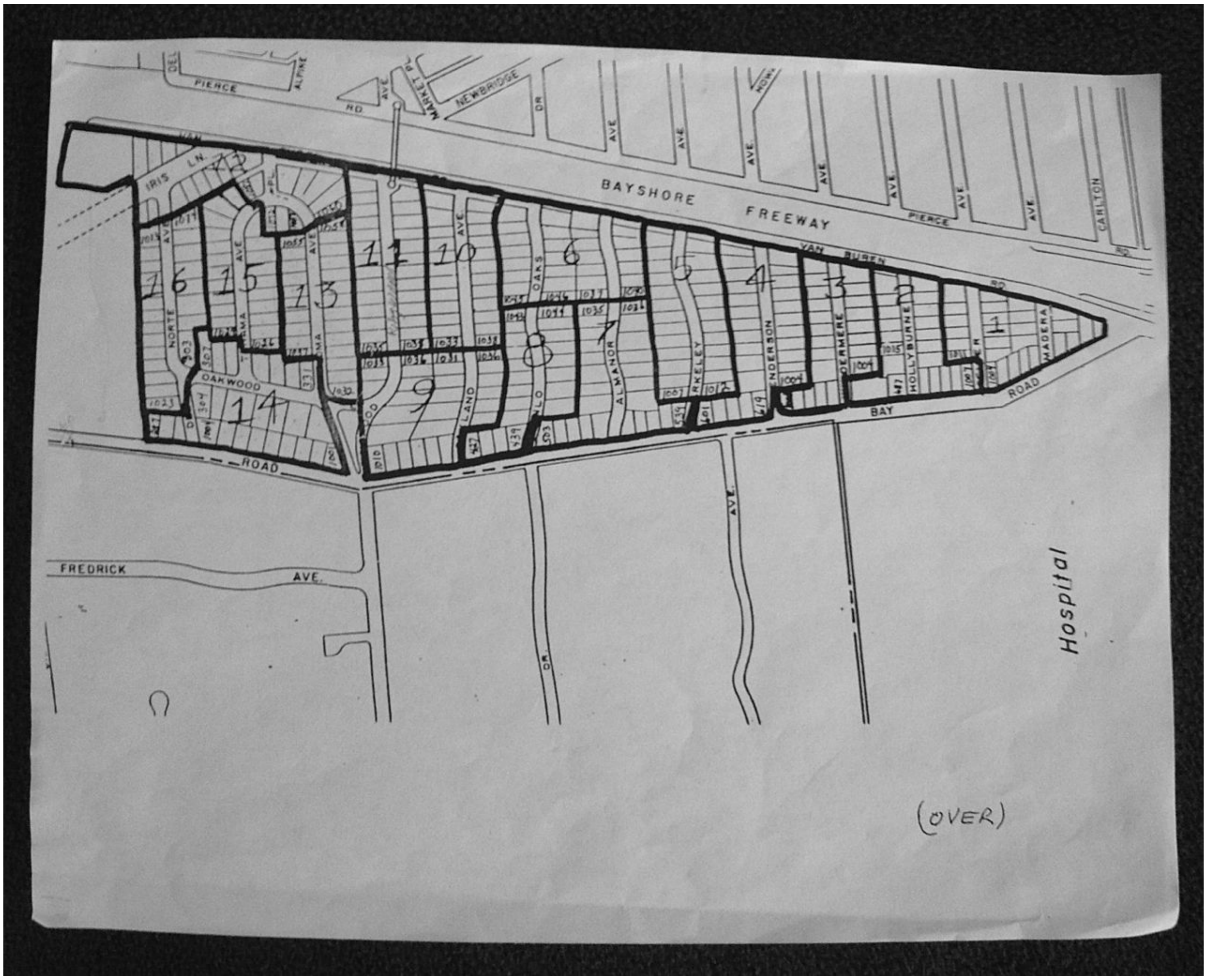
<u>What will be the impact on the operating hours of the park? On current regulations for amplified sound? On parking fees? How will rules about noise, hours of usage, amplification, no lights (including temporary lights) be enforced?</u>

<u>What will be the impact of increased development and activities on the long-standing ecosystems of the park?</u> The value of the natural environment and preservation of trees was of paramount importance to most people during the Parks Dept. "Reimagining" meetings. This area of nature is unique and important in our increasingly developed area. It is different than a developed park.

Thank you and the Parks Department staff for considering these questions and ideas on the EIR.

Sincerely,

Alice Newton,
1023 Del Norte Avenue
Menlo Park



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From: Brendan Webster <boconnorw@cslot.com>
Date: December 13, 2016 at 11:45:59 PM PST
To: <svete@rinconconsultants.com>
Subject: Flood Park Adobe

Dear Stephen,

Alice Newton, my neighbor on Del Norte Avenue in Menlo Park, sent me your business card as I was unable to get it myself at last week's meeting where Reimagining Flood Park was discussed. My husband, Fred Webster, Ph.D., licensed Civil Engineer, spent many years working on stabilizing adobe structures, from California's missions, to local homes, in California, as well as in many areas outside of the US. He passed away just before this latest conversation on Flood Park; were he with us today, he would be able to advise consultants such as yourselves on the practicalities of saving the Flood Park Adobe as well as on the technical challenges involved in such an effort. Although he was not an historian, his adobe archives are now in the Early California Library at the Castro Adobe in Watsonville, a building which he helped to restore.

I am attaching a paper which Fred presented at Terra 2012: 11th International Conference on the Study and Conservation of Earthen Architecture Heritage, held in Lima, Peru. Perhaps this paper will present compelling options to dismantling the Flood Park Adobe and other adobe structures in the park so that future residents of San Mateo County will be given the opportunity to explore the history of this area and the role that adobe played in the building of California.

I understand that this information is to be received by December 16, though I am not sure to whom, other than yourself, it should be addressed. Can you please reassure me that it is now in the right hands? I would appreciate meeting with you, working with your committee, or with any residents who share my concern that this structure be preserved.

Best regards,

Brendan Webster
1027 Del Norte Ave.
Menlo Park, CA 94025

650-322-5230

SIMPLE AND EFFECTIVE SEISMIC RETROFIT TECHNIQUES FOR EARTHEN MASONRY BUILDINGS

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Theme 1: Latin-American Earthen Architecture at Risk: Earthquakes, Rain and Flood Damage
Keywords: Earthen masonry, stability-based retrofits, earthquake damage

Abstract
This paper describes how field studies of the seismic behavior and performance of adobe buildings following earthquakes in California, Central and South America, and shake-table tests performed in different countries have contributed to the development of appropriate and minimally intrusive stability-based retrofit measures for culturally and historically significant adobe structures, and for low-strength masonry, in general. It concludes that understanding how these buildings perform during and after earthquakes is the key to directing minimal, stability-based intervention efforts, aimed at the specific needs and structural behaviors of unreinforced-adobe buildings without compromising their historical and cultural integrity.

1. INTRODUCTION

Although earthquakes over historic time have destroyed uncountable numbers of earthen buildings and dwellings, killing and injuring hundreds of thousands people, it has only been in the last three decades that engineers and architects have systematically investigated the types of damage that occur to them, and to develop simple cost-effective techniques of reinforcement in order to mitigate the risks that millions of people who currently live in them face. It is generally assumed that adobe structures are quite vulnerable to earthquake shaking. However, it has been observed that specific types of damage can be expected to occur, and that these can be addressed by simple, yet effective retrofit measures in order to mitigate collapse and to enhance life safety.

Field studies of seismic performance of adobe buildings have now been carried out in several countries, including: Peru, Mexico and other Latin-American countries, the US, and Iran. In addition, shake-table tests of adobe structures have been conducted in Peru, Australia, the US, and Iran, and have duplicated several of the types of damage observed in the field. Shake-table testing has also been used to study the efficacy of different reinforcing measures, generally known as stability-based retrofit techniques (Tolles et al., 2000). The principle goals of stability-based retrofit systems are to:

1. Ensure structural continuity of the walls by installing bond beam, tie rods, diaphragm, or some other types of continuity elements at the tops of the walls;
2. Prevent out-of-plane overturning of walls with either horizontal or vertical straps, or surface mesh interconnected with the top-of-wall continuity elements;
3. Limit relative displacement across cracks or potential cracks in the walls by through-wall ties interconnected to the horizontal and vertical straps, or the surface mesh, basically containing the earthen material.

Stability-based retrofit techniques promise to provide simple and effective life-safety measures for mitigating the vast number of deaths and injuries related to damage and collapse of earthen buildings and dwellings in seismic zones.

2. DAMAGE TYPOLOGIES

Designing effective stability-based retrofits for adobe dwellings requires knowledge of the types of structures that are typical in a specific region or country, as well as the types of damage that frequently recur to these typical structures during earthquake events and are life-safety hazards. For example, based on field reconnaissance surveys in California (Tolles et al., 1996), the types of damage observed that influence the seismic performance of a typical unreinforced adobe building in the United States are shown in Fig. 1.

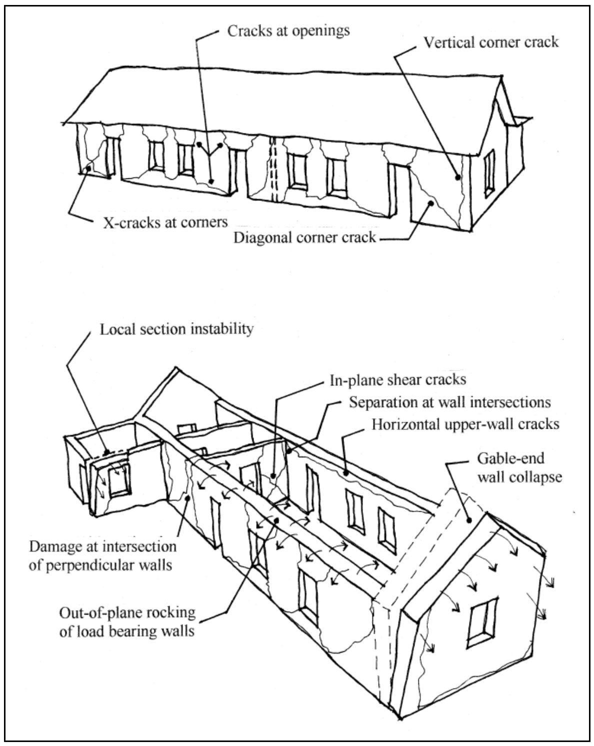


Fig. 1. Typical damage observed in unreinforced adobes in the US
(credits: Tolles et al., 1996, p. 20)

2.1 Out-of-Plane Flexural Damage

Out-of-plane damage is initiated as vertical cracks that form at the intersection of perpendicular walls. These cracks extend downward or diagonally to the base and run horizontally along the base between transverse walls. A wall can rock out-of-plane, rotating about a horizontal crack that forms at the base (Figs. 2a and 2b). As a consequence, longitudinal walls pull away from the transverse walls. In many cases there is no physical connection at the intersection of longitudinal and transverse walls, having been constructed by simply abutting one wall against another.

Gable-wall collapse (Figs. 2c and 2d) is a special case of out-of-plane flexural damage. Gable walls are taller than longitudinal walls, and usually not well supported laterally. Unless anchored to the roof diaphragm, they can slip out from underneath roof framing.

Slippage (Fig. 2e) of the top plate and/or displacement of the top courses of adobe blocks are another result of the out-of-plane movement of longitudinal walls. Very limited friction is generated by the dead weight of the roof bearing on the wall, and due to the friable nature of the top of the walls, slippage may occur.

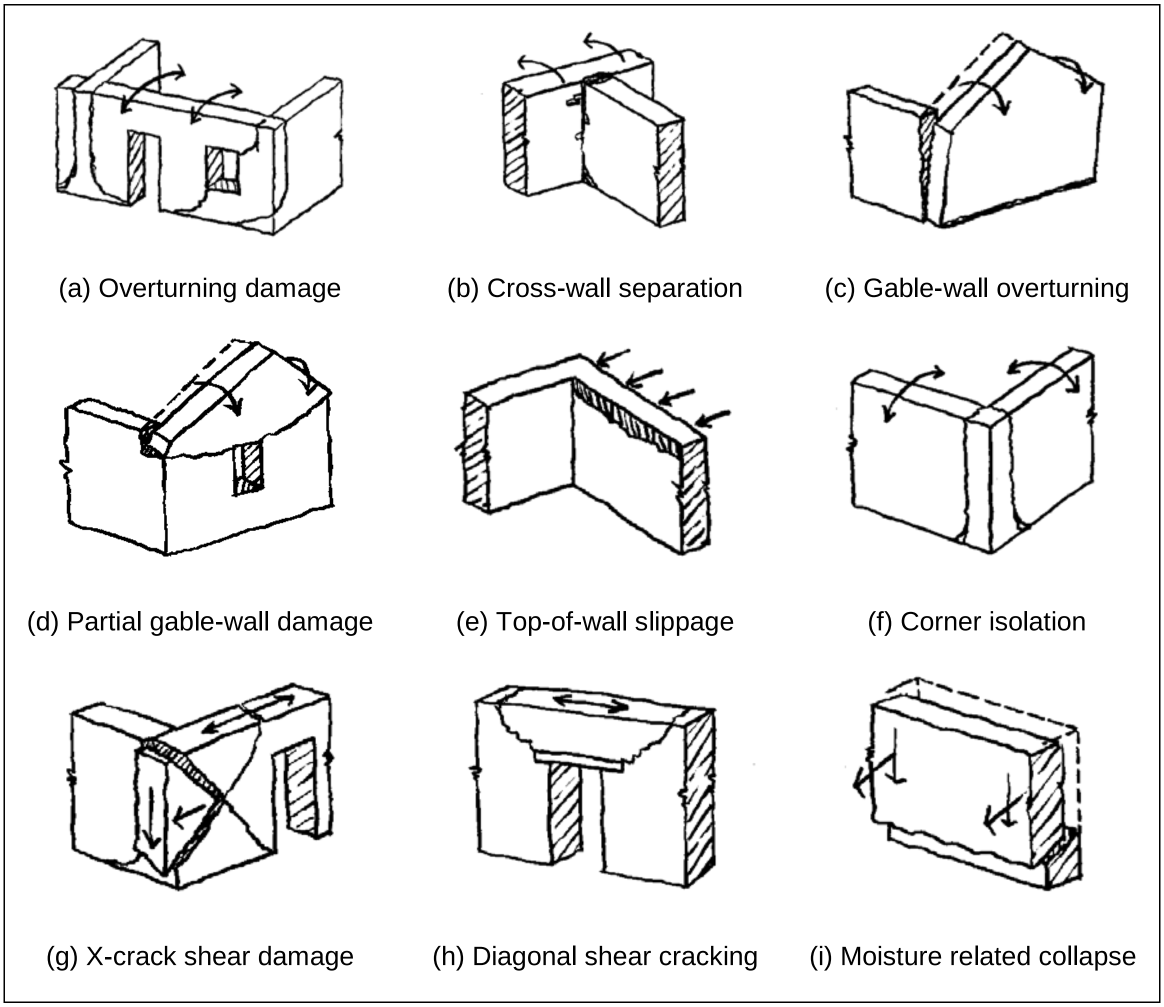


Fig. 2. Typical out-of-plane and in-plane wall damage

Finally, vertical cracks on two perpendicular wall faces (Fig. 2f) at a building corner due to rocking of one or both walls results in a freestanding column at this location that is quite vulnerable to overturning and collapse.

2.2 In-Plane Shear Cracking

X-shaped diagonal-crack damage (Fig. 2g) and simple diagonal cracks result from shear forces in the plane of the wall. These cracks are generally not a serious threat to life safety unless the relative displacement across them is large. These cracks represent a lessening of in-plane lateral stiffness, but unless a segment of wall on one side of the crack is in danger of losing its purchase on the adjacent segment, such as at or near a corner, the gravity-load path remains intact. Diagonal cracks also occur at the corners of doorways and windows and result from peak ground acceleration (PGA) levels as low as 0.1g to 0.2g (Fig. 2h).

2.3 Moisture-Related Wall Collapse

Although not the result of earthquake ground shaking, moisture in adobe walls does affect the seismic performance. This includes excessive spalling of plaster and adobe as the wall rocks out-of-plane; instability caused by basal erosion that removes material at the base of the wall; and reduced wall strength from repeated wet-dry cycles or rising damp. If the base of the wall is wet during ground shaking, a through-wall slip plane may develop along which the upper portion of the wall can slip and collapse (Fig. 2i).

3. STABILITY-BASED RETROFITS

Stability-based measures in general do not stiffen the structure. In fact, they typically do not come into play until the structure has developed cracks and has moved enough to engage the seismic-upgrade elements. These measures, however, provide reduction in the response of the building by increased damping in the structure due to sliding friction across the cracks and lowering the response frequency once cracks have formed.

The principle goals of a stability-based retrofit system are to: 1) provide structural continuity; 2) prevent out-of-plane overturning of walls; and 3) and contain the wall material.

Stability-Based System Goal	Possible Retrofit Elements
Structural continuity of walls:	• bond beam[1, 2] • tie rods[2] • continuity hardware[3, 4]
Out-of-plane overturning stability:	• vertical straps or cables[4, 5] • surface mesh[4, 5] • top-of-wall pins[1, 5] • vertical center core reinforcing[1, 5]
Containment of wall material:	• horizontal straps or cables[4] • vertical straps or cables[4, 5] • surface mesh[4, 5] • vertical center cores[1, 5]

1. fastened to roof structure
2. anchored to walls
3. straps, cables
4. thru-wall ties
5. connected to structural continuity

Table 1. Stability-based measures recently utilized in some California adobe buildings

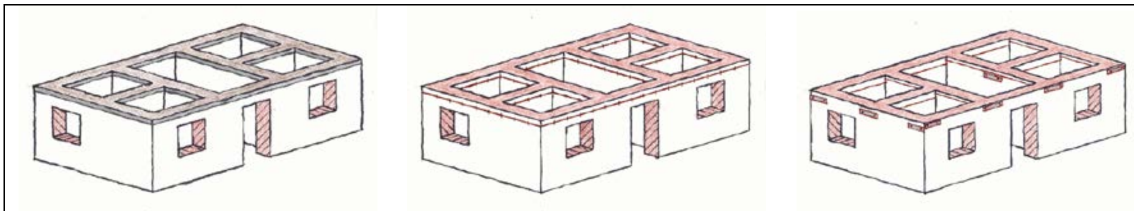
Table 1 lists some of the more basic types of stability-based measures that have been utilized recently in some historic and older adobes in California to meet these goals.

3.1 Structural Continuity

Probably the most significant improvement in the seismic behavior of any unreinforced-adobe building is the inclusion of structural continuity of the wall system. In the design of an effective retrofit system, providing continuity throughout the structure is the most important aspect. Adobe masonry has substantial capacity to carry compressive forces, but little or no capacity to transfer tension forces from one structural element to another.

During an earthquake, the tendency of walls that are perpendicular to the direction of shaking is to separate or tear from those walls that are parallel to the motion. This occurs at the corners of the building starting at the top, where the tearing or tension stresses are the greatest. This mode of failure has been seen time and time again in both shake-table testing and in damage surveys following earthquakes (Scawthorn and Becker, 1986; Tolles et al., 1996; Dowling et al., 2005).

Providing structural-continuity elements, such as horizontal straps, tie rods, or a bond beam that is anchored to the wall (see Figs. 3a, 3b, and 3c), very effectively resists these wall-separation forces and keeps them from overturning, and thereby stabilizes the structure. It should be noted that for any of these elements to work properly, they must be fastened to the roof structure, and because of the friable nature of the masonry at the top of the wall, anchored down into the wall with rods or pins that engage more of the wall than just the top few courses. Note also that for the strapping or cable-continuity hardware to work, the straps on the inner and outer surface of the wall must be interconnected with through-wall ties.



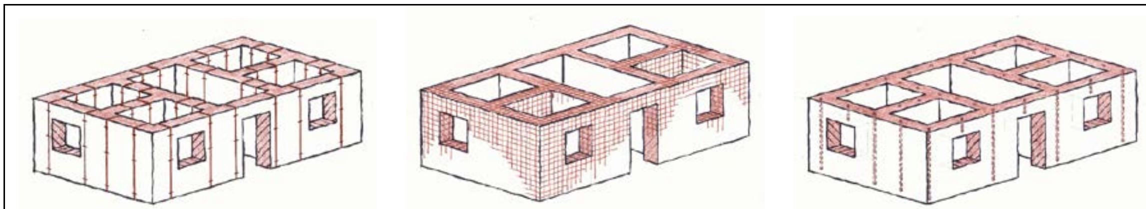
(a) Bond beam (b) Straps or cables (c) Tie rods

Fig. 3. Structural-continuity elements

3.2 Overturning Stability

When discussing overturning stability of earthen-masonry walls, it is important to recognize the influence of the thickness of the walls and their inherent stability, or lack thereof. The dynamic out-of-plane motion of thin walls is significantly different from that observed in moderate and thick walls. At tests on the shake table at Stanford University (Tolles et al., 2000), thin walls (height-to-thickness ratio of 11) easily rocked about their base, the principal lateral support being provided by the bond beam. This behavior was not observed in walls of moderate thickness (height-to-thickness ratios of 7.5 and 5) with the same bond beam; the thickness of the wall did not permit easy rocking about the base, which significantly affected the dynamic motion of the walls. The out-of-plane motion at the tops of the walls was not amplified as it was in thinner walls.

Providing resistance to out-of-plane overturning cannot be separated from the structural continuity of the walls that are addressed in Section 3.1. However, to enhance the stability and survivability of the structure, a system of vertical straps or a surface mesh can be applied to the adobe walls (see Figs. 4a and 4b).



(a) Vertical straps	(b) Surface mesh	(c) Center-core rods and pins

Fig. 4. Overturning stabilization

Vertical straps of nylon or some other flexible durable material, when combined with through-wall ties and structural continuity, even though not providing any stiffening of the wall, are simple to install and work to enhance the stability of thin adobe walls. Center-core rods (Fig. 4c), on the other hand, are difficult and relatively expensive to install. Where they are most useful is in the application to historic adobe structures where the wall surfaces may be rendered with artwork that needs to be preserved. Center-core rods, when set in an epoxy grout, stiffen the wall significantly, as well as provide limitation on the relative displacement across cracks that form during the shaking. Surface mesh of chicken wire, welded-wire fabric, or some synthetic material such as polypropylene (geo-grid), when through-wall tied and attached to the structural continuity elements, act in similar fashion as the vertical straps against overturning.

3.3 Containment

Containment of the wall material is probably the second most important feature of seismic retrofit of earthen masonry. If the wall material can be contained so that it does not fall from the plane of the wall during a seismic event, it will continue its function of holding up the roof. Even in a severely cracked condition that may occur, adobe is still capable of transferring compressive forces as long as it is contained (see Fig. 4b and Fig. 5).

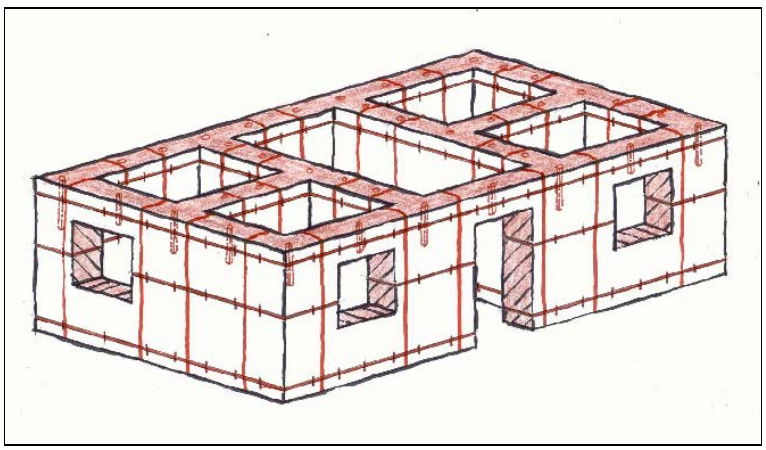


Fig. 5. Containment with horizontal and vertical straps and top-of-wall pins

Testing of an adobe structure on the shake table at University of California at Berkeley in the 1980s retrofitted with a wire mesh showed the efficacy of such a simple containment system (Scawthorn and Becker, 1986). The idea was then expanded by researchers at the Catholic University of Peru and tested in many different configurations, focusing recently on geo-grid meshes of polypropylene (Blondet et al., 2006). These efforts have also been developed into engineering-design guidelines for new adobe structures (Torrealva, 2009).

During the 1990s, the Getty Conservation Institute sponsored shake-table testing of adobe structures at Stanford University in California (Tolles et al., 2000) and at the Institute of Earthquake Engineering and Engineering Seismology in Macedonia (Gavrilovic et al., 1996). One of the focuses of these tests was containment with minimal intervention such as vertical and horizontal straps and center-core rods, whereas the mesh solution is more invasive, but does a better job of containment. As a practical matter, therefore, the straps and center-core rod elements are more appropriate for use with historically significant and/or culturally sensitive structures, whereas, the mesh solution to retrofitting and new construction of adobe masonry may be the simplest and most effective overall.

4. CONCLUSIONS

The information obtained during field study of the seismic behavior and performance of historic and older adobes following earthquake events is invaluable to the development of appropriate and minimally intrusive stability-based retrofit measures. Categorization of the types of damage allows an evaluation of the causes and hazards of such damages and has been the basis for development and implementation of effective retrofit measures for earthen masonry in California and elsewhere. Indeed, this information, in conjunction with the shake-table test results, has been the basis for design of appropriate seismic-retrofit measures that ensure life safety, while protecting historic fabric and cultural value.

The challenge of improving the structural performance and mitigating life-safety hazards of adobe buildings, both old and new, for future earthquakes is great. The key is to understand how these buildings perform, and to direct stability-based minimal interventions toward specific needs of known structural behavior. We can, in fact, improve the performance of earthen-masonry buildings without significantly compromising the existing architectural heritage embodied in these resources, and do so both simply and effectively.

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Curriculum

Fred Webster is a structural engineer in California with a PhD in Civil Engineering, Stanford University, and has taught structural engineering at the University of Illinois. Since 1981, he has been involved in adobe conservation, researching, testing, and designing seismic-retrofit methods for earthen structures under the National Science Foundation's sponsorship, and continuing with the Getty Conservation Institute.

From: "Bruce G. McPhee" <bgmcphee@ix.netcom.com>
Date: December 16, 2016 at 1:23:13 PM PST
To: Nettie Wijsman <nwijsman@outlook.com>
Subject: Proposed changes to Flood Park
Reply-To: "Bruce G. McPhee" <bgmcphee@ix.netcom.com>

Hi Nettie,

Attached is my propose letter to Park Commissioners. But I don't know how to address and send it. Would you please forward my letter to them?

Thanks, Bruce McPhee

Park Commissioners,

I am a resident of Menlo Park. I have lived on Del Norte Ave. for 40 years. I am concerned about some of the proposed changes to Flood Park. Specifically, I am worried that the proposed location of the Soccer Field at the southern end of the Park will adversely affect our neighborhood. Such a location would require cutting down of redwood and other trees at the eastern edge and southern fence line of the Park. This would destroy part of the natural beauty of the Park. This would also cut down trees that provide a natural barrier to the noise of activities from the Park.

The field would be located approximately 75 feet from the rear of house on Del Norte backing up to the park. These back yards now would be totally exposed, no privacy. They would also be exposed to direct noise from the playing field.

Another school in Menlo Park built a playing field on the edge of its property. A resident across the street wanted to sell his home. He had to reduce the asking price on his home two times because buyers did not want to purchase the house directly across the street from a noisy playing field. His property value was greatly reduced.

Likewise, the location of the proposed Soccer Field on the southern edge of the Park will greatly reduce the property values of our neighborhood. Houses backing up to the park could lose from $200,000 to $400,00 in equity. Other housed on Del Norte and adjacent streets could lose from $100,000 to $200,000. The cumulative loss of equity for houses in this area could be $4 to $5 million or more. This equity would just evaporate!

I am over 80 years old. I am counting on the equity in my home to provide for me if I need care. I would like to use this equity to help buy an apartment in an assisted care facility. Or, the $200,000 I could lose would pay for four or five years of assisted care givers coming to my home. Please don't take this from me.

An alternative is to expand the present baseball field into a multi-use field. At present the baseball field is fenced off from the general public and is idle more than 70% of the days of the year. This area could be expanded into a multi-use field that would be much better insulated from residential areas. Multi-use field have been successfully installed in other cities such as Redwood City, San Carlos and Burlingame

Please consider relocating the Soccer Field away from the southern fence of the Park

Bruce McPhee
1072 Del Norte Ave.
Menlo Park

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

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SCH # 2016112040
GTS # 04-SM-2016-00058
SM-101-3.62

Mr. Herzberg
Planning Department
San Mateo County
455 County Center, 4th Floor
Redwood City, CA 94063

Flood County Park Landscape Plan – Notice of Preparation

Dear Mr. Herzberg:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Flood County Park Landscape Plan project. In tandem with the Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), the new Caltrans mission signals a modernization of our approach to evaluating and mitigating impacts to the State Transportation Network (STN). We aim to reduce Vehicle Miles Travelled (VMT) by tripling bicycle and doubling both pedestrian and transit travel by 2020. Our comments are based on the Notice of Preparation.

Project Understanding

The proposed project consists of a Landscape Plan for the long-term redevelopment of San Mateo County's Flood County Park. It is anticipated that implementation of the Landscape Plan would occur in three phases: phase I, phase II, and phase III. Phase I improvements are expected to be completed in approximately two years.

From Table 1 in the Notice of Preparation (NOP), proposed new facilities to be constructed include: soccer field, lacrosse field, basketball court, pump track, asphalt paths, tree-lined promenade, drop off at playground area, new utilities (water, electric, gas and greywater piping), restrooms, demonstration gardens, gathering meadow (performance space), pathways with exercise stations, gathering plazas and a focal element.

Also from Table 1 in the NOP, facilities proposed for renovations include: baseball field, bathrooms, two tennis courts, sand volleyball court, playground, individual picnic area, group picnic area with shade shelters and the conversion of the administrative building to open-air shade/market structure.

The largest recreational facilities would be sited in the northern portion of the park, where the existing ballfield would be reconstructed and the soccer/lacrosse field would be installed at the northeast corner, replacing the existing pétanque court and a portion of the existing tennis courts. The proposed athletic field improvements (i.e., a reconstructed ballfield and new soccer/lacrosse field) would increase use of the park relative to existing conditions. It is anticipated that organized activities at the athletic fields would occur no earlier than 9 a.m. and no later than 8 p.m. No additional lighting that would enable nighttime use of athletic facilities is proposed as part of the Landscape Plan, although path lights that could be manually turned on and off for special events may be installed.

Lead Agency

As the Lead Agency, the County of San Mateo is responsible for all project mitigation, including any needed improvements to the State Transportation Network. The project's fair share contribution, financing, scheduling, implementation responsibilities, and Lead Agency monitoring should be fully discussed for all proposed mitigation measures. This information should also be presented in the Mitigation Monitoring and Reporting Plan, a draft of which should be included in the Draft Environmental Impact Report for our review. Required roadway improvements should be in place prior to completion of the project.

Travel Demand Analysis

Please submit a travel demand analysis that provides VMT analysis resulting from the proposed project. With the enactment of Senate Bill (SB) 743, Caltrans is focusing on transportation infrastructure that supports smart growth and efficient development to ensure alignment with State policies through the use of efficient development patterns, innovative travel demand reduction strategies, multimodal improvements, and VMT as the primary transportation impact metric. For projects reviewed under the California Environmental Quality Act (CEQA), Caltrans uses VMT as the metric for evaluating transportation impacts and mitigation. Please ensure that the travel demand analysis includes:

- A vicinity map, regional location map, and site plan clearly showing project access in relation to the STN. The State right-of-way as well as all ingress and egress points for all project components should be clearly identified. Lastly, project driveways, local roads and intersections, car/bike parking, and transit facilities should be mapped.
- A schematic illustration of walking, biking, and auto conditions at the project site and study area roadways. Potential safety issues for all road users should be identified and fully mitigated.

- A VMT analysis pursuant to the County's guidelines or, absent that, the Office of Planning and Research's Draft Guidelines. Projects that result in automobile VMT per capita greater than 15% below existing (i.e. baseline) county-wide or regional values for similar land use types may indicate a significant impact. If necessary, mitigation for increasing VMT should be identified. Mitigation should support the use of transit and active transportation modes. Potential mitigation measures that include the requirements of other agencies, such as Caltrans, are fully enforceable through permit conditions, agreements, or other legally-binding instruments under the control of the County.
- The project's primary and secondary effects on pedestrians, bicycles, disabled travelers and transit performance should be evaluated, including countermeasures and trade-offs resulting from mitigating VMT increases. Access to pedestrians, bicycle, and transit facilities must be maintained.

Multimodal Planning

The project should be conditioned to ensure connections to existing and planned bike lanes and multi-use trails to facilitate walking and biking to nearby homes and transit stops. Therefore, the proposed project should be conditioned to connect park visitors to the existing bike and pedestrian overcrossing on Van Buren Road and ensure the necessary wayfinding signage is provided for both bike and pedestrians. Providing these connections with streets configured for alternative transportation modes will reduce VMT and promote usage of nearby San Mateo County Transit Bus Routes 82, and 88.

Vehicle Trip Reduction

We encourage you to establish a Transportation Management Association (TMA) in partnership with other developments in the area, and pursue aggressive trip reduction targets with Lead Agency monitoring and enforcement. In addition, the Transportation Demand Management (TDM) elements described below include effective measures to promote smart mobility and reduce regional VMT and should be implemented given the project's Place Type:

- Project design to encourage walking, bicycling, and convenient transit access;
- Lower parking ratios;
- Enhanced bus stops including benches and bus shelters;
- Designated bicycle parking;
- Charging stations for electric vehicles;
- Carpool and clean-fuel parking spaces; and
- Reducing headway times of nearby San Mateo County Transit Bus Routes 82, and 88, especially during timeframes when the county would expect peak visitors.

For additional TDM options, please refer to Chapter 8 of FHWA's *Integrating Demand Management into the Transportation Planning Process: A Desk Reference*, regarding TDM at the local planning level. The reference is available online at:

http://www.ops.fhwa.dot.gov/publications/fhwahop12035/fhwahop12035.pdf.

For information about parking ratios, please see MTC's report, Reforming Parking Policies to Support Smart Growth, or visit the MTC parking webpage:

http://www.mtc.ca.gov/planning/smart_growth/parking.

Transportation Impact Fees

Please identify project-generated travel demand and estimate the costs of public transportation improvements necessitated by the proposed project; viable funding sources such as development and/or transportation impact fees should also be identified. We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.

Transportation Permit

Project work that requires movement of oversized or excessive load vehicles on State roadways requires a Transportation Permit that is issued by Caltrans. To apply, a completed Transportation Permit application with the determined specific route(s) for the shipper to follow from origin to destination must be submitted to:

Caltrans Transportation Permits Office
1823 14th Street
Sacramento, CA 95811-7119.

See the following website for more information about Transportation Permits:

http://www.dot.ca.gov/trafficops/permits/index.html

Encroachment Permit

Please be advised that any work or traffic control that encroaches onto the State ROW requires an Encroachment Permit that is issued by Caltrans. Traffic-related mitigation measures should be incorporated into the construction plans prior to the encroachment permit process. To apply, a completed Encroachment Permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the following address:

David Salladay, District Office Chief

Office of Permits, MS 5E
California Department of Transportation, District 4
P.O. Box 23660
Oakland, CA 94623-0660

See the following website for more information:

http://www.dot.ca.gov/trafficops/ep/index.html

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Jannette Ramirez at 510-286-5535 or jannette.ramirez@dot.ca.gov.

Sincerely,

PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

DEPARTMENT OF TRANSPORTATION
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SCH # 2016112040
GTS # 04-SM-2016-00058
SM-101-3.62

Mr. Herzberg
Planning Department
San Mateo County
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Project Understanding

The proposed project consists of a Landscape Plan for the long-term redevelopment of San Mateo County's Flood County Park. It is anticipated that implementation of the Landscape Plan would occur in three phases: phase I, phase II, and phase III. Phase I improvements are expected to be completed in approximately two years.

Proposed new facilities to be constructed include: soccer field, lacrosse field, basketball court, pump track, asphalt paths, tree-lined promenade, drop off at playground area, new utilities (water, electric, gas and greywater piping), restrooms, demonstration gardens, gathering meadow (performance space), pathways with exercise stations, gathering plazas and a focal element.

Facilities proposed for renovations include: a baseball field, bathrooms, two tennis courts, sand volleyball court, playground, individual picnic area, group picnic area with shade shelters and the conversion of the administrative building to an open-air shade/market structure.

The largest recreational facilities would be sited in the northern portion of the park, where the existing ballfield would be reconstructed and the soccer/lacrosse field would be installed at the northeast corner, replacing the existing pétanque court and a portion of the existing tennis courts. The proposed athletic field improvements (i.e., a reconstructed ballfield and new soccer/lacrosse field) would increase use of the park relative to existing conditions. It is anticipated that organized activities at the athletic fields would occur no earlier than 9 a.m. and no later than 8 p.m. No additional lighting that would enable nighttime use of athletic facilities is proposed as part of the Landscape Plan, although path lights that could be manually turned on and off for special events may be installed.

Lead Agency

As the Lead Agency, the County of San Mateo is responsible for all project mitigation, including any needed improvements to the STN. The project's fair share contribution, financing, scheduling, implementation responsibilities, and Lead Agency monitoring should be fully discussed for all proposed mitigation measures. This information should also be presented in the Mitigation Monitoring and Reporting Plan, a draft of which should be included in the Draft Environmental Impact Report for our review. Required improvements to the STN should be in place prior to opening day of the project.

Travel Demand Analysis

Based on the level of development, please submit a travel demand analysis that provides VMT analysis resulting from the proposed project. With the enactment of Senate Bill (SB) 743, Caltrans is focusing on transportation infrastructure that supports smart growth and efficient development to ensure alignment with State policies through the use of efficient development patterns, innovative travel demand reduction strategies, multimodal improvements, and VMT as the primary transportation impact metric. For projects reviewed under the California Environmental Quality Act (CEQA), Caltrans uses VMT as the metric for evaluating transportation impacts and mitigation. Please ensure that the travel demand analysis includes:

- A vicinity map, regional location map, and site plan clearly showing project access in relation to the STN. The State right-of-way as well as all ingress and egress points for all project components should be clearly identified. Lastly, project driveways, local roads and intersections, car/bike parking, and transit facilities should be mapped.
- A schematic illustration of walking, biking, and auto conditions at the project site and study area roadways. Potential safety issues for all road users should be identified and fully mitigated.

- A VMT analysis pursuant to the County's guidelines or, absent that, the Office of Planning and Research's Draft Guidelines. Projects that result in automobile VMT per capita greater than 15% below existing (i.e. baseline) county-wide or regional values for similar land use types may indicate a significant impact. If necessary, mitigation for increasing VMT should be identified. Mitigation should support the use of transit and active transportation modes. Potential mitigation measures that include the requirements of other agencies, such as Caltrans, are fully enforceable through permit conditions, agreements, or other legally-binding instruments under the control of the County.
- The project's primary and secondary effects on pedestrians, bicycles, disabled travelers and transit performance should be evaluated, including countermeasures and trade-offs resulting from mitigating VMT increases. Access to pedestrians, bicycle, and transit facilities must be maintained.

Multimodal Planning

From Caltrans' *Smart Mobility 2010: A Call to Action for the New Decade*, the project site is identified as a suburban neighborhood place type where location efficiency factors, such as community design, vary from weak to moderate and regional accessibility is variable. As such, the project should be conditioned to ensure connections to existing and planned bike lanes and multi-use trails to facilitate walking and biking to nearby homes and transit stops. Therefore, the proposed project should be conditioned to connect park visitors to the existing bike and pedestrian overcrossing on Van Buren Road and ensure the necessary wayfinding signage is provided for both bike and pedestrians. Providing these connections with streets configured for alternative transportation modes will reduce VMT and promote usage of nearby San Mateo County Transit Bus Routes 82, and 88.

Vehicle Trip Reduction

We encourage you to establish a Transportation Management Association (TMA) in partnership with other developments in the area, and pursue aggressive trip reduction targets with Lead Agency monitoring and enforcement. In addition, the Transportation Demand Management (TDM) elements described below include effective measures to promote smart mobility and reduce regional VMT and should be implemented given the project's place type:

- Project design to encourage walking, bicycling, and convenient transit access;
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- Designated bicycle parking;
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- Carpool and clean-fuel parking spaces; and
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For additional TDM options, please refer to Chapter 8 of FHWA's *Integrating Demand Management into the Transportation Planning Process: A Desk Reference*, regarding TDM at the local planning level. The reference is available online at:

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Please estimate the costs of public transportation improvements necessitated by the proposed project; viable funding sources such as development and/or transportation impact fees should also be identified. We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.

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See the following website for more information about Transportation Permits:

http://www.dot.ca.gov/trafficops/permits/index.html

Cultural Resources

In accordance with CEQA and Assembly Bill 52, it is recommended that the County of San Mateo conduct Native American consultation with tribes, groups, and individuals who are interested in the project area and may have knowledge of Tribal Cultural Resources or other sacred sites. The project area is sensitive for archaeological deposits, and there are multiple previously recorded archaeological sites near the project area. It is recommended that the County of San Mateo conduct cultural resource studies, which should include a records search from the Northwest Information Center of the California Historical Resources Information System (CHRIS) at Sonoma State University and an intensive field survey conducted by a qualified archaeologist.

Encroachment Permit

Please be advised that any work or traffic control that encroaches onto the State ROW requires an Encroachment Permit that is issued by Caltrans. Traffic-related mitigation measures should be incorporated into the construction plans prior to the encroachment permit process. To apply, a completed Encroachment Permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the following address:

David Salladay, District Office Chief
Office of Permits, MS 5E
California Department of Transportation, District 4
P.O. Box 23660
Oakland, CA 94623-0660

See the following website for more information:

http://www.dot.ca.gov/trafficops/ep/index.html

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Jannette Ramirez at 510-286-5535 or jannette.ramirez@dot.ca.gov.

Sincerely,

Pati

PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

bc: PMaurice/JRamirez/EDarko

loc: P:\Plan\TranComm\LD-IGR\San Mateo County\GTS\Flood County Park Landscape Plan\CEQA Comment Letter Template.docx

Mr. Herzberg
Planning Department
San Mateo County
455 County Center, 4th Floor
Redwood City, CA 94063

From: Carolyn Ordonez [mailto:cardord@gmail.com]
Sent: Tuesday, December 13, 2016 8:36 AM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Subject: Flood park EIR

As someone who lives in the flood triangle neighborhood of Menlo Park the changes to Flood Park are concerning to me. What needs to be understood is to exit my street to go anywhere I have to use Bay Road. This is true for any neighborhoods on the east side of Bay Road. If traffic is heavy, as when Marsh Road was closed for months, we are impacted by traffic.

There are only three ways to connect to Bay Road. Willow Road., Ringwood, and Marsh. The traffic already pours onto these roads to Bay Road to get to and from Menlo Atherton HighSchool, Laurel school, the 101 freeway and now Facebook has generated a lot of traffic through this area.

In the last two years Bay Road now backs up from Willow down Bay Road to Oakland Avenue and more. And many drivers cut down the Flood Triangle streets to VanBuren Road thinking it will get them somewhere faster. All this does is que up VanBuren as they have to get back on Bay.

The traffic in this area is only going to get worse as Menlo Park has approved massive building for the east side of 101. As part of the EIR the approvals for " build out"of the Belle Haven area of Menlo Park have to studied in conjunction to have a realistic vision of the impact on this area.

The last thing thing I would like to see happen is a traffic light at Bay and Ringwood. Traffic needs to be discouraged by not making it easier for cut through traffic.This is a residential area. Flood park is surrounded on four, not three sides as mentioned at the December Meeting, by residences. Haven House is the fourth side, not the 101 freeway.

My house is three houses from 101 so I have a significant, over the amount allowed by law, noise level. And I now have planes to SFO flying right over the top of my house. This just started and I hope it stops. So my concern is more noise. I do not want to hear ANY NEW NOISE generated by the changes. I do not hear noise from the park now.

As stated in the Flood Park website this park is to serve Menlo Park, Redwood City and East Palo Alto. Flood Park has a rich history that is completely lost with what is proposed. With all the changes in this area of Menlo Park the proposed activities are inviting more traffic to our neighborhoods when we need to be looking for calming traffic knowing what is coming in the future.

The Flood Triangle has pedestrian access to Flood Park at Iris lane. The proposed plan is inviting pick up and drop off traffic to this area. This can not be allowed.

The order of the phases should be flipped with the active elements last in case the county runs out of money.

Sincerely,
Carolyn Ordonez

Sent from my iPad

From: Catherine Francis [mailto:catherinekatiefrancis@gmail.com]
Sent: Thursday, December 15, 2016 5:08 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Subject: Flood Park Comments

Oh, Menlo Park, I hardly know you anymore. Menlo Park has a long standing tradition of granting the wishes and whims of everyone and anyone without careful consideration of the consequences. While updates and improvements are a part of societal advancement, things don't always have to be bigger or expanded, more is not always the answer. The world can't just keep adding, adding, adding, shoving into and onto, it's irresponsible and greedy.

A re-imagined Flood Park has some very fundamental problems. First, noise pollution. Sure, Flood Park is due for a facelift. Why can't we just support a quiet, community park, well utilized with picnickers by refurbishing the existing structures? As residents of Flood Triangle and Suburban Park, we all listen to the freeway. 101 has been around longer than most of us have, it was something that has been long accepted when property was purchased. Most recently, we are being subjected to noise pollution from the constant stream of airplanes. Now, on top of that we are now expected to listen to sports and amphitheater activities?

Second, air pollution and use of water. We stand to lose trees as part of the re-imagination. For those of us who live right next to the freeway, the trees of Flood Park cleanse our air from the constant odors and pollutants. Will artificial turf be used for the soccer field and other grassy areas? The park now exists in a more natural state, not requiring much in the way of water. Consider all the water that will be necessary for the Facebook expansion. We are still in a drought and should be behaving as such.

Third, traffic. Traffic impact and discussion of the matter has been an issue with all the proposed projects facing Menlo Park (Flood Park, Facebook, etc.) It still doesn't seem to be being taken as seriously as it should. Facebook is moving forward with it's ridiculous expansion. You can't not factor in their plans with the plans for the park. My neighborhood, Flood Triangle, is smack dab in the middle of it all. Unknowledgeable drivers are already using our streets as inefficient cut-throughs to bypass traffic backup on Bay Road leading to Willow Road. Many of these drivers may be using Bay to Willow as a way to get around Marsh Road traffic. We should be protecting our neighborhood streets instead of making them default thoroughfares. There is only one vehicle entrance into Flood Park. Bay Road has already been exponentially impacted by the traffic problems of Marsh Road and Willow Road and should be further impacted with the Facebook expansion. So we are going to send more cars down Bay, Marsh, Willow, Ringwood and other neighborhood streets to get people to the park for sports during peak drive times? It will only be a matter of time before drivers discover the large grass medians of Iris Lane, located near a backside pedestrian entrance, as an alternative pickup and drop off location. This will not be acceptable. And how does this go monitored? The only way is to have a permanent guard to let people know there is no stopping anytime. It is my opinion that we have plenty of fields available at schools and existing parks and don't need to be creating this constant opportunity for more, more, more.

Fourth and final, historical preservation. Why is education and preservation never a part of the grand scheme of things? A much better use of the adobe building, instead of demolishing and saving only a small piece as "historical significance" is to fully restore it. Make it a museum so visitors can learn about the history of Menlo Park, Flood Park, Flood landmarks, and the building itself, built in the 1930s by the Work Progress Administration. Or use it as a general use/meeting space like the Girl Scout House in Palo Alto's Rinconada Park.

Let's keep Flood Park feeling like a neighborhood park. There are too many ways for the re-imagination to become a big sporting venue, crowding into our neighborhood and negatively impacting the landscape of our community.

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.wildlife.ca.gov

December 15, 2016

Mr. Sam Herzberg
San Mateo County
455 County Center, 4th Floor
Redwood City, CA 94063

Dear Mr. Herzberg:

Subject: Flood County Park Landscape Plan, Notice of Preparation, SCH #2016112040, San Mateo County

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation of a draft Environmental Impact Report (draft EIR) from San Mateo County (County) for the Flood County Park Landscape Plan Project (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources, and holds those resources in trust by statute for all the people of the state. [Fish and Game Code §§ 711.7, subd. (a) and 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

PROJECT DESCRIPTION SUMMARY

Proponent: San Mateo County

Project Location and Description

The Project is located within the 24.5-acre Flood County Park at 215 Bay Road in the City of Menlo Park in San Mateo County. The park includes two County-owned parcels totaling 21.3 acres and two linear parcels owned by the City and County of San Francisco as part of the right-of-way for the Hetch Hetchy regional water distribution system.

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

The Project consists of a plan, called the Landscape Plan, for the long-term redevelopment of the park conducted in three phases. Phase I includes improvements to athletic fields and courts, pump track and asphalt paths, renovation of the Adobe bathroom, improvements to the tree-lined promenade and the playground and installation of new utilities. Phase II includes either improving or adding restrooms, demonstration gardens, playgrounds, a picnic area and the Gathering Meadow. Phase III includes conversion of the adobe administrative building to an open-air shade/market structure, group picnic area renovation with shade shelters, completion of all pathways with exercise stations, gathering plazas and a focal element including incorporating the water pump feature.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the County to adequately identify and/or mitigate the Project's significant, or potentially significant, direct and indirect impacts on fish, plants and wildlife (biological) resources in the draft EIR.

Environmental Setting

To enable CDFW staff to adequately review and comment on the project, the draft EIR should include a complete assessment of the flora and fauna, as described below, within and adjacent to the Project footprint, with particular emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. The environmental setting should contain sufficient information to understand the Project's, and its alternatives', significant impacts on the environment (CEQA Guidelines, §§ 15125 and 15360).

CDFW recommends that the draft EIR provide baseline habitat assessments for all special-status plant, fish and wildlife species located within the Project area and surrounding lands per CEQA Guidelines, § 15380. The draft EIR should also include habitat assessments for sensitive habitat types and plant communities. CDFW recommends that floristic, alliance- and/or association based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer et al. 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

CDFW also recommends the draft EIR include a general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the Project. CDFW's California Natural Diversity Database (CNDDB) should be consulted to obtain current information on any previously reported sensitive species and habitat. Please note, CDFW's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database, therefore, CDFW recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the project site. Habitat descriptions and species profiles should also include information from multiple sources: aerial imagery, historical and recent survey data, field reconnaissance and scientific literature and reports. Based on the habitat assessment, the draft EIR should assess which special-status species are likely to occur in the vicinity of the Project area.

Please provide a complete, *recent* inventory of rare, threatened, endangered, and other sensitive species located within the project footprint and within off-site areas with the potential to be affected, including California Species of Special Concern (SSC) and California Fully Protected Species (Fish and Game Code § 3511). Species to be addressed should include all those that meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, should be conducted. CDFW recommends that surveys be conducted for special-status species likely to occur, following agency-recommended survey protocol. Survey and monitoring protocols and guidelines are available at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html.

Botanical surveys for special-status plant species, including those listed by the California Native Plant Society (http://www.cnps.org/cnps/rareplants/inventory/) should be conducted during the blooming period for all sensitive plant species potentially occurring within the Project area. Please refer to CDFW protocols for surveying and evaluating impacts to rare plants available at: https://www.wildlife.ca.gov/Conservation/Plants. Potential impacts to these species, including take, habitat loss, habitat impairment and temporary disturbances, should be thoroughly addressed in the draft EIR.

Impact Analysis and Mitigation Measures

The draft EIR should discuss all direct and indirect impacts (temporary and permanent) that could occur with implementation of the Project. This includes evaluating and describing impacts such as, potential for "take" (FGC §86) of special-status species; permanent and temporary habitat disturbances associated with ground disturbance, noise, lighting, reflection, air pollution, traffic or human presence; and obstruction of movement corridors and impediments to connectivity, or access to water sources and other core habitat features.

The draft EIR should identify reasonably foreseeable future projects in the Project vicinity, disclose any cumulative impacts associated with these projects, determine the significance of each cumulative impact, and assess the significance of the Project's contribution to the impact (CEQA Guidelines, § 15355). Although a project's impacts may be insignificant individually, its contributions to a cumulative impact may be considerable. A contribution to a significant cumulative impact, such as reduction of the available habitat for a listed species, should be considered cumulatively considerable without mitigation to minimize or avoid the impact.

A description of all feasible mitigation measures to avoid potentially significant impacts, and/or mitigate significant impacts of the Project on the environment should be included in the draft EIR (CEQA Guidelines, §§ 15021, 15063, 15071, 15126.2, 15126.4 & 15370). Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, onsite habitat restoration and/or enhancement should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed. Take avoidance and minimization measures for special-status species should be developed in consultation with the U.S. Fish and Wildlife Service and CDFW.

Fully protected species may not be taken or possessed at any time (Fish and Game Code § 3511). Therefore, the draft EIR should include measures to ensure complete take avoidance of such species.

Nesting Birds
Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). In addition, sections 3503, 3503.5, and 3513 of the Fish and Game Code also afford protective measures as follows: Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by Fish and Game Code or any regulation made pursuant thereto; Section 3503.5 states that is it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by Fish and Game Code or any regulation adopted pursuant thereto; and Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

CDFW recommends that the draft EIR include the results of avian surveys, as well as specific avoidance and minimization measures to ensure that impacts to nesting birds do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: project phasing and timing, monitoring of project-related noise (where applicable), sound walls, and buffers, where appropriate. The draft EIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the Project site. If pre-construction surveys are proposed in the draft EIR, CDFW recommends that they be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted sooner.

Habitat Revegetation/Restoration Plans
Plans for restoration and revegetation should be prepared by persons with expertise in native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

REGULATORY REQUIREMENTS
California Endangered Species Act
Please be advised that a California Endangered Species Act (CESA) permit must be obtained if the Project has the potential to result in "take" of plants or animals listed under CESA, either

during construction or over the life of the Project. Issuance of a CESA Permit is subject to CEQA documentation; the draft EIR must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation with CDFW is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit.

CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (CEQA §§ 21001(c), 21083, & CEQA Guidelines §§ 15380, 15064, 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration. The CEQA Lead Agency's Findings do not eliminate the Project proponent's obligation to comply with Fish and Game Code § 2080.

CDFW, as a Responsible Agency under CEQA, will consider the draft EIR for the Project. CDFW may not execute a final CESA permit until it has complied with CEQA (Public Resources Code § 21000 et seq.) in its role as the Responsible Agency.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. [Pub. Resources Code, § 21003, subd. (e)]. Accordingly, please report any special-status species and natural communities detected during Project surveys to the CNDDB.

The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; FGC § 711.4; Pub. Resources Code, § 21089).

ADDITIONAL COMMENTS AND RECOMMENDATIONS

California is experiencing one of the most severe droughts on record. To ameliorate the water demands of this Project, CDFW recommends incorporation of water-wise concepts in Project landscape design plans. In particular, CDFW recommends xeriscaping with locally native California species, and installing water-efficient and targeted irrigation systems (such as drip irrigation). Local water agencies/districts, and resource conservation districts in your area may be able to provide information on plant nurseries that carry locally native species, Information on drought-tolerant landscaping and water-efficient irrigation systems is available on California's Save our Water website: http://saveourwater.com/what-you-can-do/tips/landscaping/

CONCLUSION
CDFW appreciates the opportunity to comment on the Notice of Preparation to assist San Mateo County in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Ms. Randi Adair, Senior Environmental Scientist (Supervisory), at randi.adair@wildlife.ca.gov or (707) 576-2786.

Sincerely,

Scott Wilson

Scott Wilson
Regional Manager
Bay Delta Region

cc: Office of Planning and Research, State Clearinghouse, Sacramento

Randi Adair, CDFW Bay Delta Region
Suzanne DeLeón, CDFW Bay Delta Region

From: Doug Bui [mailto:dougbui@pacbell.net]
Sent: Sunday, December 11, 2016 12:43 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Cc: Carla Schoof <cschoof@smcgov.org>; Irving Torres <ITorres@smcgov.org>
Subject: EIR Flood Park Comments

While not an EIR issue, I believe the Project Title is misleading and needs to be corrected. This has been labeled "Flood County Park Landscape Plan". The landscape portion is relative minor compared to the increase in recreational facilities being added. The Plan calls for adding a full size soccer/lacrosse field, basketball court, pump track and expanding the use of the existing baseball field with soccer practice fields. Recreational activities being eliminated are 2 of the 4 existing tennis courts, bocce ball and softball field. This really should be titled as "Flood County Park Land Use Plan". To not change the project title is misleading to the public.

Below are my comments on various items which I believe need to be incorporated in the draft EIR so as to get a true representation of its impact.

1. The Plan is scheduled to be implemented in 3 phases. Phase 1 - within 2 years, Phase II - 5 to 7 years and Phase III - 7 to 10 years. This EIR project analysis is only for Phase 1. The EIR needs to also include Phase II and III in order to determine the full probable environmental impacts. Only with a full analysis will the total project impact be determined which will then allow the Commission to make an informed decision Why is not a full Phase I, II and III being done at this time?

2. The Plan identifies 3 areas of use in a general nature which are to be implemented in Phase II and II. These 3 areas of use are described as "Gathering meadow (performance space), Conversion of administrative building to open-air shade/market structure and gathering plazas. Please provide a more definitive description as to types of uses to be permitted in order to get a more accurate analysis as to their environmental impact. Uses relate to people which relates to noise, traffic, parking, etc. Will a Farmer's Market be an allowed use?

3. The 1983 Master Plan described the 1982 Low Season activity (mid Oct - mid April) activity as 2,000 people/week with 700 people/day Saturday and Sunday and Hi Season activity (mid April - mid Oct) activity as 4,000 to 9,000 people/week with 1,200 - 2,400 people/day Saturday and Sunday. It also states that when Saturday or Sunday attendance reaches about 1,800 people, and a baseball doubleheader is being played, space for picnic activity is limited. What is the projected number of people using the park and what activities will be impacted?

4. From an activity standpoint, what level of activity for each of the uses will be used in order to determine traffic, noise, transportation and parking impacts?

5. Will the EIR present a "worse use case" scenario showing simultaneous uses, i.e. corporate bbq, private bbq, baseball game, soccer/lacrosse game(s), gathering meadow use, farmer's market, wedding, etc. and their effect upon all environmental issues?

6. What is the maximum people capacity of the park when only allowing on-site parking? What is the maximum people capacity of the park allowing both on and off-site parking? What are the number of on-site parking spaces?

7. What is the affect to on-site parking when a parking fee is implemented or not implemented?

8. What will be the traffic impact of people both dropping of sport participants an those waiting to pick up sport participants? Commonly known as the collision factor.

9. What restrictions upon amplifications will be used for all activities, including sporting events, and will they be implemented? Will on site signage notification be used?

10. Please state the hours of operation for the Park as well how of operations for specific uses if applicable.

11. Current use shows that there is an overflow of parking particularly during the summer into the adjacent residential areas. There has been a. lack of response from the Menlo Park Police Department in enforcement.

With the increase in projected activity, what is proposed to make sure parking in the restricted residential areas will be enforced? Will the Menlo Park police department be asked to develop a firm plan of parking enforcement for the area and if not, why not. Such a plan can include summer patrol, response time to resident calls, etc.

12. Will the County issue a "conditions of operations" which has the same effect as a conditional use permit which Cities/Counties issue to developers. Such a "conditions of operations" could include, but not be limited, to hours of operation, park capacity, types of uses, etc.

13. What measures will be taken to provide for users to load/unload food, supplies, etc. for their various functions rather than use Bay Road, Iris or adjacent residential streets?

14. What measures will be taken to insure the neighborhood that there will not be any lighting for night time activities?

15. Playground replacement is scheduled for Phase II which means the implementation is 5 - 7 years later. Why is this item not included in Phase I as the playground gets lots of activity particularly during the summer and definitely with an increase use of the picnic areas?

It would be appreciated if I could receive an acknowledgement that you received this email.

Regards,

Doug Bui
(650) 387-6395 (cell)

From: Joan Hilse [mailto:JKHilse@aol.com]
Sent: Wednesday, December 14, 2016 5:09 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org<mailto:sherzberg@smcgov.org>>
Subject: Flood Park Proposed Draft EIR

I am excited that Flood Park is being re-imagined, that its neglected infrastructure will be renewed, and that many many new and returning users will enjoy it. As a close neighbor of the park I offer some comments for the Draft EIR.

1. The proposed location of the full size soccer/lacrosse field has serious implications for all three identified areas of major concern to the EIR: parking, traffic and noise. What alternatives will you consider and what is the data supporting the proposed location?

* Current proposal invites soccer/lacrosse participants to be dropped off at Iris entrance due to proximity. How will traffic and parking issues along nearby streets be handled, particularly when participants of one youth game are being picked up at the same time as participants from the next one are dropped off? What is the projected vehicle count at these peak times?
* Noise from soccer/lacrosse is seen by many, including me, as more intrusive, shrill, and continual than that from baseball. What do your research and studies show? What are the pros and cons of swapping locations of baseball and soccer/lacrosse? Soccer/lacrosse noise for neighbors in Suburban Park would be less troublesome because the parking lot gives more distance vs. the 30 feet to neighbors in the current proposal.

1. What do your studies show about bathroom capacity required during peak usage? If the sports upgrades in Phase I indicate that increased capacity is needed, when will bathroom capacity be added? An important safety issue should be whether they are close enough to all family and youth activities for children's use.
2. The 1983 Master Plan and community input emphasize the importance of the unique natural environment of the park. How will this be preserved when so many new activities are being squeezed in? There will be trees removed, such as the lovely stand of young redwoods near the present tennis courts. What is the replacement plan? Will the 30-foot distance from Del Norte fences to soccer/lacrosse support preservation of the mature redwoods and oaks? What do arborists advise?
3. What measures will be taken to insure policies such as amplification levels, night time usage (no lighting), trail use by bicycles, and the like are observed?
4. Concerning esthetics, what is the plan for mitigation of soccer/lacrosse noise? How will neighbors be protected from errant balls? Esthetics are important, as well as effectiveness of the solution.

Sincerely,
Joan Hilse
1073 Del Norte

From: Libby Ordonez [mailto:libbyordonez@yahoo.com]
Sent: Friday, December 16, 2016 4:38 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Subject: Flood Park Comments

To Whom it May Concern,

The last thing Menlo Park residents need is to reimagine Flood Park by taking away the nice picnic areas and replacing them with noisy athletic fields and even more traffic. As a Flood Triangle resident adding a lacrosse and soccer field will only make the unbearable traffic we have now even worse. Parents coming to pick up their children will look for alternate ways to avoid the congestion and will only cause more traffic flowing in and out of the Flood Triangle neighborhood. The traffic begins at 3 PM on Ringwood and then backs up from Willow to Ringwood along Bay. A lot of the time I can't even get down my street. If new athletic fields are added to Flood Park I can't even imagine how terrible the traffic will become.

Flood Park is bustling on the weekends and the main park goers are picnickers. It makes absolutely no sense to minimize the picnic areas when that is the main draw. Flood Park is extremely unique because of this fact. There are not a lot of large parks that let many picnickers have their own sections for their gatherings. Don't we want Menlo Park to be unique.

It make me extremely mad to hear that the HISTORIC adobe was going to be restored to then hear that it was going to be removed. What happened to restoring the adobe and making it a museum of sorts. Why in the world would we get rid of a piece of history just like that! Would it kill everyone to remove it?

Finally, the changes to Flood Park would add considerably to the noise levels. I already have to put up with the freeway and the ever increasing airplane noise. Why should I have to deal with even more noise from athletic events or even an amphitheater. It just isn't fair and is not right! My neighbors already got out of town for the East Bay because of the noise. If something is not done to stop it soon, I will be joining them! I have lived in Menlo Park my entire life, but it is not the same city.

Please consider these comments. Thank you.

Sincerely,
Libby

From: M [mailto:purr4449@yahoo.com]
Sent: Tuesday, December 06, 2016 6:24 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Subject: Do NOT "develop" Flood Park! Keep it AS IT IS!

Hello.

This is Margaret Monroe.

I am a long-time Menlo Park resident, and I live near Flood Park.

I do NOT want ANY part of that beautiful and serene park "developed". Leave it AS IT IS. Just maintain it the way it is. NO soccer field, NO nothing.

Flood Park is a real jewel as it is, and building ANYTHING in it would permanently RUIN it.

I HOPE I am NOT the ONLY person who feels this way.

From: Michael Davis [mailto:mibdavis@gmail.com]
Sent: Tuesday, November 22, 2016 10:16 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Subject: Comments on Flood Park plan

Thanks to the group that worked on the Reimagine Flood Park project. The group has done a thorough job in gathering input from the community and preparing a plan that aligns with the preferences of the community.

I have a few comments on the plan:

- I'm happy to see the inclusion of various gathering places, a market structure, and a pump track -- those are nice additions.
- I'm concerned that a soccer field may bring too much traffic and noise, unless carefully controlled. I would prefer a quieter and more natural setting rather than a large grass field.
- The park is very popular for picnics. It's difficult to tell from the plan whether the amount of picnic space has increased or decreased from the current conditions. I recommend that the picnic space not be reduced from the current amount.
- I see a drawing that includes a dog being walked, so I assume dogs will be allowed, at least on the main paths. I support this idea, since many people in the surrounding areas would like to walk their dogs in the park

Thank you,
Michael Davis

From: Michelle Bui [mailto:mrbui01@hotmail.com]
Sent: Monday, December 05, 2016 6:24 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Subject: Flood Park

Hello Mr. Herzberg,

After reviewing the proposed plan for a newly designed Flood Park, while there are many positives, there are a few concerns.

The lacrosse/soccer field is positioned to close to the neighbors on Del Norte. What about positioning it at the old school attached to the back side of the park. It is my understanding the property is for sale. If not there, what about positioning it closer to the parking lot. Either of the later choices effects the neighbors less, also if in the future lights become a request, there might be a better chance of approval.

Also the amphitheater is a concern as far as noise is concerned. Especially if there is amplification.

Another concern is parking and traffic on neighborhood streets. Currently there is no parking on Del Norte and Oakwood Place 8am-8pm April-October. Unfortunately no one is enforcing the law. We would like to see no parking added to Tehema and Sonoma. There is a no left turn sign from Bay to Del Norte 7-9am, again not enforced, and cars come speeding through in the mornings. This will be a county park which will draw from a larger geographic area, especially when it involves sports. Please see to it that a nice redesign of the park, does not hurt the surrounding neighborhoods and home prices

Thank you,
Michelle Bui

Make each day your masterpiece 🎨

From: Nettie Wijsman
Sent: Thursday, December 15, 2016 11:57 PM
To: sherzberg@smc.gov
Subject: Re: Questions for Flood Park EIR

I am attaching some questions to be included in the EIR including a rough layout of another proposed plan reversing the 2 large fields with the ball park bull pen in the center of the park and the outfield close to Del Norte and Iris Ln. There will need to be some room in between the 2 fields for players to gather and for seating, but I am quit sure there should be enough room to do this. If for some reason there does not seem to be enough space, consider dropping the lacrosse portion of the soccer field, as a lacrosse field is 60 yards wide while the smallest full size soccer field is 50 yards wide. That is an additional 30 feet of space. Lacrosse was not even identified as a need by the community when the County started this process, and somehow has become a high priority item.

From a personal level, this project is of deep concern due to my health issues as I deal with chronic pain and because of this, I have extreme difficulties sleeping. They way I maintain my life is to not schedule my mornings allowing me to sleep in when I do not sleep adequately at night. I am rarely up before 9:30AM and I will sleep until 10 – 11AM when I have a difficult night. For me to stay healthy means having the ability to catch up on sleep in the morning when needed. One whistle or yell will wake me up. I already wear earplugs every night.

Nettie Wijsman
1037 Del Norte Ave

The following are quotes (with questions) from the last Flood Park Master Plan, completed in 1983. Although this Master Plan is old, I think many of the comments in the Master Plan are still applicable today.

Use Patterns

Pg 23," Weekends bring people who arrive before noon and stay for at least a 5 hour period. When Saturday or Sunday attendance reaches about 1,800 people and a baseball doubleheader is being played, space for picnic activity is limited. The picnic areas, softball field, lawn areas and volleyball courts received intensive use throughout the high season." **How are you going to ensure that picnickers are not squeezed out of being able to use the park when baseball, soccer and lacrosse games are happening at the same time and on a frequent basis? What is the maximum occupancy projected for the park? How has the number of picnic tables/groups changed from the current Preferred Plan compared to what is used now?**

pg 23 The management objectives for Flood County Park are detailed under Resource Policy Formation, but generally include protection of the existing natural environment, while permitting use by the public for enjoyment of the site's resources. The 3d and most important component in determining allowable use intensity involves an analysis of the natural, cultural, and aesthetic resources to determine the area's physical limitations for development of facilities, and the ability of the ecosystem to withstand human impact**. How is the current plan with multiple sports fields having activities going on at the same time going to impact the current and future ecosystem?**

Pg 31 "To develop a specific management plan for the heritage tree resource:
Encourage the transition from an Oak Woodland ecology to a more tolerant ecology consisting of Oaks and more Bays, Redwoods, and other natives." **The current proposed plan is proposing cutting down a grove of Redwood trees in order to build a full size soccer/lacrosse field in its space. How is this in keeping with the transition to more ecological trees such as Redwoods? And given that trees cannot be planted near the PUC easement, how will you be able to replace the trees that will be cut down to accommodate the proposed soccer/lacrosse field?**

Pg 49, "Flood Park is one of the last remaining publicly owned open spaces with a considerable growth of native oaks and bays. It is believed that these trees represent some of the natural pre-existing biotic conditions prevalent in this area prior to urban development. While the species are not rare or endangered, as considered on a county-wide basis, they are endangered at Flood because of past resource management practices and the impact of heavily overuse immediately surrounding the trees". **Are there currently signs of stress to the existing Oak trees? Have the Oak trees been regenerating adequately? How is the impact of more use in the park going to affect the current Oak tree population and regeneration of Oak trees, since the trees have already shown stress in the past due to overuse?**

Additional Questions

1. Noise - from soccer/lacrosse and volleyball courts being so close to residents on Del Norte Ave. and Iris Ln. How are you going to mitigate noise from ball games from sports fields and 2 volleyball courts (with spectator stands) being located only 30 feet from neighbor's yards on Del Norte Ave and Iris Ln? Additional noise will be from spectators lining up in the small 30 foot area between the field, walkway and neighbors fences. How are you going to ensure that this project

is not going to negatively affect mine and other neighbor's health due to noise and the inability to sleep?

2. Noise and dust from leaf blowers – the current 'Preferred Plan" shows a walking pathway between neighbor's property lines and the edge of the current proposed field (a total space of only 30 feet). I assume leaf blowers will be keeping these pathways clean. How are you going to control dust being blown into neighbor's yards? How are you going to mitigate the noise from these leaf blowers, especially early in the morning? How are you going to ensure that dust from blowing leaves so close to mine and other neighbor's yards is not going to affect health negatively (i.e. dust allergies)?

3. Esthetics – How are you going to keep balls out of neighbors yards while also maintaining an aesthetic appeal for those neighbors that border the park? Erecting very high fences or walls or ugly green netting would be required for any sport in order to keep balls out of neighbor's yards.

4. How can you know the impact of activities proposed in phases II and III since they are projected to be many years out? How do we even know projects in phase II and III will be completed since they are not even being included in the proposed EIR? (The playground equipment and picnic areas are currently the most used areas in the park yet are not being addressed in the first phase).

5. Traffic – what will be the impact of traffic on Bay Rd., Del Norte Ave., Iris Ln. and neighboring streets in the Flood Triangle and Suburban Park with full use of the proposed plan? How will restricted parking be enforced? How will the increased traffic affect safety on our quite streets?

6. Since many of the trees are more mature, what will be the impact to existing trees be by moving pathways from their current locations to new locations further under the trees ?

7. Noise from Lacrosse games - Since the EIR is supposed to be done by March, how can you accurately assess noise from games like Lacrosse in the winter when the Lacrosse season follows a baseball season of spring, summer and fall? Even if there are some games taking place somewhere in the winter isn't it likely the attendance at games would be lower?

8. What is converting to turf going to do to the health of the redwood trees near the backstop of the current baseball field, as those trees are planted with cement surrounding them on all sides and the roots are likely getting much of their water from lawn area in the baseball field?

9. Will the turf have enough padding to not cause undue injuries?

10. As turf gets hot, will this increase the temperature in the park and surrounding neighbor hood

11. How much noise will be generated if all park activities are taking place at the same time i.e. baseball game, soccer/lacrosse game, basket ball, picnics, special event?

12. How will the noise from constant ball games affect enjoyment of the park for picnic users, play ground users and other users such as walkers and Mariachi bands?

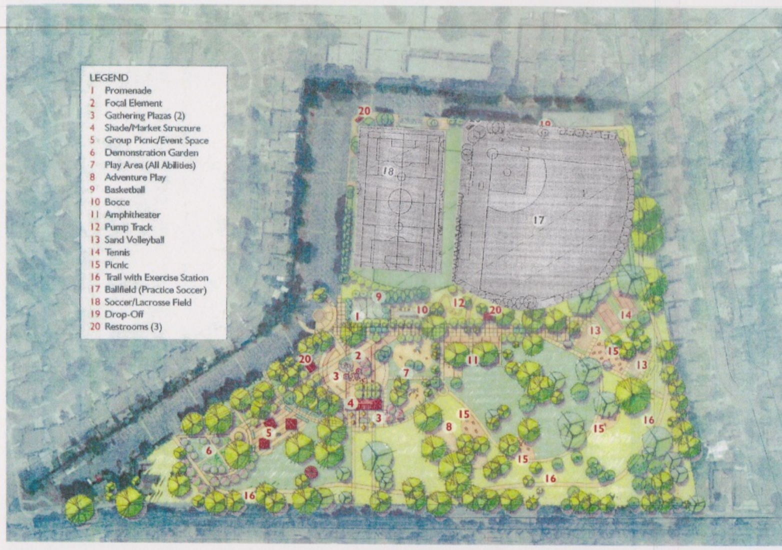
13. As there is already trash left nearly every weekend in neighbor's yards on Del Norte Ave. and Iris Ln, how is the increased use of the park going to affect the amount of trash in our neighborhood and who is going to be responsible for this?

14. How is the reduction in volleyball courts from 4 to 2 going to affect volleyball users given that the 4 existing volleyball courts are currently used frequently?

15. How will major changes in the park resulting in new sports fields being so close to neighbor's properties affect those neighbors and in turn nearby neighbor's real estate property values? How will having sports fields so close to the property line affect the length of time to sell a property or the number of offers a property might receive along with the value of the property?

Presented December 9 + 16 as final Plan - Soccer Field moved and enlarged

Preferred Alternative - Components



From: Ryan Z. Sandoval [mailto:rsandoval@gmail.com]
Sent: Monday, December 12, 2016 7:30 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Subject: Flood Park Resident Concerned about the Flood Park Development

Hello,

I am the owner of 1077 Del Norte Avenue in Menlo Park, which borders Flood Park. In fact, I am steps away from the back entrance to Flood Park.

I am very concerned about the plans to develop at Flood Park, especially the soccer field that is supposed to be built near my fence. Even as the park stands today, I have many, many people who take up all the parking on my street (especially on weekends) even though they are not permitted to park there. The police never come by and ticket, even when I call. I am very concerned that this situation will just balloon with the new park. I have to unfortunately pick up trash daily (yes, every day) that is dropped by people who park illegally.

Moreover, I am very concerned that the noise from the soccer field and the potential for netting to obstruct my views will severely decrease my property value. I saved for years for a down payment to afford Menlo Park, and that could all evaporate with this construction.

What would be help is if 1) the soccer field were moved away from my property (perhaps to border Bay Road instead) and 2) the back entrance to the park is closed.

I fear without these two things that my property value will evaporate and the trash issue on my street will get much, much worse.

Will these two things be considered?

Ryan Sandoval

From: Jonathan S Mendoza [mailto:JSMendoza@sfwater.org]
Sent: Tuesday, December 13, 2016 6:24 PM
To: Samuel F. Herzberg <sherzberg@smcgov.org>
Cc: Angela Yu <AnYu@sfwater.org>; Christopher J Wong <CJWong@sfwater.org>; Dina Brasil <DBrasil@sfwater.org>; Ellen Natesan <ENatesan@sfwater.org>; Irina Torrey <ITorrey@sfwater.org>; Jonathan Chow <jchow@sfwater.org>; Janice Levy <JLevy@sfwater.org>; Joe Naras <JNaras@sfwater.org>; Joanne Wilson <jwilson@sfwater.org>; RosannaS Russell <RSRussell@sfwater.org>; Stacie Feng <SFeng@sfwater.org>; Tracy Leung <TLeung@sfwater.org>; Tim Ramirez <TRamirez@sfwater.org>
Subject: San Mateo County NOP for Flood County Park Landscape Plan DEIR - SFPUC Comments

Good Afternoon Mr. Herzberg:

The San Francisco Public Utilities Commission (SFPUC) recently received a Notice of Preparation from San Mateo County (Lead Agency) for the Flood County Park Landscape Plan Draft Environmental Impact Report (DEIR). Thank you for the opportunity to comment on the scope of the DEIR.

On behalf of the SFPUC, I provide the following comments:

- Refer to the regional water system as "Hetch Hetchy Regional Water System" and to the SFPUC right-of-way as the "SFPUC right-of-way."
- Thank you for describing the SFPUC right-of-way (ROW) as owned by the City and County of San Francisco. In the DEIR, please add the following information to the Summary Description, Project Location and to the Land Use – Existing Setting/Condition sections: "The City and County of San Francisco (San Francisco), through the San Francisco Public Utilities Commission (SFPUC), owns approximately 2.3 acres of real property in fee in San Mateo County (San Francisco Property) that crosses the project location as an 80-foot wide right-of-way (ROW). The SFPUC ROW bisects the project location in an east-to-west alignment through the existing baseball field and parking lot. The San Francisco Property's primary purpose is to serve as a utility corridor which is improved by three large subsurface water transmission lines and other appurtenances. This utility corridor is for the reliable delivery of water to the SFPUC's 2.6 million customers " Note: This right-of-way is NOT an easement.
- I am attaching two SFPUC ROW policies that specify allowable and prohibited uses on the SFPUC ROW. In the land use section, please include information that the SFPUC has adopted land use policies for its ROW. Generally, one of the CEQA thresholds includes analyzing the project for "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..." The SFPUC policies are in place to avoid any potential impacts to SFPUC infrastructure and/or water customers. In general, proposals have the potential to conflict with SFPUC land use policies so the proposal should be analyzed in the DEIR with relation to the SFPUC's existing ROW policies.
- Delineate the SFPUC ROW in any DEIR figures and/or maps.

As you are aware, San Mateo County Parks Department presented proposed Flood County Park improvements at the September 2014 Project Review Committee (committee) meeting followed by an updated proposal at the March 2016 committee meeting. For your reference, I am including the meeting summaries for those two meetings. At the March 2016 meeting, the committee requested that San Mateo County Parks Department arrange for further Project Review when the Flood Park proposal is at the 35% design phase milestone. Please contact me with an updated project description and 35% project plans when they are available to continue the review process. I will schedule you for the next available meeting.

As a friendly reminder, when submitting the updated proposal, please incorporate the following committee feedback into your proposal (additional details in the March 2016 Project Review Committee meeting summary):

- The following are prohibited in the SFPUC ROW: Lighting poles or fence posts; Utilities placed parallel to the BDPLs; Structures and fixtures within 20 feet of the edge of the pipelines (such as poles for basketball hoops); Vegetation within 10 feet of the pipeline risers and manholes; Trees; Tire crumbles (used with artificial turf);
- Any irrigation that is parallel to the BDPLs must be 1.5 inches or less in diameter;
- Any utilities or conduit crossing the pipelines must maintain 12-inches of vertical clearance with the BDPLs;
- The pipeline(s) need an additional 6 inches of cover over the ball fields;
- Finally, San Mateo County must execute an updated revocable license before any work in the SFPUC ROW can proceed.

Please feel free to contact me if you have any questions.

Thank you for your time and attention.

Regards,

Jonathan S. Mendoza
Land and Resources Planner
Natural Resources and Lands Management Division
San Francisco Public Utilities Commission
1657 Rollins Road
Burlingame, CA 94010
O: 650.652.3215 (Mondays and Fridays)
C: 415.770.1997 (Tuesdays and Thursdays)
F: 650.652.3219
E: jsmendoza@sfwater.org
W: http://www.sfwater.org/ProjectReview

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Regional Water System
Services of the San Francisco Public Utilities Commission

SFPUC Interim Water Pipeline Right of Way Use Policy for San Mateo, Santa Clara, and Alameda Counties

Approved January 13, 2015

by

SFPUC Resolution No. 15-0014

as an amendment to the SFPUC Real Estate Guidelines

SFPUC Water Pipeline Right of Way Use Policy for San Mateo, Santa Clara, and Alameda Counties

As part of its utility system, the San Francisco Public Utilities Commission (SFPUC) operates and maintains hundreds of miles of water pipelines. The SFPUC provides for public use on its water pipeline property or right of way (ROW) throughout Alameda, Santa Clara, and San Mateo counties consistent with our existing plans and policies. The following controls will help inform how and in which instances the ROW can serve the needs of third parties—including public agencies, private parties, nonprofit organizations, and developers—seeking to provide recreational and other use opportunities to local communities.

Primarily, SFPUC land is used to deliver high quality, efficient and reliable water, power, and sewer services in a manner that is inclusive of environmental and community interests, and that sustains the resources entrusted to our care. The SFPUC's utmost priority is maintaining the safety and security of the pipelines that run underneath the ROW.

Through our formal Project Review and Land Use Application and Project Review process, we may permit a secondary use on the ROW if it benefits the SFPUC, is consistent with our mission and policies, and does not in any way interfere with, endanger, or damage the SFPUC's current or future operations, security or facilities.[1] No secondary use of SFPUC land is permitted without the SFPUC's consent.

These controls rely on and reference several existing SFPUC policies, which should be read when noted in the document. Being mindful of these policies while planning a proposed use and submitting an application will ease the process for both the applicant and the SFPUC. These controls are subject to change over time and additional requirements and restrictions may apply depending on the project.

The SFPUC typically issues five-year revocable licenses for use of our property, with a form of rent and insurance required upon signing.[2]

Note: The project proponent is referred to as the "Applicant" until the license agreement is signed, at which point the project proponent is referred to as the "Licensee."

[1] SFPUC Guidelines for the Real Estate Services Division, Section 2.0.
[2] SFPUC Guidelines for the Real Estate Services Division, Section 3.3.

I. *Land Use, Structures, and Compliance with Law*

The following tenets govern the specifics of land use, structures, and accessibility for a project. Each proposal will still be subject to SFPUC approval on a case-by-case basis.

A. SFPUC Policies. The Applicant's proposed use must conform to policies approved by the SFPUC's Commission, such as the SFPUC's Land Use Framework (http://sfwater.org/index.aspx?page=586).

B. Americans with Disabilities Act Compliance. The Applicant must demonstrate that a Certified Access Specialist (CASp) has reviewed and approved its design and plans to confirm that they meet all applicable accessibility requirements.

C. Environmental Regulations. The SFPUC's issuance of a revocable license for use of the ROW is subject to compliance with the California Environmental Quality Act (CEQA). The Applicant is responsible for assessing the potential environmental impacts under CEQA of its proposed use of the ROW. The SFPUC must be named as a Responsible Agency on any CEQA document prepared for the License Area. In addition, the Applicant shall provide to SFPUC a copy of the approved CEQA document prepared by the Applicant, the certification date, and documentation of the formal approval and adoption of CEQA findings by the CEQA lead agency. The SFPUC will not issue a license for the use of the ROW until CEQA review and approval is complete.

D. Crossover and Other Reserved Rights. For a ROW parcel that bisects a third party's land, the Applicant's proposed use must not inhibit that party's ability to cross the ROW. The Applicant must demonstrate any adjoining owner with crossover or other reserved rights approves of the proposed recreational use and that the use does not impinge on any reserved rights.

E. Width. The License Area must span the entire width of the ROW.
   - *For example, the SFPUC will not allow a 10-foot wide trail license on a ROW parcel that is 60 feet wide.*

F. Structures. Structures on the ROW are generally prohibited. The Licensee shall not construct or place any structure or improvement in, on, under or about the entire License Area that requires excavation, bored footings or concrete pads that are greater than six inches deep.

   i. Structures such as benches and picnic tables that require shallow (four to six inches deep) cement pads or footings are generally permitted on the ROW. No such structure may be placed directly on top of a pipeline or within 20 feet of the edge of a pipeline.

   ii. The SFPUC will determine the permitted weight of structures on a case-by-case basis.

- *When the SFPUC performs maintenance on its pipelines, structures of significant weight and/or those that require footings deeper than six inches are very difficult and time-consuming to move and can pose a safety hazard to the pipelines. The longer it takes the SFPUC to reach the pipeline in an emergency, the more damage that can occur.*

G. Paving Materials. Permitted trails or walkways should be paved with materials that both reduce erosion and stormwater runoff (e.g., permeable pavers).

H. License Area Boundary Marking. The License Area's boundaries should be clearly marked by landscaping or fencing, with the aim to prevent encroachments.

I. Fences and Gates. Any fence along the ROW boundary must be of chain-link or wooden construction with viewing access to the ROW. The fence must include a gate that allows SFPUC access to the ROW.[3] Any gate must be of chain-link construction and at least 12 feet wide with a minimum 6-foot vertical clearance.

II. *Types of Recreational Use*

Based on our past experience and research, the SFPUC will allow simple parks without play structures, community gardens and limited trails.

A. Fulfilling an Open Space Requirement. An applicant may not use the ROW to fulfill a development's open space, setback, emergency access or other requirements.[4] In cases where a public agency has received consideration for use of SFPUC land from a third party, such as a developer, the SFPUC may allow such recreational use if the public agency applicant pays full Fair Market Rent.

B. Trail Segments. At this time, the SFPUC will consider trail proposals when a multi-jurisdictional entity presents a plan to incorporate specific ROW parcels into a fully connected trail. Licensed trail segments next to unlicensed parcels may create a trail corridor that poses liability to the SFPUC. The SFPUC will only consider trail proposals where the trail would not continue onto, or encourage entry onto, another ROW parcel without a trail and the trail otherwise meet all SFPUC license requirements.

III. *Utilities*

A. Costs. The Licensee is responsible for all costs associated with use of utilities on the License Area.

[3] SFPUC Right of Way Requirements.
[4] SFPUC Guidelines for the Real Estate Services Division, Section 2.0.

B. Placement. No utilities may be installed on the ROW running parallel to the SFPUC's pipelines, above or below grade.[5] With SFPUC approval, utilities may run perpendicular to the pipelines.

C. Lights. The Licensee shall not install any light fixtures on the ROW that require electrical conduits running parallel to the pipelines. With SFPUC approval, conduits may run perpendicular to and/or across the pipelines.

- Any lighting shall have shielding to prevent spill over onto adjacent properties.

D. Electricity. Licensees shall purchase all electricity from the SFPUC at the SFPUC's prevailing rates for comparable types of electrical load, so long as such electricity is reasonably available for the Licensee's needs.

IV. *Vegetation*

A. The Applicant shall refer to the SFPUC Integrated Vegetation Management Policy for the *minimum* requirements concerning types of vegetation and planting. (http://www.sfwater.org/index.aspx?page=431.) The Licensee is responsible for all vegetation maintenance and removal.

B. The Applicant shall submit a Planting Plan as part of its application.

(Community garden applicants should refer to Section VII.C for separate instructions.)

i. The Planting Plan should include a layout of vegetation placement (grouped by hydrozone) and sources of irrigation, as well as a list of intended types of vegetation. The SFPUC will provide an area drawing including pipelines and facilities upon request.

ii. The Applicant shall also identify the nursery(ies) supplying plant stock and provide evidence that each nursery supplier uses techniques to reduce the risk of plant pathogens, such as Phytophthora ramorum.

V. *Measures to Promote Water Efficiency*[6]

A. The Licensee shall maintain landscaping to ensure water use efficiency.

B. The Licensee shall choose and arrange plants in a manner best suited to the site's climate, soil, sun exposure, wildfire susceptibility and other factors. Plants with similar water needs must be grouped within an area controlled by a single irrigation valve

[5] SFPUC Land Engineering Requirements.
[6] SFPUC Rules and Regulations Governing Water Service to Customers, Section F.

C. Turf is not allowed on slopes greater than 25 percent.

D. The SFPUC encourages the use of local native plant species in order to reduce water use and promote wildlife habitat.

E. Recycled Water. Irrigation systems shall use recycled water if recycled water meeting all public health codes and standards is available and will be available for the foreseeable future.

F. Irrigation Water Runoff Prevention. For landscaped areas of any size, water runoff leaving the landscaped area due to low head drainage, overspray, broken irrigation hardware, or other similar conditions where water flows onto adjacent property, walks, roadways, parking lots, structures, or non-irrigated areas, is prohibited.

VI. *Other Requirements*

A. Financial Stability. The SFPUC requires municipalities or other established organizations with a stable fiscal history as Licensees.

   i. Applicants must also demonstrate sufficient financial backing to pay rent, maintain the License Area, and fulfill other license obligations over the license term.

B. Smaller, community-based organizations without 501(c)(3) classifications must partner with a 501(c)(3) classified organization or any other entity through which it can secure funding for the License Area over the license term. Maintenance. The Licensee must maintain the License Area in a clean and sightly condition at its sole cost.[7] Maintenance includes, but is not limited to, regular weed abatement, mowing, and removing graffiti, dumping, and trash.

C. Mitigation and Restoration. The Licensee will be responsible, at its sole cost, for removing and replacing any recreational improvements in order to accommodate planned or emergency maintenance, repairs, replacements, or projects done by or on behalf of the SFPUC. If the Licensee refuses to remove its improvements, SFPUC will remove the improvements I at the Licensee's sole expense without any obligation to replace them.

D. Encroachments. The Licensee will be solely responsible for removing any encroachments on the License Area. An encroachment is any improvement on SFPUC property not approved by the SFPUC. Please read the SFPUC ROW Encroachment Policy for specific requirements. If the Licensee fails to remove encroachments, the SFPUC will remove them at Licensee's sole expense. The Licensee must regularly patrol the License Area to spot encroachments and remove them at an early stage.

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[7] SFPUC Framework for Land Management and Use.

E. Point of Contact. The Licensee will identify a point of contact (name, position title, phone number, and address) to serve as the liaison between the Licensee, the local community, and the SFPUC regarding the License Agreement and the License Area. In the event that the point of contact changes, the Licensee shall immediately provide the SFPUC with the new contact information. Once the License Term commences, the point of contact shall inform local community members to direct any maintenance requests to him or her. In the event that local community members contact the SFPUC with such requests, the SFPUC will redirect any requests or complaints to the point of contact.

F. Community Outreach.

   i. Following an initial intake conversation with the SFPUC, the Applicant shall provide a Community Outreach Plan for SFPUC approval. This Plan shall include the following information:

      1. Identification of key stakeholders to whom the Applicant will contact and/or ask for input, along with their contact information;

      2. A description of the Applicant's outreach strategy, tactics, and materials

      3. A timeline of outreach (emails/letters mailing date, meetings, etc.); and

      4. A description of how the Applicant will incorporate feedback into its proposal.

   ii. The Applicant shall conduct outreach for the project at its sole cost and shall keep the SFPUC apprised of any issues arising during outreach.

   iii. During outreach, the Applicant shall indicate that it in no way represents the SFPUC.

G. Signage. The SFPUC will provide, at Licensee's cost, a small sign featuring the SFPUC logo and text indicating SFPUC ownership of the License Area at each entrance. In addition, the Licensee will install, at its sole cost, an accompanying sign at each entrance to the License Area notifying visitors to contact the organization's point of contact and provide a current telephone number in case the visitors have any issues. The SFPUC must approve the design and placement of the Licensee's sign.

VII. *Community Gardens*

The following requirements also apply to community garden sites. As with all projects, the details of the operation of a particular community garden are approved on a case-by-case basis.

A. The Applicant must demonstrate stable funding. The Applicant must provide information about grants received, pending grants, and any ongoing foundational support.

B. The Applicant must have an established history and experience in managing urban agriculture or community gardening projects. Alternatively, the Applicant may demonstrate a formal partnership with an organization or agency with an established history and experience in managing urban agriculture or community gardening projects

C. During the Project Review process, the Applicant shall submit a Community Garden Planting Plan that depicts the proposed License Area with individual plot and planter box placements, landscaping, and a general list of crops that may be grown in the garden.

D. The Applicant shall designate a Garden Manager to oversee day-to-day needs and serve as a liaison between the SFPUC and garden plot holders. The Garden Manager may be distinct from the point of contact, see Section VI.E.

E. The Licensee must ensure that the Garden Manager informs plot holders about the potential for and responsibilities related to SFPUC repairs or emergency maintenance on the License Area. In such circumstances, the SFPUC is not liable for the removal and replacement of any features on the License Area or the costs associated with such removal and replacement.

F. The Licensee must conduct all gardening within planter boxes with attached bottoms that allow for easy removal without damaging the crops.

Hetch Hetchy
Regional Water System
Services of the San Francisco Public Utilities Commission
Natural Resources and Lands Management Division

Date: **March 31, 2016**

To: **Project Review Committee:**

Natural Resources and Lands Management Division (NRLMD): Dave Baker, Jason Bielski, Guido Ciardi, Rick Duffey, John Fournet, Jane Herman, Tim Koopmann, Krysten Laine, Diane Livia, Jeremy Lukins, Jonathan Mendoza, Joe Naras, Ellen Natesan, Emily Read, Casey Sondgeroth, Kathleen Swanson, Joanne Wilson and Tina Wuslich

Water Supply and Treatment Division (WSTD): Jonathan Chow, Colm Conefrey, Stacie Feng, Jim Heppert, Tracy Leung, Tony Mazzola, and Chris Nelson

Real Estate Services (RES): Rosanna Russell, Tony Bardo, Tony Durkee, Chester Huie, Brian Morelli, Dina Brasil, Bem Andzenge and Jamin Barnes

Water Quality Bureau (WQB): Jackie Cho

Bureau of Environmental Management (BEM): Brett Becker, Kelly Capone, Sally Morgan, Barry Pearl, Matthew Weinand and YinLan Zhang

City Attorney's Office: Hazel Brandt, Josh Milstein, Carolyn Stein and Richard Handel

Cc: **SFPUC:** Robin Breuer, David Briggs, Chris Nelson, Debbie Craven-Green, Andrew DeGraca, Ed Forner, Karen Frye, Maria Garcia, Susan Hou, Annie Li, Greg Lyman, Alan Johanson, Scott MacPherson, Joe Ortiz, Barry Pearl, Tim Ramirez, Brian Sak, Carla Schultheis, Bles Simon, Irina Torrey, Rizal Villareal, Mia Ingolia, Scott Simono, and Surinderjeet Bajwa

San Francisco City Planning (Environmental Planning): Chris Kern

From: **Jonathan S. Mendoza, Land and Resources Planner**
jsmendoza@sfwater.org | (415) 770-1997 or (650) 652-3215

Subject: **March 11, 2016 Project Review Meeting Summary**
10:00 a.m. – 12:00 p.m.
1657 Rollins Road, Burlingame, Medbery (Large) Conference Room

Participants: Jonathan Mendoza, Joanne Wilson, Jane Herman, Joe Naras, Jeremy Lukins, Jason Bielski, Jessica Appel, Dave Baker, Ellen Natesan and Scott Simono (SFPUC-NRLMD); Jonathan Chow, Stacie Feng and Colby Lum (SFPUC-WSTD Land Engineering); Dina Brasil (SFPUC-RES); Deb Craven-Green (SFPUC-BEM); Joe Ortiz (SFPUC-PMB) and Casey Chen (SFPUC-EMB); Sean Poirier (PG&E); Sam Herzberg, Carla Schoof, and Scott Lombardi (SMCO Parks)

Project Review Meeting Schedule for 2016

Meetings are usually held on the 2nd Friday and 4th/last Wednesday of each month and begin at 10:00 a.m. Meetings are generally located at 1657 Rollins Road, Burlingame (Medbery (Large) Conference Room).

April 15, 2016 (New Date)	July 08, 2016	September 28, 2016
April 27, 2016	July 27, 2016	October 14, 2016
May 25, 2016	August 12, 2016	October 26, 2016
June 10, 2016	August 31, 2016	November 04, 2016
June 29, 2016	September 09, 2016	December 02, 2016

NOTE TO APPLICANTS SEEKING A REVOCABLE LICENSE, LEASE, OR OTHER SERVICE FROM SFPUC REAL ESTATE SERVICES: The SFPUC provides three essential 24/7 service utilities: water, wastewater and power to customers throughout the Bay Area. Our mission is to provide customers with the highest quality and effective service in a sustainable, professional and financially sound manner. Our service extends beyond the City and County of San Francisco and includes seven other counties.

Due to staffing issues in the Real Estate Services Division (RES), RES has constrained resources and is focusing on projects critical to our core infrastructure mission at the present time. Therefore, we appreciate your patience in our response to your company's project application.

1) Case No.	Project	Applicant/Project Manager
16.03-AL20.00	SFPUC Fountain Thistle LCSD Mitigation	Scott Simono (SFPUC-NRLMD)

The proposal is to construct a temporary nursery using raised planting beds at the former Crystal Springs San Andreas (CSSA) Transmission Upgrade Project staging area (near the Boat Ramp site on Lower Crystal Springs Reservoir). The SFPUC is required to mitigate for the impacts to Fountain thistle (*Cirsium fontinale var. fontinale*), a Federal and State protected plant species, caused by the Lower Crystal Springs Dam Improvement (LCSDI) project. This temporary nursery would be used to meet the LCSDI mitigation requirements. Currently, the SFPUC is permitted to collect up to 5% of the local Fountain Thistle seeds found in the watershed. The planting beds would supply a consistent and continual source of Fountain thistle seeds and seedlings to plant at LCSDI mitigation sites as they become available. With the nursery plants, the SFPUC would be able to collect 100% of the seeds from the nursery Fountain thistle plants.

The planting bed site would be accessed from the adjacent gravel driveway. The site has previously experienced significant disturbance from staging for the CSSA project and from construction of a turnaround for the Boat Ramp. While there are native species due to seeding, there are also non-native species, including invasive plants, such as bull thistle (*Cirsium vulgare*). Per the project sponsor, the site has been studied by an SFPUC-NRLMD biologist who confirmed that there are no special status species at the site.

The temporary onsite nursery would be composed of four 4-foot wide x 10-foot long x 1-foot deep prefabricated polymer frame beds that are installed with stakes and lined with thick plastic. The beds would be filled 8-10 inches deep with sterile potting media. All seeds and transplants would come from nearby thistle sites. All tools would be sterilized before entering and after leaving the site. No grading or vegetation removal would be necessary. Per the project sponsor, the beds would be installed by SFPUC-WSTD staff or by a contractor with the oversight from a SFPUC-NRLMD biologist. The beds would be irrigated by a drip irrigation system powered by a small pump with water from a proximally placed 1,000-5,000 gallon storage tank (approximately 7 feet in diameter) and a soaker hose. Water would be delivered to the tank by a truck. However, the project sponsor also stated that pumping water from the reservoir to the tank is also an option. The beds would only drain if a rain event causes the beds to fill with 4 inches or more of water. No fertilizers, pesticides, or other chemicals would be used. No improvements, grading, or vegetation removal are required to install the water tank. The beds would be maintained by SFPUC-NRLMD biologists and possibly volunteers.

The work is scheduled to start in the spring or summer of 2016. The beds would be in place for approximately 6 years (approximately 2 full life cycles of a thistle plant). If thistle compensation is not on target after 6 years, the project sponsor may request an extension to continue operating the temporary nursery. The site would be restored to its previous condition and reseeded with native serpentine grassland species once the plant beds are removed. Per the project sponsor, this project was analyzed under CEQA in the LCSDI Environmental Impact Report (EIR).

Follow-Up:

1) The project sponsor will contact SFPUC-WSTD to request and coordinate using SFPUC-WSTD staff to install the plant beds (contact Ed Forner, SFPUC-WSTD Distribution and Maintenance Section Manager, at eforner@sfwater.org or (650) 871-2065).

2) If the project sponsor uses a contractor to assemble the plant beds (instead of SFPUC-WSTD staff), the contractor will obtain an SFPUC-NRLMD Access Permit through the Watershed Manager's Office (contact Gloria Ng at gng@sfwater.org or (650) 652-3209).
3) If the project sponsor uses a contractor to assemble the plant beds, the contractor will contact SFPUC Millbrae Dispatch at (650) 872-5900 at least 24 hours prior to commencing work.
4) If water is pumped from the reservoir to fill the water tank, the project sponsor will implement all SFPUC decontamination policies to protect Lower Crystal Springs Reservoir or the project sponsor will purchase and use a new pump and hoses.
5) If the project sponsor uses volunteers to maintain the plant beds, the volunteers will coordinate access through the SFPUC-NRLMD Community Liaison (contact John Fournet, Community Liaison, at JFournet@sfwater.org or (650) 652-3207).
6) The project sponsor will ensure that all construction debris is removed from SFPUC property and disposed of properly and legally. In addition, the project sponsor will restore the project site to pre-construction conditions upon completing its work on SFPUC property and arrange for a post-construction/restoration site inspection by SFPUC staff (contact Joe Naras, Peninsula Watershed Manager, at jnaras@sfwater.org or (650) 652-3209).

2) Case No.	**Project**	**Applicant/Project Manager**
16.03-AL26.00	SFPUC LCSD Stilling Basin - San Mateo Creek Fish Channel Enhancement	Joe Ortiz (SFPUC-PMB)

The proposal is to: construct a fish passage channel connecting the Lower Crystal Springs Dam (LCSD) stilling basin to Pool 2; restore wetland vegetation along the banks of the channel; install landscaping at the Crystal Springs Pump Station; and control erosion at the LCSD Dam Overflow Valve Vault.

Fish Channel Construction and Enhancement

The fish channel would be approximately 300 feet long and would cross through existing rip rap and riparian wetland areas to provide fish passage throughout the year between the stilling basin and Pool 2. On average, the channel would be cut 2.5 to 4.0 feet deeper than the existing elevation. This would provide a channel depth of about 5 feet when water flows are between 3 and 17 cubic feet per second (cfs). Work within the channel would only occur during the dry season (approximately June through October). The surrounding riparian habitat that would be affected by the proposed project would be removed by hand and potentially salvaged for replanting. Project construction would result in the excavation of approximately 600 cubic yards of soil. Some excavated soil would be reused onsite while approximately 400 cubic yards would be off-hauled.

One cofferdam would be installed downstream of pool 2 to dewater the entire area from the stilling basin downstream to pool 2. Once the area is dewatered, all vegetation within the area would be removed and the channel would be excavated from the toe of the stilling basin to the end of Pool 2. The proposed channel would cross two existing areas of riprap. In these locations, the existing riprap would be temporarily removed and the substrate beneath it would be excavated. The riprap would then be replaced. While the area from Pool 2 to the stilling basin is dewatered, the current low flow discharge at Pool 2 would be redirected to below Pool 2 (below the cofferdam) directly into San Mateo Creek.

The stilling basin and pool 2 would be dry during the construction, however, dewatering of the construction work area may be required if water accumulates in the excavation area as a result of groundwater seepage, precipitation or other drainage. The committee notified the project sponsor that Caltrans has turbid water and drainage pipes that drain into the worksite area.

The proposal also includes installing an additional discharge pipe (16-inch diameter, HDPE) from Valve H-94 (an existing low flow discharge pipe at the dissipation structure/Pool 2). This additional discharge pipe would provide the option to redirect water to the stilling basin or Pool 2. The pipe would be buried approximately 1.5 feet below grade in the riparian habitat on the north side of the proposed channel. Additional rip-rap would also be placed around the existing discharge channel in order to prevent scouring during high flow release events. Valve H-94 would also be retrofitted with a remotely controlled supervisory control and data acquisition (SCADA) system. Once the channel is completed, the cofferdams would be removed.

Wetland Vegetation Restoration

The wetland areas would be restored with native species per the restoration plan. The edges of the proposed channel would be planted with a narrow band of *juncus effusus* and *juncus patens* (or similar species) to inhibit vegetation growth in the channel. The wetted edges of the banks would be planted with willow (using pole plantings). Re-vegetation efforts along the banks of San Mateo are mitigation sites; however the plantings that would be located upland of the mitigation sites would be ornamental landscaping. The mitigation sites would be monitored by the SFPUC until the success criteria are met (estimated to take approximately 5-10 years).

Landscape Installation at the Lower Crystal Springs Pump Station (LCSPS)

Landscaping and a temporary irrigation system would also be installed around the LCSPS. Per the project sponsor, this vegetation was requested by the SFPUC-WSTD. However, during the discussion of the project the committee asked who would be responsible for the vegetation maintenance after the project is completed. The project sponsor stated that they are responsible for planting the landscaping but not for the maintenance. At the moment, the landscaping maintenance responsibility details need to be resolved.

Erosion Control at the LCSD Dam Overflow Vault

Additional rip-rap would be placed around the existing dam safety valves concrete vault to prevent scouring of the upland side of the vault during high flow discharge events. Rip rap excavated at the toe of the stilling basin and at the upstream end of Pool 2 would be replaced in the same area at a deeper depth (to allow for fish passage). Rip rap temporarily removed for installation of the additional low flow discharge pipe would be replaced after pipe installation.

Other Information

While the stilling basin is dewatered for construction of the fish channel, two piezometers located at the base of the dam would be decommissioned and two new piezometers would be installed. This work would be performed concurrently through a separate contract under the supervision of SFPUC-WSTD. The piezometer project was not reviewed as part of this project.

On-site construction storage space for equipment and materials would be required during the construction period. Staging areas for construction activities would be designated in developed and disturbed areas adjacent to the work area. Access during construction would be limited to existing paved/dirt roads and temporary access routes to the creek.

Equipment for construction of the fish channel and installation of the additional low flow discharge pipe is anticipated to require a backhoe or excavator, drill rig, concrete saw, air compressor, handheld tools for vegetation removal and chipping concrete. Restoration of the site and planting of landscaping would require handheld tools or a small excavator.

The project contract will go out to bid in late 2016. The project is expected to begin construction in mid-2017 and to be completed by mid-2018. Total project duration is estimated to be approximately 9 months. Per the project sponsor, this project was analyzed under CEQA in the Minor Project Modification to the Final Environmental Impact Report for the LCSDI Project.

Follow-up:

1) The project sponsor will coordinate with SFPUC-WSTD to finalize the landscaping plan and clarify details relating to the landscaping maintenance, weed block and temporary irrigation (Contact Chris Nelson, SFPUC-WSTD Regional Project Manager, at cnelson@sfwater.org or (650) 872-5901).

2) The project sponsor will contact Caltrans to inquire about and coordinate regarding any pipes that drain turbid or storm water runoff into the worksite area.

3) The project sponsor will investigate the 36-inch failed culvert near LCSD (contact Stacie Feng, Associate Engineer, at sfeng@sfwater.org or (650) 871-2037).

4) The project sponsor will arrange for further Project Review with the contractor when the project is ready to mobilize for construction (contact Jonathan Mendoza, Land and Resources Planner, at jsmendoza@sfwater.org or (650) 652-3215).
5) The project sponsor and/or its contractor will contact SFPUC Millbrae Dispatch at (650) 872-5900 at least 24 hours prior to commencing work.
6) The project sponsor will ensure that all construction debris is removed from SFPUC property and disposed of properly and legally. In addition, the project sponsor will restore the project site to pre-construction conditions upon completing its work on SFPUC property and arrange for a post-construction/restoration site inspection by SFPUC staff (contact Joe Naras, Peninsula Watershed Manager, at jnaras@sfwater.org or (650) 652-3209).

3) Case No.	Project	Applicant/Project Manager
16.03-PN19.00	PG&E Gas Line 109 - External Corrosion Direct Assessment - Two Peninsula Locations (Allegheny Wy. near San Mateo and Golf Course Dr. near Hillsborough)	Sean Poirier (PG&E)

The proposal is to conduct an external corrosion direct examination (ECDA) on PG&E's natural gas transmission line 109 (L-109). Originally, the proposal was for two Peninsula Watershed locations – Location L at Allegheny Way near San Mateo; and Location M at Golf Course Drive near Hillsborough. However, Location L has been canceled. Per the project sponsor, Location L was assessed in 2014.

At location M, crews would excavate an 8 foot wide x 14 foot long x 9 foot deep bell hole on L-109. Once the pipe is exposed, crews would sandblast and inspect the pipe. If necessary, repairs would be made and the pipe would be recoated and then the bell hole would be backfilled. No tree removals are proposed. The area would be restored to pre-construction conditions.

All construction work would remain within PG&E's easement. Staging would be located off site, on private (non-SFPUC) property. Flaggers would be used for traffic on Golf Course Drive. The bell holes would be covered by metal plates at the end of each workday until the site is restored. No keys or access permit is needed by PG&E. The project sponsor stated that the work is scheduled to begin in late summer/early fall 2016 (outside of bird nesting season). Work is expected to last approximately 2 weeks.

Follow-up:

1) The project sponsor will work with SFPUC Real Estate Services to obtain a consent letter to perform the proposed work (contact Dina Brasil, Principal Administrative Analyst, at dbrasil@sfwater.org or (415) 934-3914).
2) The project sponsor and/or its contractor will contact SFPUC Millbrae Dispatch at (650) 872-5900 at least **48 hours** prior to commencing work.
3) The project sponsor will ensure that all construction debris is removed from SFPUC property and disposed of properly and legally. In addition, the project sponsor will restore the project site to pre-construction conditions upon completing its work on SFPUC property and arrange for a post-construction/restoration site inspection by SFPUC staff (contact Joe Naras, Peninsula Watershed Manager, at jnaras@sfwater.org or (650) 652-3209).

4) Case No.	Project	Applicant/Project Manager
14.09-RW37.01	SMCO Flood Park, 215 Bay Road, Menlo Park	Sam Herzberg (SMCO Parks)

The proposal is to reconstruct the ball fields at Flood Park. These ball fields would be partially located in the SFPUC right-of-way (ROW) above Bay Division Pipelines (BDPL) 1, 2, and 5. This proposal was last reviewed by the SFPUC Project Review Committee in September 2014. At the previous meeting, it was discovered that one of the pipelines was too close to the surface so the ground level would need to be increased by 6 inches to provide adequate cover over the pipelines.

The current conceptual proposal identifies a baseball field; a combined soccer/lacrosse field; a corner of a basketball court; a fence; and landscaping on the ROW. The committee notified the project sponsor that the following are prohibited in the SFPUC ROW:

- Lighting poles or fence posts
- Utilities placed parallel to the BDPLs
- Structures and fixtures within 20 feet of the edge of the pipelines (such as poles for basketball hoops)
- Vegetation within 10 feet of the pipeline risers and manholes
- Trees
- Tire crumbles (used with artificial turf)

The project sponsor stated that they would need to drive heavy equipment and vehicles across the ROW. The project sponsor asked about upcoming SFPUC excavation and maintenance of the BDPLs. The committee expressed that there are no foreseeable plans to excavate this section of the ROW; however, the SFPUC at any time may need to access the pipes for maintenance or emergency repairs. SFPUC-WSTD explained that the interior concrete mortar lining of the older BDPLs may need repairs. This work would be done from within the pipelines with access from nearby manholes.

The committee notified the project sponsor that any proposal must comply with the SFPUC's Integrated Vegetation Management Policy. Any irrigation that is parallel to the BDPLs must be 1.5 inches or less in diameter. Any utilities or conduit crossing the pipelines must maintain 12-inches of vertical clearance with the BDPLs. Also, the pipeline(s) need an additional 6 inches of cover over the ball fields.

SFPUC-RES notified the project sponsor that the revocable license has not been executed yet and must be executed before any other work in the SFPUC ROW can proceed. The project sponsor indicated that the proposal reviewed is still conceptual and will be revised. The project sponsor will return to project review at a later date.

Follow-up:

1) The project sponsor will provide load calculation to SFPUC-WSTD (contact Tracy Leung, Associate Engineer, at tleung@sfwater.org or (650) 871-3031).

2) The project sponsor will comply with the SFPUC Integrated Vegetation Management Policy found at http://www.sfwater.org/index.aspx?page=431. For any technical questions regarding plant species and to submit landscaping plans, contact the SFPUC ROW Manager (contact Jane Herman, ROW Manager, at jherman@sfwater.org or (650) 652-3204).

3) The project sponsor will contact SFPUC-WSTD Land Engineering to obtain as-built drawings of SFPUC water transmission pipelines on the project site (contact Jonathan Chow, Principal Engineer, at jchow@sfwater.org or (650) 871-2016).

4) The project sponsor will work with SFPUC Real Estate Services to update and execute the revocable license for Flood Park (contact Dina Brasil, Principal Administrative Analyst, at dbrasil@sfwater.org or (415) 934-3914).

5) The project sponsor will provide the SFPUC with the final CEQA Mitigated Negative Declaration document and the San Mateo County resolution and meeting minutes adopting the Mitigated Negative Declaration and approving the proposed project (contact Sally Morgan, Bureau of Environmental Management Planner, smorgan@sfwater.org or (415) 934-3938; and **copy** Jonathan Mendoza, Land and Resources Planner, at jsmendoza@sfwater.org).

6) The project applicant will contact SFPUC-WSTD Land Engineering to obtain a consent letter to perform potholing to determine the depth of the SFPUC water transmission pipelines (contact Tracy Leung, Associate Engineer, at tleung@sfwater.org or (650) 871-3031).

7) No tire crumbles are allowed in the SFPUC ROW.

8) No lighting is allowed in the SFPUC ROW.
9) The project sponsor will maintain a 10-foot clearance around all SFPUC manholes and risers.
10) The project sponsor will arrange for further Project Review when the Flood Park proposal is at the 35% design phase milestone (contact Jonathan Mendoza, Land and Resources Planner, at jsmendoza@sfwater.org or (650) 652-3215).

Hetch Hetchy Regional Water System

Services of the San Francisco Public Utilities Commission

AMENDMENT TO THE

RIGHT OF WAY INTEGRATED VEGETATION MANAGEMENT POLICY

Approved January 13, 2015

by

SFPUC Resolution No. 15-0014

12.000 RIGHT OF WAY INTEGRATED VEGETATION MANAGEMENT POLICY

12.001 General

The San Francisco Public Utilities Commission ("SFPUC") is responsible for the delivery of potable water and the collection and treatment of wastewater for some 800,000 customers within the City of San Francisco; it is also responsible for the delivery of potable water to 26 other water retailers with a customer base of 1.8 million. **The following policy is established to manage vegetation on the transmission, distribution and collection systems within the SFPUC Right of Way ("ROW") so that it does not pose a threat or hazard to the system's integrity and infrastructure or impede utility maintenance and operations.**

The existence of large woody vegetation[1], hereinafter referred to as vegetation, and water transmission lines within the ROW are not compatible and, in fact, are mutually exclusive uses of the same space. Roots can impact transmission pipelines by causing corrosion. The existence of trees and other vegetation directly adjacent to pipelines makes emergency and annual maintenance very difficult, hazardous, and expensive, and increases concerns for public safety. The risk of fire within the ROW is always a concern and the reduction of fire ladder fuels within these corridors is another reason to modify the vegetation mosaic. In addition to managing vegetation in a timely manner to prevent any disruption in utility service, the SFPUC also manages vegetation on its ROW to comply with local fire ordinances enacted to protect public safety.

One of the other objectives of this policy is to reduce and eliminate as much as practicable the use of herbicides on vegetation within the ROW and to implement integrated pest management (IPM).

12.002 Woody Vegetation Management

1.0 Vegetation of any size or species will not be allowed to grow within certain critical portions of the ROW, pumping stations or other facilities as determined by a SFPUC qualified professional, and generally in accordance with the following guidelines.

1.1 Emergency Removal

SFPUC Management reserves the right to remove any vegetation without prior public notification that has been assessed by a SFPUC qualified professional as an immediate threat to transmission lines or other utility infrastructure, human life and property due to acts of God, insects, disease, or natural mortality.

1.2 Priority Removal

Vegetation that is within 15 feet of the edge of any pipe will be removed and the vegetative debris will be cut into short lengths and chipped whenever possible. Chips will be spread upon the site where the vegetation was removed. Material that cannot be chipped will be hauled away to a proper disposal site.

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[1] Woody vegetation is defined as all brush, tree and ornamental shrub species planted in (or naturally occurring in) the native soil having a woody stem that at maturity exceeds 3 inches in diameter.

If vegetation along the ROW is grouped in contiguous stands[2], or populations, a systematic and staggered removal of that vegetation will be undertaken to replicate a natural appearance. Initial removal[3] will be vegetation immediately above or within 15 feet of the pipeline edges; secondary vegetation[4] within 15 to 25 feet from pipelines will then be removed.

1.3 Standard Removal

Vegetation that is more than 25 feet from the edge of a pipeline and up to the boundary of the ROW will be assessed by a SFPUC qualified professional for its age and condition, fire risk, and potential impact to the pipelines. Based on this assessment, the vegetation will be removed or retained.

1.4 Removal Standards

Each Operating Division will develop its own set of guidelines or follow established requirements in accordance with local needs.

2.0 All stems of vegetation will be cut flush with the ground and where deemed necessary or appropriate, roots will be removed. All trees identified for removal will be clearly marked with paint and/or a numbered aluminum tag.

3.0 Sprouting species of vegetation will be treated with herbicides where practicable, adhering to provisions of Chapter 3 of the San Francisco Environment Code.

4.0 Erosion control measures, where needed, will be completed before the work crew or contractors leave the work site or before October 15 of the calendar year.

5.0 Department personnel will remove in a timely manner any and all material that has been cut for maintenance purposes within any stream channel.

6.0 All vegetation removal work and consultation on vegetation retention will be reviewed and supervised by a SFPUC qualified professional. All vegetation removal work and/or treatment will be made on a case-by-case basis by a SFPUC qualified professional.

7.0 Notification process for areas of significant resource impact that are beyond regular and ongoing maintenance:

7.1 County/City Notification – The individual Operating Division will have sent to the affected county/city a map showing the sections of the ROW which will be worked, a written description of the work to be done, the appropriate removal time for the work crews, and a contact person for more information. This should be done approximately 10 days prior to start of work. Each Operating Division will develop its own set of guidelines in accordance with local need.

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[2] A stand is defined as a community of trees possessing sufficient uniformity in composition, structure, age, arrangement, or condition to be distinguishable from adjacent forest communities to form a management unit.
[3] Initial removal is defined as the vegetation removed during the base year or first year of cutting.
[4] Secondary vegetation is defined as the vegetative growth during the second year following the base year for cutting.

7.2 Public Notification – The Operating Division will have notices posted at areas where the vegetation is to be removed with the same information as above also approximately 10 days prior to removal. Notices will also be sent to all property owners within 300 feet of the removal site. Posted notices will be 11- by 17-inches in size on colored paper and will be put up at each end of the project area and at crossover points through the ROW. Questions and complaints from the public will be handled through a designated contact person. Each Operating Division will develop its own set of guidelines in accordance with local needs.

12.003 Annual Grass and Weed Management

Annual grasses and weeds will be mowed, disked, sprayed or mulched along the ROW as appropriate to reduce vegetation and potential fire danger annually. This treatment should be completed before July 30 of each year. This date is targeted to allow the grasses, forbs and weeds to reach maturity and facilitate control for the season.

12.004 Segments of ROW that are covered by Agricultural deed rights

The only vegetation that may be planted within the ROW on those segments where an adjacent owner has Deeded Agricultural Rights will be: non-woody herbaceous plants such as grasses, flowers, bulbs, or vegetables.

12.005 Segments of ROW that are managed and maintained under a Lease or License

Special allowance may be made for these types of areas, as the vegetation will be maintained by the licensed user as per agreement with the City, and not allowed to grow unchecked. Only shallow rooted plants may be planted directly above the pipelines.

Within the above segments, the cost of vegetation maintenance and removal will be borne by the tenant or licensee exclusively. In a like fashion, when new vegetative encroachments are discovered they will be assessed by a SFPUC qualified professional on a case-by-case basis and either be permitted or proposed for removal.

The following is a guideline for the size at maturity of plants (small trees, shrubs, and groundcover) that may be permitted to be used as landscape materials. Note: All distance measurements are for mature trees and plants measured from the edge of the drip-line to the edge of the pipeline.

- Plants that may be permitted to be planted directly above existing and future pipelines: shallow rooted plants such as ground cover, grasses, flowers, and very low growing plants that grow to a maximum of one foot in height at maturity.
- Plants that may be permitted to be planted 15–25 feet from the edge of existing and future pipelines: shrubs and plants that grow to a maximum of five feet in height at maturity.
- Plants that may be permitted to be planted 25 feet or more from the edge of existing and future pipelines: small trees or shrubs that grow to a maximum of twenty feet in height and fifteen feet in canopy width.

Trees and plants that exceed the maximum height and size limit (described above) may be permitted within a leased or licensed area provided they are in containers and are above ground. Container load and placement location(s) are subject to review and approval by the SFPUC.

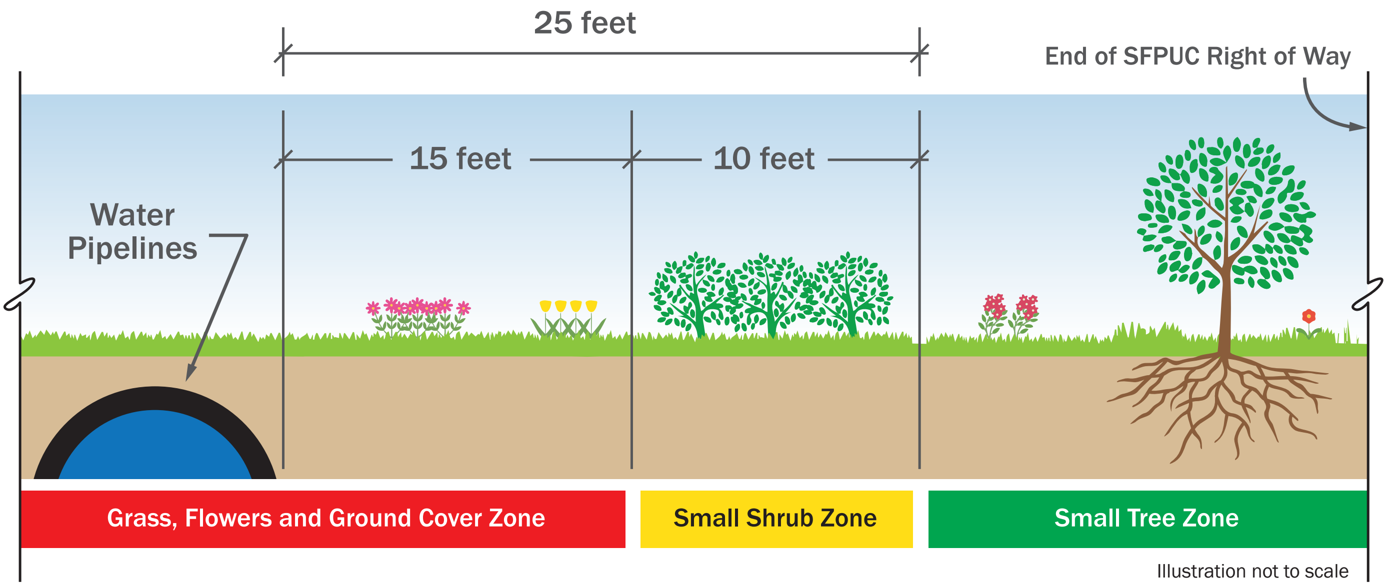
Low water use plant species are encouraged and invasive plant species are not allowed.

All appurtenances, vaults, and facility infrastructure must remain visible and accessible at all times. All determinations of species acceptability will be made by a SFPUC qualified professional.

The above policy is for general application and for internal administration purposes only and may not be relied upon by any third party for any reason whatsoever. The SFPUC reserves the right at its sole discretion, to establish stricter policies in any particular situation and to revise and update the above policy at any time.

San Francisco Public Utilities Commission (SFPUC)

Right Of Way (ROW) Landscape Vegetation Guidelines



The following vegetation types are permitted on the ROW within the appropriate zones.

Plantings that may be permitted directly above existing and future pipelines:

Ground cover, grasses, flowers, and very low growing plants that reach no more than one foot in height at maturity.

Plantings that may be permitted 15–25 feet from the edge of existing and future pipelines:

Shrubs and plants that grow no more than five feet tall in height at maturity.

Plantings that may be permitted 25 feet or more from the edge of existing and future pipelines:

Small trees or shrubs that grow to a maximum of twenty feet in height and fifteen feet in canopy width or less.

Hetch Hetchy
Regional Water System
Services of the San Francisco Public Utilities Commission

Natural Resources and Lands Management Division

Date: September 29, 2014

To: **Project Review Committee:**

Natural Resources and Lands Management Division: Steve Apperson, Jim Avant, Dave Baker, Jason Bielski, Guido Ciardi, Rick Duffey, John Fournet, Jane Herman, Tim Koopmann, Krysten Laine, Diane Livia, Jeremy Lukins, Joe Naras, Ellen Natesan, Emily Read, Lori Schectel, Cynthia Servetnick, Casey Sondgeroth and Joanne Wilson

Water Supply and Treatment Division: Jonathan Chow, Colm Conefrey, Stacie Feng, Jim Heppert, Tony Mazzola, Chris Nelson

Real Estate Services: Rosanna Russell, Tony Bardo, Daisy Deocareza, Tony Durkee, Shari Geller, , Chester Huie, Janice Levy, Brian Morelli, , and Thayer Mullins

Water Quality Bureau: Jackie Cho

Bureau of Environmental Management: Brett Becker, Kelly Capone, Sally Morgan, Barry Pearl, Matthew Weinand and YinLan Zhang

City Attorney's Office: Hazel Brandt and Josh Milstein

Cc: **SFPUC:** Robin Breuer, David Briggs, Chris Nelson, Debbie Craven-Green, Andrew DeGraca, Ed Forner, Craig Freeman, Karen Frye, Maria Garcia, Susan Hou, Annie Li, Greg Lyman, Alan Johanson, Scott MacPherson, Tasso Mavroudis, Joe Ortiz, Barry Pearl, Tim Ramirez, Kathe Scott, Carla Schultheis, Bles Simon, Irina Torrey, Rizal Villareal, and Ravi Krishnaiah

City Planning (Environmental Planning): Chris Kern

From: Joanne Wilson, Senior Land and Resources Planner
jwilson@sfwater.org; (650) 652-3205

Subject: **September 24, 2014 Project Review Meeting Agenda**
10:00 a.m. – 12:00 p.m.
1657 Rollins Road, Burlingame, Large Conference Room

Participants: Joanne Wilson, Dave Baker and Neal Fujita (SFPUC-NRLMD); Stacie Feng and John Chow (SFPUC-WSTD Land Engineering); Janice Levy and Erica Schlemer (SFPUC-RES); Eric Huang, Fan Wen, Allen Zeng, and Bookem Wade (Millbrae Radio Inc.); Mike Farinsla, William Chung, and Angela Deiana (PG&E); Rob Witthaus (Garcia and Associates); Steve Kraemer (SMCO)

Project Review Meeting Schedule for 2014

Meetings are usually held on the 4th Wednesday and 2nd Friday of each month and begin at 10:00 a.m. Meetings are generally located at 1657 Rollins Road, Burlingame (Large Conference Room).

October 10, 2014
October 22, 2014
November 7, 2014
November 19, 2014
December 5, 2014
December 17, 2014

NOTE TO APPLICANTS SEEKING A REVOCABLE LICENSE, LEASE, OR OTHER SERVICE FROM SFPUC REAL ESTATE SERVICES: The SFPUC provides three essential 24/7 service utilities: water, wastewater and power to customers throughout the Bay Area. Our mission is to provide customers with the highest quality and effective service in a sustainable, professional and financially sound manner. Our service extends beyond the City and County of San Francisco and includes seven other counties.

Due to staffing issues in the Real Estate Services Division (RES), RES has constrained resources and is focusing on projects critical to our core infrastructure mission at the present time. Therefore, we appreciate your patience in our response to your company's project application.

1) Case No.	Project	Applicant/Project Manager
14.09-PN36.00	Millbrae Radio FM Antenna Golf Course Drive, Peninsula Watershed	Fan Wen (Millbrae Radio Inc.)

The proposal is to install a low power FM radio station on the Peninsula Watershed east of Golf Course Drive adjacent to a fence separating I-280 from the golf course. The proposed low power FM radio station licensed by the FCC would provide public radio for the communities of Millbrae, Burlingame, and Hillsborough. The proposed radio station footprint would be approximately 6 feet by 6 feet and would consist of a 75-foot tall wood or metal lattice pole (set into a 3 foot to 10 foot deep hole, then filled with concrete to create a 6-foot by 6-foot concrete pad) within a small metal box-like enclosure that would house the low power FM transmitter and a computer. The 75-foot tall stand-alone utility pole would be installed with a low power broadcast antenna atop this pole. A cable would connect the antenna to the transmitter at the base of the pole. The project also includes a power supply to the pole using an overhead line extending approximately 20 feet from an existing PG&E pole.

The Peninsula Watershed Management Plan includes the following policy: ***Policy WA9:*** *Require that new communication facilities (e.g., antennae, satellite dishes, cell towers, etc.) proposed on the watershed which require open and unobstructed sites be sited to minimize the impact to visual resources and wherever possible be co-located with existing facilities. If new facilities require additional locations, require that viewshed studies be conducted to minimize, eliminate, or conceal the violations of scenic values.*

Modifications to the proposal to make it compatible with the Peninsula Watershed Management Plan were discussed, including the elimination of the new 75-foot tall pole and co-locating the radio antenna on a nearby PG&E transmission tower. In addition, overhead lines could be eliminated by attaching a solar panel.

Construction equipment will include cranes, a pickup truck, a backhoe loader and a bucket truck. Construction would be completed in one day using a crew of five. The antenna and cabling will be pre-installed off site.

Follow-up:

1) The project sponsor will provide a revised drawing showing the existing PG&E towers that could be suitable for co-location of the proposed antenna and other equipment (contact Joanne Wilson, Senior Land and Resources Planner, at jwilson@sfwater.org or (650) 652-3205). **[Update: The revised drawing was provided as requested.]**
2) Joanne Wilson will contact the real estate office at PG&E to discuss the possible co-location of the proposed radio equipment on an existing PG&E transmission tower. **[Update: Joanne Wilson contacted PG&E; the applicant was referred to the PG&E Wireless Division (contact David Duncan, PG&E, at (415) 971-0994.]**
3) Joanne Wilson will ask for comments on the proposal from the Peninsula Watershed Manager, Joe Naras. **[Update: The Peninsula Watershed Manager commented that the proposal must adhere to SFPUC policy WA9.]**

4) The project sponsor will coordinate with SFPUC Bureau of Environmental Management (BEM) regarding environmental review under the California Environmental Quality Act or CEQA (contact Irina Torrey, BEM Manager, at itorrey@sfwater.org or (415) 554-3232) and, if the proposed project is approved, will work with SFPUC Real Estate Services to obtain a real estate agreement for the proposed project (contact Janice Levy, Administrative Analyst, at jlevy@sfwater.org or (415) 554-1821).
5) If the proposed project is approved, the project sponsor will contact SFPUC Millbrae Dispatch at (650) 872-5900 at least 24 hours prior to commencing work on the Peninsula Watershed.

2) Case No.	**Project**	**Applicant/Project Manager**
14.02-AL02.01	PG&E Completion of the Niles Canyon Idle Pole Removal Project (Jarvis 1111 Line), Alameda Watershed	Angela Deiana (PG&E)

The proposal is the complete removal of eight existing PG&E electric distribution poles from SFPUC property along Niles Canyon Road. The wood poles are located east and south of the intersection with Palomares Road. The poles are being removed because the PG&E Jarvis 1111 12kV circuit is out of service and the poles are idle. Vegetation clearing to provide access for work crews and equipment (bucket truck, line truck, and pick-up truck) is proposed for two pole removal sites situated approximately 50 feet from Niles Canyon Road. The remaining six poles are accessible from the paved surface of Niles Canyon Road and vegetation pruning, if any, will be limited to a small area immediately surrounding the poles. PG&E has a revocable permit issued by the SFPUC which authorizes construction and maintenance of the overhead 12kV distribution line and the eight supporting wood poles and anchors.

PG&E initiated clearing vegetation along the approximately 20 foot by 100 foot overland access route and removal of the two off-road wood poles during the week of February 17, 2014. Vegetation clearing was completed and one pole was removed before the SFPUC asked that the work stop pending Project Review. Pole removal efforts were immediately suspended. PG&E attended the SFPUC Project Review Meeting on February 26, 2014. SFPUC issued a Certificate of Completion of Project Review for installation of emergency erosion control measures where vegetation was cleared on February 26, 2014. As follow-up to the February Project Review meeting, PG&E was asked to complete a review of constructability, land rights, and environmental constraints and submit an Application for Project Review to discuss the results with the Project Review Committee. To that end, PG&E prepared a biological constraints review that analyzed the potential for impacts to biological and aquatic resources as a result of construction completed to date as well as remaining construction. PG&E will implement standard construction measures identified in their biological constraints review to ensure that removal of the poles does not impact sensitive biological or aquatic resources.

PG&E proposes to remove the poles as soon as possible and the work would be completed in less than 2 weeks.

Follow-Up:

1) Joanne Wilson will provide a copy of the Project Review certificate for the installation of emergency erosion control measures (dated February 26, 2014) to Janice Levy in SFPUC Real Estate Services. **[Update: Certificate located by RES staff.]**.
2) PG&E will verify that Pole No. 8 has been removed completely, or if it has not, take steps to remove the pole's base completely.
3) PG&E will use a backhoe to flatten out the piles of vegetative debris that was spread earlier to reduce erosion and run-off during the rainy season. This work is to be coordinated with the SFPUC NRLMD Watershed Forester (contact Dave Baker at dbaker@sfwater.org or (650) 652-3202).
4) PG&E will contact the SFPUC NRLMD Watershed Forester 24 hours in advance of work to confirm that conditions are suitable for construction (contact Dave Baker, Watershed Forester, at dbaker@sfwater.org or (650) 652-3202). In addition, PG&E will submit fire prevention measures, particularly for any hot work (e.g. welding) to the NRLMD Watershed Forester for review and approval. During construction, PG&E or its contractor will contact the National Weather Service daily to confirm that local weather conditions are

suitable for construction activity. PG&E will cease all construction activities during red flag days (high fire hazard periods) or if directed to do so by the NRLMD Watershed Forester.

5) PG&E will notify Millbrae Dispatch at (650) 872-5900 at least 24 hours prior to commencing work and each time the contractor enters and leaves the SFPUC Alameda Watershed property.
6) When contacting the Underground Alert System (USA), PG&E should state that the work is being coordinated with SFPUC Natural Resources Division.
7) SFPUC Real Estate Services (Janice Levy) will issue a consent letter authorizing the work under the existing 1965 permit.
8) PG&E will obtain an Access Permit for authorization for the proposed work from the Access Permit manager in the Natural Resources Division (contact Joe Naras, Peninsula Watershed Manager, at jnaras@sfwater.org or (650) 652-3209).
8) After PG&E has removed its poles, SFPUC Real Estate Services will revoke the 1965 permit because it will no longer be needed (contact Janice Levy, Administrative Analyst, at jlevy@sfwater.org or (415) 554-1821).
9) PG&E will contact the Alameda Watershed Manager if keys to SFPUC gates are needed to perform this work (contact Neal Fujita at nfujita@sfwater.org or (925) 862-5516).

3) Case No.	**Project**	**Applicant/Project Manager**
14.09-RW37.00	SMCO Flood Park, 215 Bay Road, Menlo Park	Steve Kraemer (SMCO Parks)

The proposal is to improve the existing baseball field at Flood County Park (215 Bay Road, Menlo Park) which traverses the SFPUC ROW. This field has not been in use since the SFPUC construction project on its ROW. The baseball outfield is located on SFPUC ROW over Bay Division Pipeline Nos. 1, 2 and 5 within the 21-acre multi-use park. The SFPUC ROW at this location is owned in fee.

The field surface will be graded after breaking up soil with a potential depth of 4 inches. A 3-inch layer of rock will be laid down, followed by artificial turf. The existing irrigation system will be abandoned in place. Equipment will include a tractor/loader and pick-up truck. San Mateo County Parks wants to begin the project in fall 2014 when contractors are readily available.

There was a discussion of a future proposal to install field lights. The light standards are not allowed within the SFPUC ROW; but electrical conduit could be considered.

Follow-Up:

1) San Mateo County Parks will coordinate with SFPUC Bureau of Environmental Management (BEM) regarding environmental review under the California Environmental Quality Act or CEQA (contact Irina Torrey, BEM Manager, at itorrey@sfwater.org or (415) 554-3232) and Real Estate Services to enter into a new revocable license for the use of SFPUC ROW for recreational purposes (contact Janice Levy, Administrative Analyst, at jlevy@sfwater.org or (415) 554-1821).
2) SFPUC WSTD Land Engineering will check to see if there is a current record of the depth of soil covering the three water transmission pipelines at this location (contact Stacie Feng, Associate Engineer, at sfeng@sfwater.org or (650) 871-2037). If it is necessary to determine the depth of the 3 water transmission pipelines, San Mateo County Parks will obtain a consent letter from SFPUC WSTD Land Engineering to conduct potholing (contact Stacie Feng, Associate Engineer, at sfeng@sfwater.org or (650) 871-2037).
3) San Mateo County Parks will send a letter to SFPUC WSTD Land Engineering requesting a copy of the ROW map for this location showing the three water transmission pipelines and the property boundary (contact Jonathan Chow, Principal Engineer, at jchow@sfwater.org or (650) 871-2016).
4) San Mateo County Parks will provide an 11 ½ - by 17-inch engineering drawing showing the existing SFPUC water transmission pipelines, the property lines, and the proposed work to SFPUC WSTD Land

Engineering for review and approval (contact Stacie Feng, Associate Engineer, at sfeng@sfwater.org or (650) 871-2037).

5) If the electrical conduit associated with the proposed field lighting crosses through the SFPUC ROW, San Mateo County Parks will need to provide engineering drawings to SFPUC WSTD Land Engineering for review and approval (contact Stacie Feng, Associate Engineer, at sfeng@sfwater.org or (650) 871-2037) and coordinate with SFPUC Real Estate Services to amend the new revocable license (contact Janice Levy, Administrative Analyst, at jlevy@sfwater.org or (415) 554-1821).
6) San Mateo County Parks will contact SFPUC Millbrae Dispatch at (650) 872-5900 at least 24 hours prior to commencing work.

4) Case No.	Project	Applicant/Project Manager
14.09-PN39.00	SMCO Ralston Bike Path Asphalt Overlay and Fence Repair, Peninsula Watershed	Steve Kraemer (SMCO Parks)

The proposal is to pave the existing Ralston Bike path on the Peninsula Watershed with an asphalt overlay. The existing bike path on the Peninsula Watershed extends approximately 0.75 miles from Ralston Avenue to Canada Road. The proposed work would consist of scraping both shoulders of the pathway, removing weeds in existing cracks and filling the cracks before overlaying asphalt. The asphalt overlay would consist of 1.5 inch depth of ¾ inch asphalt rock over the existing foot print. San Mateo County Parks will issue a press release informing the public of a one week closure of the trail to complete the work. Repair of the existing fence (wood posts and hog wire) would start after the asphalt was completed.

Follow-up:

1) SFPUC Real Estate Services will research whether the existing bike path is authorized through an easement or a revocable easement. If there is an existing easement, then San Mateo County Parks will obtain a consent letter from Real Estate Services to perform this work. **[Update: Real Estate Services located the existing easement. Following approval of the proposed plans by the Peninsula Watershed Manager, Joe Naras (contact jnaras@sfwater.org or (650) 652-3209) RES will issue a consent letter to San Mateo County Parks for the proposed work (contact Janice Levy, Administrative Analyst, at jlevy@sfwater.org or (415) 554-1821).** .
2) When performing the proposed fence repair work, San Mateo County Parks will repair or replace the fence in small segments in order to maintain security.
3) San Mateo County Parks will contact SFPUC Millbrae Dispatch at (650) 872-5900 at least 24 hours prior to commencing work.

EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

KEN ALEX
DIRECTOR

Memorandum

Date: November 18, 2016

To: All Reviewing Agencies

From: Scott Morgan, Director

Re: SCH # **2016112040**

Flood County park Landscape Plan

The State Clearinghouse has corrected some information regarding the above-mentioned project. Please note, you are receiving a re-submittal of the NOP with the correct *distribution list*. We apologize for any inconvenience this may have caused. All other project information remains the same.

cc: Sam Herzberg
San Mateo County
455 County Center, 4th Floor
Redwood City, CA 94063

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

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

November 14, 2016

To: Reviewing Agencies

Re: Flood County Park Landscape Plan
SCH# 2016112040

Attached for your review and comment is the Notice of Preparation (NOP) for the Flood County Park Landscape Plan draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Sam Herzberg
San Mateo County
455 County Center, 4th Floor
Redwood City, CA 94063

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# **2016112040**
Project Title Flood County Park Landscape Plan
Lead Agency San Mateo County

Type **NOP** Notice of Preparation

Description The proposed project consists of a Landscape Plan for the long-term redevelopment of San Mateo County's Flood County Park. On April 7, 2016, the County Parks and Recreation Commission voted to approve this plan as the Draft Preferred Alternative for improving Flood County Park. The Landscape Plan evolved through a series of community outreach efforts designed to identify community values, preferred uses, and site layout preferences.

It is anticipated that implementation of the Landscape Plan would occur in three phases: phase I, phase II, and phase III. The phase I improvements are expected to be completed in approximately the first two years.

Lead Agency Contact

Name Sam Herzberg
Agency San Mateo County
Phone (650) 599-1721 ***Fax***
email
Address 455 County Center, 4th Floor
City Redwood City ***State*** CA ***Zip*** 94063

Project Location

County San Mateo
City Menlo Park
Region
Cross Streets 215 Bay Rd
Lat / Long
Parcel No.
Township ***Range*** ***Section*** ***Base***

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use

Project Issues Aesthetic/Visual; Air Quality; Biological Resources; Geologic/Seismic; Other Issues; Water Quality; Noise; Traffic/Circulation

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Reviewing Agencies Resources Agency; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 3; Native American Heritage Commission; Public Utilities Commission; Caltrans, District 4; Regional Water Quality Control Board, Region 2

Date Received 11/14/2016 ***Start of Review*** 11/14/2016 ***End of Review*** 12/13/2016

Note: Blanks in data fields result from insufficient information provided by lead agency.

Notice of Preparation

TO:	State Clearinghouse, San Mateo County Clerk, and All Interested Parties	FROM:	County of San Mateo Parks Department 455 County Center – Fourth Floor Redwood City, CA 94063

Subject: **Notice of Preparation of a Draft Environmental Impact Report**

The County of San Mateo is the Lead Agency requesting input for the preparation of an Environmental Impact Report (EIR) for the proposed Flood County Park Landscape Plan, a project pursuant to the California Environmental Quality Act (CEQA). The purpose of this notice of preparation is to solicit input on the scope and content of the draft EIR for the proposed project, pursuant to *CEQA Guidelines* Section 15082.

Project Title: Flood County Park Landscape Plan

Project Applicant: County of San Mateo Parks Department

Project Location: The project site consists of the 24.5-acre Flood County Park, located at 215 Bay Road in the City of Menlo Park in San Mateo County. This neighborhood park includes two County-owned parcels totaling 21.3 acres and two linear parcels owned by the City & County of San Francisco as part of its right-of-way for the Hetch Hetchy regional water distribution system. These linear parcels cut through the center of Flood County Park, on an east-west axis. The Town of Atherton is located adjacent to and southwest of the park, across Bay Road, and San Francisco is about 20 miles to the northwest.

Project Description: The proposed project consists of a Landscape Plan for the long-term redevelopment of San Mateo County's Flood County Park. On April 7, 2016, the County Parks and Recreation Commission voted to approve this plan as the Draft Preferred Alternative for improving Flood County Park. The Landscape Plan evolved through a series of community outreach efforts designed to identify community values, preferred uses, and site layout preferences.

It is anticipated that implementation of the Landscape Plan would occur in three phases: Phase I, Phase II), and Phase III. The Phase I improvements are expected to be completed in approximately the first two years. Table 1 lists the proposed recreational facilities in the Landscape Plan and their anticipated phasing:

resources, cultural resources, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, and transportation/traffic.

Pursuant to *CEQA Guidelines* Section 15082(b), your comments regarding the scope and content of the environmental analysis must be submitted no later than 30 days after receipt of this notice. The public review period is from November 17, 2016, until December 16, 2016. Please send your comments no later than December 16 directly to:

Sam Herzberg, AICP, Senior Planner
County of San Mateo Parks Department
455 County Center – Fourth Floor
Redwood City, CA 94063

Fax: (650) 599-1721
Email: sherzberg@smcgov.org

The County will also hold a public scoping meeting at 7 p.m. on December 6th, 2016, in the Cypress Room of the Arrillaga Family Recreation Center, 700 Alma Street, Menlo Park, CA 94025. The meeting will provide an opportunity to disseminate information, identify issues, and discuss the scope of environmental review and alternatives to be included in the EIR. For more project information, contact Sam Herzberg, AICP, Senior Planner, at (650) 363-1823 or sherzberg@smcgov.org

Date 11/8/16

Signature [signature]

Title Senior Planner, AICP, Parks Department

Telephone (650) 363-1823

NOP Distribution List **County:** San Mateo JC **SCH#** 2016112040

Resources Agency

- [x] **Resources Agency** Nadell Gayou
  - [ ] **Dept. of Boating & Waterways** Denise Peterson
  - [ ] **California Coastal Commission** Elizabeth A. Fuchs
  - [ ] **Colorado River Board** Lisa Johansen
  - [ ] **Dept. of Conservation** Elizabeth Carpenter
  - [ ] **California Energy Commission** Eric Knight
  - [ ] **Cal Fire** Dan Foster
  - [ ] **Central Valley Flood Protection Board** James Herota
  - [ ] **Office of Historic Preservation** Ron Parsons
- [x] **Dept of Parks & Recreation** Environmental Stewardship Section
  - [x] **California Department of Resources, Recycling & Recovery** Sue O'Leary
  - [ ] **S.F. Bay Conservation & Dev't. Comm.** Steve Goldbeck
  - [x] **Dept. of Water Resources** Resources Agency Nadell Gayou

Fish and Game

- [ ] **Depart. of Fish & Wildlife** Scott Flint Environmental Services Division
- [ ] **Fish & Wildlife Region 1** Curt Babcock
- [ ] **Fish & Wildlife Region 1E** Laurie Harnsberger
- [ ] **Fish & Wildlife Region 2** Jeff Drongesen
- [x] **Fish & Wildlife Region 3** Craig Weightman
- [ ] **Fish & Wildlife Region 4** Julie Vance
- [ ] **Fish & Wildlife Region 5** Leslie Newton-Reed Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6** Tiffany Ellis Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6 I/M** Heidi Calvert Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Wildlife M** William Paznokas Marine Region

Other Departments

- [ ] **Food & Agriculture** Sandra Schubert Dept. of Food and Agriculture
- [ ] **Depart. of General Services** Public School Construction
- [ ] **Dept. of General Services** Cathy Buck/George Carollo Environmental Services Section
- [ ] **Delta Stewardship Council** Kevan Samsam
- [ ] **Housing & Comm. Dev.** CEQA Coordinator Housing Policy Division

Independent Commissions, Boards

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

Cal State Transportation Agency CalSTA

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

Dept. of Transportation

- [ ] **Caltrans, District 1** Rex Jackman
- [ ] **Caltrans, District 2** Marcelino Gonzalez
- [ ] **Caltrans, District 3** Eric Federicks – South Susan Zanchi - North
- [x] **Caltrans, District 4** Patricia Maurice
- [ ] **Caltrans, District 5** Larry Newland
- [ ] **Caltrans, District 6** Michael Navarro
- [ ] **Caltrans, District 7** Dianna Watson
- [ ] **Caltrans, District 8** Mark Roberts
- [ ] **Caltrans, District 9** Gayle Rosander
- [ ] **Caltrans, District 10** Tom Dumas
- [ ] **Caltrans, District 11** Jacob Armstrong
- [ ] **Caltrans, District 12** Maureen El Harake

Cal EPA

Air Resources Board

- [ ] Airport & Freight Cathi Slaminski
  - [ ] Transportation Projects Nesamani Kalandiyur
  - [ ] Industrial/Energy Projects Mike Tollstrup
- [ ] **State Water Resources Control Board** Regional Programs Unit Division of Financial Assistance
- [ ] **State Water Resources Control Board** Cindy Forbes – Asst Deputy Division of Drinking Water
- [ ] **State Water Resources Control Board** **Div. Drinking Water #________**
- [ ] **State Water Resources Control Board** Student Intern, 401 Water Quality Certification Unit Division of Water Quality
- [x] **State Water Resouces Control Board** Phil Crader Division of Water Rights
- [ ] **Dept. of Toxic Substances Control** CEQA Tracking Center
- [ ] **Department of Pesticide Regulation** CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

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

- [ ] **Other** ________________
- [ ] ________________ Conservancy

Last Updated 7/19/2016

Flood County Park Landscape Plan
December 6, 2016, EIR Scoping Meeting
Summary

The County of San Mateo held an Environmental Impact Report (EIR) scoping meeting for the proposed Flood County Park Landscape Plan on December 6, 2016, at 7 PM. The meeting was held at the Arrillaga Family Recreation Center. Approximately 50 individuals attended the meeting.

Assistant Parks Director Sarah Birkeland started the 7 PM meeting with brief introductory remarks. The County's EIR consultant then provided an approximately 15-minute overview of the California Environmental Quality Act (CEQA), the proposed project, issues to be analyzed in the EIR, and future opportunities for public input on the project and EIR. Attendees were then invited to gather at three stations to ask questions and offer comments on the EIR work scope. The comments received are summarized below, organized by topic.

<u>Landscape Plan Features</u>

- Definitions:
    - Project name "Landscape Plan" is misleading because the project would involve more than landscaping
    - Clarify definition of "gathering meadow," relative to previously proposed amphitheater, and its uses
- Clarify uses of proposed open-air market (e.g., farmers market?)
- Phasing:
    - Move proposed play area from Phase II to Phase I to replace the Phase I loss of existing playground that serves ages 1-5
    - Move pump track to Phase I
- Timing of uses:
    - Set group picnic times at different time of day than athletic events to reduce concentrated noise and traffic impacts
    - Schedule timing to preserve some of current qualities of park
- Balance active recreational uses and peaceful uses
- Age of users:
    - Balance kids' and adults' sports
    - Mix ages together (e.g., tots with teens)
- Athletic fields
    - Clarify who coordinates the times of athletic use at Flood Park
    - Fields should be available for informal use, not just programmed uses
    - Equitable sharing of fields

- Consider need to erect barrier (e.g., netting) between residences and soccer/lacrosse field to keep balls from entering backyards
  - Barriers would be problematic too
- Need enough space between fence and soccer field (chairs for viewing)
- What are required lacrosse field dimensions?

- Ensure sufficient restrooms
- Park access:
  - Bike permits for pedestrian access
  - Need bus stop
  - Admission of people driving athletic participants: will they be admitted through gatehouse for free? (Scott says in past these drivers would be admitted for free as long as they left in 15 minutes)
- Picnic areas:
  - Group and drop-in picnic areas should not be reduced
  - Family use of these areas should not diminish
- Retrofit drainage with green infrastructure
- More than two volleyball courts needed (proposed two is less than existing four)
- Consider that 1983 Master Plan features natural areas
- Cyclists/BMXers
  - Paths should accommodate all users, inc. bicyclists
  - Designate bikeway to pump track
  - Raise funds to cover cost of pump track if reason for delay
- Use permitting critical as more uses implemented
- Who will protect improvements from damage caused by high use? And how?
- More staff needed?

<u>Alternatives</u>

- Multi-use field as alternative to proposed baseball field
- Swap locations of soccer/lacrosse field and baseball field and consider their orientations
- Buy/lease school site for parking, site access, and park needs
- Prioritize soccer use
- Use baseball field for soccer as first priority
- Develop alternatives to help care for park and ensure protection of resources (i.e., friends groups)
- Fees to limit or affect the number of people who can use the park
- Natural grass turf preferred (synthetic causes burns, gets hot, not easy to clean?)
- Reposition soccer field to slightly overlap baseball field and move pump track to upper corner – would allow construction in Phase I and address neighbors' concerns
- Add parking along Bay Road

Aesthetics

- Place conditions on lighting

Biological Resources

- Consider health impacts on trees from overuse, as mentioned in existing Master Plan
- Consider impacts from tree removal (esp. from construction of soccer/lacrosse field)
- Consider replacement of trees (even smaller ones)

Noise

- Consider noise impacts from soccer and lacrosse
    - Including use of compressed air at lacrosse games, as happens at Menlo School, and horns
- Consider noise from amphitheater
- Examine how project-related traffic noise would exacerbate impacts from existing noise from U.S. 101 and aircraft overflights
- Consider that noise currently travels south
- Consider placing conditions on hours of use and noise amplification and the necessary level of staff enforcement
- Consider that amplification already happens during park events, although against the rules
- Consider peaceful, quiet character of park that athletic events would alter
- Consider noise impacts on particularly noise-sensitive neighbors and those with non-standard sleeping hours
- Consider west-to-east wind pattern that drives park noise toward neighbors along Del Norte
- Consider noise from leaf blowers on proposed walking path between soccer/lax field and Del Norte residences
- Consider sound wall/berming as mitigation

Transportation/Traffic

- Traffic safety:
    - Consider traffic safety and congestion impacts from people picking and dropping off athletic participants outside the gatehouse for convenience (at Iris Lane gate and gap in Bay Road fence)
        - Especially if fee required for entrance to parking lot
    - Examine traffic safety impacts from kids wandering when pickups are late
    - Consider design of parking turnarounds for ingress/egress
    - Consider restricting BMX access to pump track area only to prevent traffic safety impacts on paths (e.g., fencing)
    - Consider turnaround extension farther northeast to access ballfield’s north edge
    - Consider speed controls

- Traffic study methodology:
    - Consider validity of using November traffic counts as representative of traffic to/from park
    - Examine increased traffic from athletic participants
- Traffic congestion:
    - Consider traffic congestion on Bay Road and Ringwood
    - Existing traffic on Bay Road backs up around 5 PM on weeknights
    - Consider traffic impacts during PM peak hour and school traffic in AM
- Parking at Flood Park:
    - Consider availability of on-site parking to picnic users given additional athletic participants
    - Will on-site parking suffice? Additional parking provided?
- On-street parking:
    - Consider impacts to on-street parking
    - Consider that City will not enforce on-street parking violations
    - Parking permits apply to about 10 nearby blocks April through October, 8 am to 8 pm (but not to Tehama)
    - Consider extending parking permits year-round to ensure parking availability

<u>Other</u>

- Consider how to evaluate long-term impacts of Landscape Plan
- Consider that people living next to park should expect some impacts and future change to the park
- Consider nuisance littering on pedestrian walkways

Appendix B

Air Quality Modeling Results

Flood County Park Landscape Plan

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	9.00	Acre	9.00	392,040.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Extend grading phase to 60 days based on number of hauling trips

Off-road Equipment -

Grading - Import 4,370 cy, export 5,630 cy on 9 acres

Demolition -

Vehicle Trips - Traffic study: 307 trips/day = 34.11 trips/acre/day

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	PhaseEndDate	11/5/2017	1/25/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/1/2017
tblConstructionPhase	PhaseEndDate	11/5/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	11/5/2017	2/22/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/15/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	3/12/2018
tblConstructionPhase	PhaseStartDate	11/6/2017	12/18/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	1/28/2019
tblConstructionPhase	PhaseStartDate	11/6/2017	12/4/2017
tblGrading	AcresOfGrading	30.00	9.00
tblGrading	MaterialExported	0.00	5,630.00
tblGrading	MaterialImported	0.00	4,370.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblVehicleTrips	ST_TR	22.75	34.11
tblVehicleTrips	SU_TR	16.74	34.11
tblVehicleTrips	WD_TR	1.89	34.11

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0852	0.9503	0.4728	9.5000e-004	0.3157	0.0458	0.3615	0.1569	0.0424	0.1993	0.0000	89.0965	89.0965	0.0217	0.0000	89.6398
2018	0.4516	4.3860	3.1155	7.2400e-003	0.3800	0.2058	0.5858	0.1526	0.1928	0.3454	0.0000	670.1539	670.1539	0.1071	0.0000	672.8302
2019	0.0449	0.4339	0.3764	7.8000e-004	0.0175	0.0211	0.0386	4.7400e-003	0.0197	0.0244	0.0000	70.7024	70.7024	0.0136	0.0000	71.0425
Maximum	**0.4516**	**4.3860**	**3.1155**	**7.2400e-003**	**0.3800**	**0.2058**	**0.5858**	**0.1569**	**0.1928**	**0.3454**	**0.0000**	**670.1539**	**670.1539**	**0.1071**	**0.0000**	**672.8302**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0852	0.9503	0.4728	9.5000e-004	0.3157	0.0458	0.3615	0.1569	0.0424	0.1993	0.0000	89.0965	89.0965	0.0217	0.0000	89.6397
2018	0.4516	4.3860	3.1155	7.2400e-003	0.3800	0.2058	0.5858	0.1526	0.1928	0.3454	0.0000	670.1535	670.1535	0.1071	0.0000	672.8298
2019	0.0449	0.4339	0.3764	7.8000e-004	0.0175	0.0211	0.0386	4.7400e-003	0.0197	0.0244	0.0000	70.7024	70.7024	0.0136	0.0000	71.0425
Maximum	**0.4516**	**4.3860**	**3.1155**	**7.2400e-003**	**0.3800**	**0.2058**	**0.5858**	**0.1569**	**0.1928**	**0.3454**	**0.0000**	**670.1535**	**670.1535**	**0.1071**	**0.0000**	**672.8298**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-6-2017**	**2-5-2018**	1.4919	1.4919
2	**2-6-2018**	**5-5-2018**	1.1806	1.1806
3	**5-6-2018**	**8-5-2018**	1.1776	1.1776
4	**8-6-2018**	**11-5-2018**	1.1816	1.1816
5	**11-6-2018**	**2-5-2019**	1.0704	1.0704
6	**2-6-2019**	**5-5-2019**	0.1019	0.1019
		Highest	1.4919	1.4919

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6900e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0844	0.2679	0.9245	2.8000e-003	0.2429	3.5200e-003	0.2465	0.0653	3.3100e-003	0.0686	0.0000	255.3901	255.3901	9.9700e-003	0.0000	255.6393
Waste						0.0000	0.0000		0.0000	0.0000	0.1563	0.0000	0.1563	9.2400e-003	0.0000	0.3872
Water						0.0000	0.0000		0.0000	0.0000	0.0000	10.9184	10.9184	4.9000e-004	1.0000e-004	10.9612
Total	**0.0881**	**0.2679**	**0.9246**	**2.8000e-003**	**0.2429**	**3.5200e-003**	**0.2465**	**0.0653**	**3.3100e-003**	**0.0686**	**0.1563**	**266.3086**	**266.4649**	**0.0197**	**1.0000e-004**	**266.9879**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6900e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0844	0.2679	0.9245	2.8000e-003	0.2429	3.5200e-003	0.2465	0.0653	3.3100e-003	0.0686	0.0000	255.3901	255.3901	9.9700e-003	0.0000	255.6393
Waste						0.0000	0.0000		0.0000	0.0000	0.1563	0.0000	0.1563	9.2400e-003	0.0000	0.3872
Water						0.0000	0.0000		0.0000	0.0000	0.0000	10.9184	10.9184	4.9000e-004	1.0000e-004	10.9612
Total	**0.0881**	**0.2679**	**0.9246**	**2.8000e-003**	**0.2429**	**3.5200e-003**	**0.2465**	**0.0653**	**3.3100e-003**	**0.0686**	**0.1563**	**266.3086**	**266.4649**	**0.0197**	**1.0000e-004**	**266.9879**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	3/12/2018	1/25/2019	5	230	
2	Site Preparation	Site Preparation	12/4/2017	12/15/2017	5	10	
3	Grading	Grading	12/18/2017	3/9/2018	5	60	
4	Demolition	Demolition	11/6/2017	12/1/2017	5	20	
5	Paving	Paving	1/28/2019	2/22/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 9

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Flood County Park Landscape Plan - San Mateo County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	165.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	246.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2827	2.4677	1.8547	2.8400e-003		0.1582	0.1582		0.1488	0.1488	0.0000	250.8444	250.8444	0.0615	0.0000	252.3809
Total	**0.2827**	**2.4677**	**1.8547**	**2.8400e-003**		**0.1582**	**0.1582**		**0.1488**	**0.1488**	**0.0000**	**250.8444**	**250.8444**	**0.0615**	**0.0000**	**252.3809**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0360	0.9172	0.3499	1.8400e-003	0.0440	7.0400e-003	0.0511	0.0127	6.7400e-003	0.0195	0.0000	182.5128	182.5128	0.0163	0.0000	182.9190
Worker	0.0568	0.0413	0.4179	1.3500e-003	0.1370	8.8000e-004	0.1379	0.0365	8.1000e-004	0.0373	0.0000	121.6413	121.6413	2.8600e-003	0.0000	121.7128
Total	**0.0928**	**0.9584**	**0.7678**	**3.1900e-003**	**0.1810**	**7.9200e-003**	**0.1890**	**0.0492**	**7.5500e-003**	**0.0567**	**0.0000**	**304.1541**	**304.1541**	**0.0191**	**0.0000**	**304.6319**

3.2 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2827	2.4676	1.8547	2.8400e-003		0.1582	0.1582		0.1488	0.1488	0.0000	250.8441	250.8441	0.0615	0.0000	252.3806
Total	**0.2827**	**2.4676**	**1.8547**	**2.8400e-003**		**0.1582**	**0.1582**		**0.1488**	**0.1488**	**0.0000**	**250.8441**	**250.8441**	**0.0615**	**0.0000**	**252.3806**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0360	0.9172	0.3499	1.8400e-003	0.0440	7.0400e-003	0.0511	0.0127	6.7400e-003	0.0195	0.0000	182.5128	182.5128	0.0163	0.0000	182.9190
Worker	0.0568	0.0413	0.4179	1.3500e-003	0.1370	8.8000e-004	0.1379	0.0365	8.1000e-004	0.0373	0.0000	121.6413	121.6413	2.8600e-003	0.0000	121.7128
Total	**0.0928**	**0.9584**	**0.7678**	**3.1900e-003**	**0.1810**	**7.9200e-003**	**0.1890**	**0.0492**	**7.5500e-003**	**0.0567**	**0.0000**	**304.1541**	**304.1541**	**0.0191**	**0.0000**	**304.6319**

3.2 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0224	0.2003	0.1631	2.6000e-004		0.0123	0.0123		0.0115	0.0115	0.0000	22.3349	22.3349	5.4400e-003	0.0000	22.4709
Total	**0.0224**	**0.2003**	**0.1631**	**2.6000e-004**		**0.0123**	**0.0123**		**0.0115**	**0.0115**	**0.0000**	**22.3349**	**22.3349**	**5.4400e-003**	**0.0000**	**22.4709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.0776	0.0298	1.6000e-004	3.9600e-003	5.4000e-004	4.5000e-003	1.1500e-003	5.1000e-004	1.6600e-003	0.0000	16.2643	16.2643	1.4400e-003	0.0000	16.3002
Worker	4.6400e-003	3.2600e-003	0.0336	1.2000e-004	0.0123	8.0000e-005	0.0124	3.2800e-003	7.0000e-005	3.3600e-003	0.0000	10.6125	10.6125	2.3000e-004	0.0000	10.6182
Total	**7.5300e-003**	**0.0809**	**0.0634**	**2.8000e-004**	**0.0163**	**6.2000e-004**	**0.0169**	**4.4300e-003**	**5.8000e-004**	**5.0200e-003**	**0.0000**	**26.8768**	**26.8768**	**1.6700e-003**	**0.0000**	**26.9184**

3.2 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0224	0.2003	0.1631	2.6000e-004		0.0123	0.0123		0.0115	0.0115	0.0000	22.3349	22.3349	5.4400e-003	0.0000	22.4709
Total	**0.0224**	**0.2003**	**0.1631**	**2.6000e-004**		**0.0123**	**0.0123**		**0.0115**	**0.0115**	**0.0000**	**22.3349**	**22.3349**	**5.4400e-003**	**0.0000**	**22.4709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.0776	0.0298	1.6000e-004	3.9600e-003	5.4000e-004	4.5000e-003	1.1500e-003	5.1000e-004	1.6600e-003	0.0000	16.2643	16.2643	1.4400e-003	0.0000	16.3002
Worker	4.6400e-003	3.2600e-003	0.0336	1.2000e-004	0.0123	8.0000e-005	0.0124	3.2800e-003	7.0000e-005	3.3600e-003	0.0000	10.6125	10.6125	2.3000e-004	0.0000	10.6182
Total	**7.5300e-003**	**0.0809**	**0.0634**	**2.8000e-004**	**0.0163**	**6.2000e-004**	**0.0169**	**4.4300e-003**	**5.8000e-004**	**5.0200e-003**	**0.0000**	**26.8768**	**26.8768**	**1.6700e-003**	**0.0000**	**26.9184**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2614	0.1173	1.9000e-004		0.0144	0.0144		0.0132	0.0132	0.0000	17.6672	17.6672	5.4100e-003	0.0000	17.8025
Total	**0.0248**	**0.2614**	**0.1173**	**1.9000e-004**	**0.0903**	**0.0144**	**0.1047**	**0.0497**	**0.0132**	**0.0629**	**0.0000**	**17.6672**	**17.6672**	**5.4100e-003**	**0.0000**	**17.8025**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.4700e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6483	0.6483	2.0000e-005	0.0000	0.6487
Total	**3.3000e-004**	**2.5000e-004**	**2.4700e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6483**	**0.6483**	**2.0000e-005**	**0.0000**	**0.6487**

3.3 Site Preparation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2614	0.1173	1.9000e-004		0.0144	0.0144		0.0132	0.0132	0.0000	17.6672	17.6672	5.4100e-003	0.0000	17.8025
Total	**0.0248**	**0.2614**	**0.1173**	**1.9000e-004**	**0.0903**	**0.0144**	**0.1047**	**0.0497**	**0.0132**	**0.0629**	**0.0000**	**17.6672**	**17.6672**	**5.4100e-003**	**0.0000**	**17.8025**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.4700e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6483	0.6483	2.0000e-005	0.0000	0.6487
Total	**3.3000e-004**	**2.5000e-004**	**2.4700e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6483**	**0.6483**	**2.0000e-005**	**0.0000**	**0.6487**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1860	0.0000	0.1860	0.0999	0.0000	0.0999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0154	0.1694	0.0855	1.5000e-004		8.8900e-003	8.8900e-003		8.1800e-003	8.1800e-003	0.0000	13.7797	13.7797	4.2200e-003	0.0000	13.8853
Total	**0.0154**	**0.1694**	**0.0855**	**1.5000e-004**	**0.1860**	**8.8900e-003**	**0.1949**	**0.0999**	**8.1800e-003**	**0.1081**	**0.0000**	**13.7797**	**13.7797**	**4.2200e-003**	**0.0000**	**13.8853**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3100e-003	0.0418	0.0143	9.0000e-005	8.3000e-003	2.4000e-004	8.5400e-003	2.0900e-003	2.3000e-004	2.3200e-003	0.0000	9.0701	9.0701	1.0600e-003	0.0000	9.0965
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.0600e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5402	0.5402	1.0000e-005	0.0000	0.5406
Total	**1.5900e-003**	**0.0420**	**0.0164**	**1.0000e-004**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**	**2.2500e-003**	**2.3000e-004**	**2.4800e-003**	**0.0000**	**9.6104**	**9.6104**	**1.0700e-003**	**0.0000**	**9.6371**

3.4 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1860	0.0000	0.1860	0.0999	0.0000	0.0999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0154	0.1694	0.0855	1.5000e-004		8.8900e-003	8.8900e-003		8.1800e-003	8.1800e-003	0.0000	13.7797	13.7797	4.2200e-003	0.0000	13.8853
Total	**0.0154**	**0.1694**	**0.0855**	**1.5000e-004**	**0.1860**	**8.8900e-003**	**0.1949**	**0.0999**	**8.1800e-003**	**0.1081**	**0.0000**	**13.7797**	**13.7797**	**4.2200e-003**	**0.0000**	**13.8853**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3100e-003	0.0418	0.0143	9.0000e-005	8.3000e-003	2.4000e-004	8.5400e-003	2.0900e-003	2.3000e-004	2.3200e-003	0.0000	9.0701	9.0701	1.0600e-003	0.0000	9.0965
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.0600e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5402	0.5402	1.0000e-005	0.0000	0.5406
Total	**1.5900e-003**	**0.0420**	**0.0164**	**1.0000e-004**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**	**2.2500e-003**	**2.3000e-004**	**2.4800e-003**	**0.0000**	**9.6104**	**9.6104**	**1.0700e-003**	**0.0000**	**9.6371**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1860	0.0000	0.1860	0.0999	0.0000	0.0999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0693	0.7668	0.4144	7.4000e-004		0.0388	0.0388		0.0357	0.0357	0.0000	67.7672	67.7672	0.0211	0.0000	68.2946
Total	**0.0693**	**0.7668**	**0.4144**	**7.4000e-004**	**0.1860**	**0.0388**	**0.2248**	**0.0999**	**0.0357**	**0.1356**	**0.0000**	**67.7672**	**67.7672**	**0.0211**	**0.0000**	**68.2946**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.5500e-003	0.1922	0.0695	4.4000e-004	0.0100	7.9000e-004	0.0108	2.7100e-003	7.6000e-004	3.4700e-003	0.0000	44.7677	44.7677	5.3300e-003	0.0000	44.9009
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	8.9000e-004	9.0000e-003	3.0000e-005	2.9500e-003	2.0000e-005	2.9700e-003	7.9000e-004	2.0000e-005	8.0000e-004	0.0000	2.6205	2.6205	6.0000e-005	0.0000	2.6220
Total	**6.7700e-003**	**0.1931**	**0.0785**	**4.7000e-004**	**0.0130**	**8.1000e-004**	**0.0138**	**3.5000e-003**	**7.8000e-004**	**4.2700e-003**	**0.0000**	**47.3882**	**47.3882**	**5.3900e-003**	**0.0000**	**47.5229**

3.4 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1860	0.0000	0.1860	0.0999	0.0000	0.0999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0693	0.7668	0.4144	7.4000e-004		0.0388	0.0388		0.0357	0.0357	0.0000	67.7671	67.7671	0.0211	0.0000	68.2945
Total	**0.0693**	**0.7668**	**0.4144**	**7.4000e-004**	**0.1860**	**0.0388**	**0.2248**	**0.0999**	**0.0357**	**0.1356**	**0.0000**	**67.7671**	**67.7671**	**0.0211**	**0.0000**	**68.2945**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.5500e-003	0.1922	0.0695	4.4000e-004	0.0100	7.9000e-004	0.0108	2.7100e-003	7.6000e-004	3.4700e-003	0.0000	44.7677	44.7677	5.3300e-003	0.0000	44.9009
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	8.9000e-004	9.0000e-003	3.0000e-005	2.9500e-003	2.0000e-005	2.9700e-003	7.9000e-004	2.0000e-005	8.0000e-004	0.0000	2.6205	2.6205	6.0000e-005	0.0000	2.6220
Total	**6.7700e-003**	**0.1931**	**0.0785**	**4.7000e-004**	**0.0130**	**8.1000e-004**	**0.0138**	**3.5000e-003**	**7.8000e-004**	**4.2700e-003**	**0.0000**	**47.3882**	**47.3882**	**5.3900e-003**	**0.0000**	**47.5229**

3.5 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0266	0.0000	0.0266	4.0200e-003	0.0000	4.0200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0410	0.4275	0.2301	3.9000e-004		0.0219	0.0219		0.0204	0.0204	0.0000	35.6005	35.6005	9.7300e-003	0.0000	35.8438
Total	**0.0410**	**0.4275**	**0.2301**	**3.9000e-004**	**0.0266**	**0.0219**	**0.0485**	**4.0200e-003**	**0.0204**	**0.0245**	**0.0000**	**35.6005**	**35.6005**	**9.7300e-003**	**0.0000**	**35.8438**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5500e-003	0.0494	0.0169	1.1000e-004	2.0600e-003	2.9000e-004	2.3500e-003	5.7000e-004	2.8000e-004	8.4000e-004	0.0000	10.7100	10.7100	1.2500e-003	0.0000	10.7412
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.1000e-004	4.1100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0805	1.0805	3.0000e-005	0.0000	1.0812
Total	**2.1000e-003**	**0.0498**	**0.0210**	**1.2000e-004**	**3.2400e-003**	**3.0000e-004**	**3.5400e-003**	**8.8000e-004**	**2.9000e-004**	**1.1600e-003**	**0.0000**	**11.7905**	**11.7905**	**1.2800e-003**	**0.0000**	**11.8223**

3.5 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0266	0.0000	0.0266	4.0200e-003	0.0000	4.0200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0410	0.4275	0.2301	3.9000e-004		0.0219	0.0219		0.0204	0.0204	0.0000	35.6005	35.6005	9.7300e-003	0.0000	35.8438
Total	**0.0410**	**0.4275**	**0.2301**	**3.9000e-004**	**0.0266**	**0.0219**	**0.0485**	**4.0200e-003**	**0.0204**	**0.0245**	**0.0000**	**35.6005**	**35.6005**	**9.7300e-003**	**0.0000**	**35.8438**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5500e-003	0.0494	0.0169	1.1000e-004	2.0600e-003	2.9000e-004	2.3500e-003	5.7000e-004	2.8000e-004	8.4000e-004	0.0000	10.7100	10.7100	1.2500e-003	0.0000	10.7412
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.1000e-004	4.1100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0805	1.0805	3.0000e-005	0.0000	1.0812
Total	**2.1000e-003**	**0.0498**	**0.0210**	**1.2000e-004**	**3.2400e-003**	**3.0000e-004**	**3.5400e-003**	**8.8000e-004**	**2.9000e-004**	**1.1600e-003**	**0.0000**	**11.7905**	**11.7905**	**1.2800e-003**	**0.0000**	**11.8223**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161
Total	**4.4000e-004**	**3.1000e-004**	**3.2200e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0156**	**1.0156**	**2.0000e-005**	**0.0000**	**1.0161**

3.6 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161
Total	**4.4000e-004**	**3.1000e-004**	**3.2200e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0156**	**1.0156**	**2.0000e-005**	**0.0000**	**1.0161**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0844	0.2679	0.9245	2.8000e-003	0.2429	3.5200e-003	0.2465	0.0653	3.3100e-003	0.0686	0.0000	255.3901	255.3901	9.9700e-003	0.0000	255.6393
Unmitigated	0.0844	0.2679	0.9245	2.8000e-003	0.2429	3.5200e-003	0.2465	0.0653	3.3100e-003	0.0686	0.0000	255.3901	255.3901	9.9700e-003	0.0000	255.6393

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	306.99	306.99	306.99	655,378	655,378
Total	306.99	306.99	306.99	655,378	655,378

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.498968	0.049513	0.248277	0.134909	0.018184	0.006326	0.020670	0.006254	0.003828	0.003354	0.008577	0.000418	0.000722

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.6900e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Unmitigated	3.6900e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Total	**3.7000e-003**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.0000**	**1.7000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Total	**3.7000e-003**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.0000**	**1.7000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.9184	4.9000e-004	1.0000e-004	10.9612
Unmitigated	10.9184	4.9000e-004	1.0000e-004	10.9612

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.7233	10.9184	4.9000e-004	1.0000e-004	10.9612
Total		**10.9184**	**4.9000e-004**	**1.0000e-004**	**10.9612**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.7233	10.9184	4.9000e-004	1.0000e-004	10.9612
Total		**10.9184**	**4.9000e-004**	**1.0000e-004**	**10.9612**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.1563	9.2400e-003	0.0000	0.3872
Unmitigated	0.1563	9.2400e-003	0.0000	0.3872

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.77	0.1563	9.2400e-003	0.0000	0.3872
Total		**0.1563**	**9.2400e-003**	**0.0000**	**0.3872**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.77	0.1563	9.2400e-003	0.0000	0.3872
Total		**0.1563**	**9.2400e-003**	**0.0000**	**0.3872**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Flood County Park Landscape Plan

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	9.00	Acre	9.00	392,040.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Extend grading phase to 60 days based on number of hauling trips

Off-road Equipment -

Grading - Import 4,370 cy, export 5,630 cy on 9 acres

Demolition -

Vehicle Trips - Traffic study: 307 trips/day = 34.11 trips/acre/day

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation - BAAQMD Basic Construction Mitigation Measures

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	PhaseEndDate	11/5/2017	1/25/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/1/2017
tblConstructionPhase	PhaseEndDate	11/5/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	11/5/2017	2/22/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/15/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	3/12/2018
tblConstructionPhase	PhaseStartDate	11/6/2017	12/18/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	1/28/2019
tblConstructionPhase	PhaseStartDate	11/6/2017	12/4/2017
tblGrading	AcresOfGrading	30.00	9.00
tblGrading	MaterialExported	0.00	5,630.00
tblGrading	MaterialImported	0.00	4,370.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblVehicleTrips	ST_TR	22.75	34.11
tblVehicleTrips	SU_TR	16.74	34.11
tblVehicleTrips	WD_TR	1.89	34.11

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0852	0.9503	0.4728	9.5000e-004	0.3157	0.0458	0.3615	0.1569	0.0424	0.1993	0.0000	89.0965	89.0965	0.0217	0.0000	89.6398
2018	0.4516	4.3860	3.1155	7.2400e-003	0.3800	0.2058	0.5858	0.1526	0.1928	0.3454	0.0000	670.1539	670.1539	0.1071	0.0000	672.8302
2019	0.0449	0.4339	0.3764	7.8000e-004	0.0175	0.0211	0.0386	4.7400e-003	0.0197	0.0244	0.0000	70.7024	70.7024	0.0136	0.0000	71.0425
Maximum	**0.4516**	**4.3860**	**3.1155**	**7.2400e-003**	**0.3800**	**0.2058**	**0.5858**	**0.1569**	**0.1928**	**0.3454**	**0.0000**	**670.1539**	**670.1539**	**0.1071**	**0.0000**	**672.8302**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0852	0.9503	0.4728	9.5000e-004	0.1491	0.0458	0.1949	0.0724	0.0424	0.1148	0.0000	89.0965	89.0965	0.0217	0.0000	89.6397
2018	0.4516	4.3860	3.1155	7.2400e-003	0.2777	0.2058	0.4835	0.0977	0.1928	0.2904	0.0000	670.1535	670.1535	0.1071	0.0000	672.8298
2019	0.0449	0.4339	0.3764	7.8000e-004	0.0175	0.0211	0.0386	4.7400e-003	0.0197	0.0244	0.0000	70.7024	70.7024	0.0136	0.0000	71.0425
Maximum	**0.4516**	**4.3860**	**3.1155**	**7.2400e-003**	**0.2777**	**0.2058**	**0.4835**	**0.0977**	**0.1928**	**0.2904**	**0.0000**	**670.1535**	**670.1535**	**0.1071**	**0.0000**	**672.8298**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**37.70**	**0.00**	**27.27**	**44.37**	**0.00**	**24.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-6-2017**	**2-5-2018**	1.4919	1.4919
2	**2-6-2018**	**5-5-2018**	1.1806	1.1806
3	**5-6-2018**	**8-5-2018**	1.1776	1.1776
4	**8-6-2018**	**11-5-2018**	1.1816	1.1816
5	**11-6-2018**	**2-5-2019**	1.0704	1.0704
6	**2-6-2019**	**5-5-2019**	0.1019	0.1019
		Highest	1.4919	1.4919

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6900e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0844	0.2679	0.9245	2.8000e-003	0.2429	3.5200e-003	0.2465	0.0653	3.3100e-003	0.0686	0.0000	255.3901	255.3901	9.9700e-003	0.0000	255.6393
Waste						0.0000	0.0000		0.0000	0.0000	0.1563	0.0000	0.1563	9.2400e-003	0.0000	0.3872
Water						0.0000	0.0000		0.0000	0.0000	0.0000	10.9184	10.9184	4.9000e-004	1.0000e-004	10.9612
Total	**0.0881**	**0.2679**	**0.9246**	**2.8000e-003**	**0.2429**	**3.5200e-003**	**0.2465**	**0.0653**	**3.3100e-003**	**0.0686**	**0.1563**	**266.3086**	**266.4649**	**0.0197**	**1.0000e-004**	**266.9879**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6900e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0844	0.2679	0.9245	2.8000e-003	0.2429	3.5200e-003	0.2465	0.0653	3.3100e-003	0.0686	0.0000	255.3901	255.3901	9.9700e-003	0.0000	255.6393
Waste						0.0000	0.0000		0.0000	0.0000	0.1563	0.0000	0.1563	9.2400e-003	0.0000	0.3872
Water						0.0000	0.0000		0.0000	0.0000	0.0000	10.9184	10.9184	4.9000e-004	1.0000e-004	10.9612
Total	**0.0881**	**0.2679**	**0.9246**	**2.8000e-003**	**0.2429**	**3.5200e-003**	**0.2465**	**0.0653**	**3.3100e-003**	**0.0686**	**0.1563**	**266.3086**	**266.4649**	**0.0197**	**1.0000e-004**	**266.9879**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	3/12/2018	1/25/2019	5	230	
2	Site Preparation	Site Preparation	12/4/2017	12/15/2017	5	10	
3	Grading	Grading	12/18/2017	3/9/2018	5	60	
4	Demolition	Demolition	11/6/2017	12/1/2017	5	20	
5	Paving	Paving	1/28/2019	2/22/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 9

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	165.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	246.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2827	2.4677	1.8547	2.8400e-003		0.1582	0.1582		0.1488	0.1488	0.0000	250.8444	250.8444	0.0615	0.0000	252.3809
Total	**0.2827**	**2.4677**	**1.8547**	**2.8400e-003**		**0.1582**	**0.1582**		**0.1488**	**0.1488**	**0.0000**	**250.8444**	**250.8444**	**0.0615**	**0.0000**	**252.3809**

3.2 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0360	0.9172	0.3499	1.8400e-003	0.0440	7.0400e-003	0.0511	0.0127	6.7400e-003	0.0195	0.0000	182.5128	182.5128	0.0163	0.0000	182.9190
Worker	0.0568	0.0413	0.4179	1.3500e-003	0.1370	8.8000e-004	0.1379	0.0365	8.1000e-004	0.0373	0.0000	121.6413	121.6413	2.8600e-003	0.0000	121.7128
Total	**0.0928**	**0.9584**	**0.7678**	**3.1900e-003**	**0.1810**	**7.9200e-003**	**0.1890**	**0.0492**	**7.5500e-003**	**0.0567**	**0.0000**	**304.1541**	**304.1541**	**0.0191**	**0.0000**	**304.6319**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2827	2.4676	1.8547	2.8400e-003		0.1582	0.1582		0.1488	0.1488	0.0000	250.8441	250.8441	0.0615	0.0000	252.3806
Total	**0.2827**	**2.4676**	**1.8547**	**2.8400e-003**		**0.1582**	**0.1582**		**0.1488**	**0.1488**	**0.0000**	**250.8441**	**250.8441**	**0.0615**	**0.0000**	**252.3806**

3.2 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0360	0.9172	0.3499	1.8400e-003	0.0440	7.0400e-003	0.0511	0.0127	6.7400e-003	0.0195	0.0000	182.5128	182.5128	0.0163	0.0000	182.9190
Worker	0.0568	0.0413	0.4179	1.3500e-003	0.1370	8.8000e-004	0.1379	0.0365	8.1000e-004	0.0373	0.0000	121.6413	121.6413	2.8600e-003	0.0000	121.7128
Total	**0.0928**	**0.9584**	**0.7678**	**3.1900e-003**	**0.1810**	**7.9200e-003**	**0.1890**	**0.0492**	**7.5500e-003**	**0.0567**	**0.0000**	**304.1541**	**304.1541**	**0.0191**	**0.0000**	**304.6319**

3.2 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0224	0.2003	0.1631	2.6000e-004		0.0123	0.0123		0.0115	0.0115	0.0000	22.3349	22.3349	5.4400e-003	0.0000	22.4709
Total	**0.0224**	**0.2003**	**0.1631**	**2.6000e-004**		**0.0123**	**0.0123**		**0.0115**	**0.0115**	**0.0000**	**22.3349**	**22.3349**	**5.4400e-003**	**0.0000**	**22.4709**

3.2 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.0776	0.0298	1.6000e-004	3.9600e-003	5.4000e-004	4.5000e-003	1.1500e-003	5.1000e-004	1.6600e-003	0.0000	16.2643	16.2643	1.4400e-003	0.0000	16.3002
Worker	4.6400e-003	3.2600e-003	0.0336	1.2000e-004	0.0123	8.0000e-005	0.0124	3.2800e-003	7.0000e-005	3.3600e-003	0.0000	10.6125	10.6125	2.3000e-004	0.0000	10.6182
Total	**7.5300e-003**	**0.0809**	**0.0634**	**2.8000e-004**	**0.0163**	**6.2000e-004**	**0.0169**	**4.4300e-003**	**5.8000e-004**	**5.0200e-003**	**0.0000**	**26.8768**	**26.8768**	**1.6700e-003**	**0.0000**	**26.9184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0224	0.2003	0.1631	2.6000e-004		0.0123	0.0123		0.0115	0.0115	0.0000	22.3349	22.3349	5.4400e-003	0.0000	22.4709
Total	**0.0224**	**0.2003**	**0.1631**	**2.6000e-004**		**0.0123**	**0.0123**		**0.0115**	**0.0115**	**0.0000**	**22.3349**	**22.3349**	**5.4400e-003**	**0.0000**	**22.4709**

3.2 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.0776	0.0298	1.6000e-004	3.9600e-003	5.4000e-004	4.5000e-003	1.1500e-003	5.1000e-004	1.6600e-003	0.0000	16.2643	16.2643	1.4400e-003	0.0000	16.3002
Worker	4.6400e-003	3.2600e-003	0.0336	1.2000e-004	0.0123	8.0000e-005	0.0124	3.2800e-003	7.0000e-005	3.3600e-003	0.0000	10.6125	10.6125	2.3000e-004	0.0000	10.6182
Total	**7.5300e-003**	**0.0809**	**0.0634**	**2.8000e-004**	**0.0163**	**6.2000e-004**	**0.0169**	**4.4300e-003**	**5.8000e-004**	**5.0200e-003**	**0.0000**	**26.8768**	**26.8768**	**1.6700e-003**	**0.0000**	**26.9184**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2614	0.1173	1.9000e-004		0.0144	0.0144		0.0132	0.0132	0.0000	17.6672	17.6672	5.4100e-003	0.0000	17.8025
Total	**0.0248**	**0.2614**	**0.1173**	**1.9000e-004**	**0.0903**	**0.0144**	**0.1047**	**0.0497**	**0.0132**	**0.0629**	**0.0000**	**17.6672**	**17.6672**	**5.4100e-003**	**0.0000**	**17.8025**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.4700e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6483	0.6483	2.0000e-005	0.0000	0.6487
Total	**3.3000e-004**	**2.5000e-004**	**2.4700e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6483**	**0.6483**	**2.0000e-005**	**0.0000**	**0.6487**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2614	0.1173	1.9000e-004		0.0144	0.0144		0.0132	0.0132	0.0000	17.6672	17.6672	5.4100e-003	0.0000	17.8025
Total	**0.0248**	**0.2614**	**0.1173**	**1.9000e-004**	**0.0407**	**0.0144**	**0.0550**	**0.0223**	**0.0132**	**0.0356**	**0.0000**	**17.6672**	**17.6672**	**5.4100e-003**	**0.0000**	**17.8025**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.4700e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6483	0.6483	2.0000e-005	0.0000	0.6487
Total	**3.3000e-004**	**2.5000e-004**	**2.4700e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6483**	**0.6483**	**2.0000e-005**	**0.0000**	**0.6487**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1860	0.0000	0.1860	0.0999	0.0000	0.0999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0154	0.1694	0.0855	1.5000e-004		8.8900e-003	8.8900e-003		8.1800e-003	8.1800e-003	0.0000	13.7797	13.7797	4.2200e-003	0.0000	13.8853
Total	**0.0154**	**0.1694**	**0.0855**	**1.5000e-004**	**0.1860**	**8.8900e-003**	**0.1949**	**0.0999**	**8.1800e-003**	**0.1081**	**0.0000**	**13.7797**	**13.7797**	**4.2200e-003**	**0.0000**	**13.8853**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3100e-003	0.0418	0.0143	9.0000e-005	8.3000e-003	2.4000e-004	8.5400e-003	2.0900e-003	2.3000e-004	2.3200e-003	0.0000	9.0701	9.0701	1.0600e-003	0.0000	9.0965
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.0600e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5402	0.5402	1.0000e-005	0.0000	0.5406
Total	**1.5900e-003**	**0.0420**	**0.0164**	**1.0000e-004**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**	**2.2500e-003**	**2.3000e-004**	**2.4800e-003**	**0.0000**	**9.6104**	**9.6104**	**1.0700e-003**	**0.0000**	**9.6371**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0837	0.0000	0.0837	0.0450	0.0000	0.0450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0154	0.1694	0.0855	1.5000e-004		8.8900e-003	8.8900e-003		8.1800e-003	8.1800e-003	0.0000	13.7797	13.7797	4.2200e-003	0.0000	13.8853
Total	**0.0154**	**0.1694**	**0.0855**	**1.5000e-004**	**0.0837**	**8.8900e-003**	**0.0926**	**0.0450**	**8.1800e-003**	**0.0531**	**0.0000**	**13.7797**	**13.7797**	**4.2200e-003**	**0.0000**	**13.8853**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3100e-003	0.0418	0.0143	9.0000e-005	8.3000e-003	2.4000e-004	8.5400e-003	2.0900e-003	2.3000e-004	2.3200e-003	0.0000	9.0701	9.0701	1.0600e-003	0.0000	9.0965
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.0600e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5402	0.5402	1.0000e-005	0.0000	0.5406
Total	**1.5900e-003**	**0.0420**	**0.0164**	**1.0000e-004**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**	**2.2500e-003**	**2.3000e-004**	**2.4800e-003**	**0.0000**	**9.6104**	**9.6104**	**1.0700e-003**	**0.0000**	**9.6371**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1860	0.0000	0.1860	0.0999	0.0000	0.0999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0693	0.7668	0.4144	7.4000e-004		0.0388	0.0388		0.0357	0.0357	0.0000	67.7672	67.7672	0.0211	0.0000	68.2946
Total	**0.0693**	**0.7668**	**0.4144**	**7.4000e-004**	**0.1860**	**0.0388**	**0.2248**	**0.0999**	**0.0357**	**0.1356**	**0.0000**	**67.7672**	**67.7672**	**0.0211**	**0.0000**	**68.2946**

3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.5500e-003	0.1922	0.0695	4.4000e-004	0.0100	7.9000e-004	0.0108	2.7100e-003	7.6000e-004	3.4700e-003	0.0000	44.7677	44.7677	5.3300e-003	0.0000	44.9009
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	8.9000e-004	9.0000e-003	3.0000e-005	2.9500e-003	2.0000e-005	2.9700e-003	7.9000e-004	2.0000e-005	8.0000e-004	0.0000	2.6205	2.6205	6.0000e-005	0.0000	2.6220
Total	**6.7700e-003**	**0.1931**	**0.0785**	**4.7000e-004**	**0.0130**	**8.1000e-004**	**0.0138**	**3.5000e-003**	**7.8000e-004**	**4.2700e-003**	**0.0000**	**47.3882**	**47.3882**	**5.3900e-003**	**0.0000**	**47.5229**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0837	0.0000	0.0837	0.0450	0.0000	0.0450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0693	0.7668	0.4144	7.4000e-004		0.0388	0.0388		0.0357	0.0357	0.0000	67.7671	67.7671	0.0211	0.0000	68.2945
Total	**0.0693**	**0.7668**	**0.4144**	**7.4000e-004**	**0.0837**	**0.0388**	**0.1225**	**0.0450**	**0.0357**	**0.0806**	**0.0000**	**67.7671**	**67.7671**	**0.0211**	**0.0000**	**68.2945**

3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.5500e-003	0.1922	0.0695	4.4000e-004	0.0100	7.9000e-004	0.0108	2.7100e-003	7.6000e-004	3.4700e-003	0.0000	44.7677	44.7677	5.3300e-003	0.0000	44.9009
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	8.9000e-004	9.0000e-003	3.0000e-005	2.9500e-003	2.0000e-005	2.9700e-003	7.9000e-004	2.0000e-005	8.0000e-004	0.0000	2.6205	2.6205	6.0000e-005	0.0000	2.6220
Total	**6.7700e-003**	**0.1931**	**0.0785**	**4.7000e-004**	**0.0130**	**8.1000e-004**	**0.0138**	**3.5000e-003**	**7.8000e-004**	**4.2700e-003**	**0.0000**	**47.3882**	**47.3882**	**5.3900e-003**	**0.0000**	**47.5229**

3.5 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0266	0.0000	0.0266	4.0200e-003	0.0000	4.0200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0410	0.4275	0.2301	3.9000e-004		0.0219	0.0219		0.0204	0.0204	0.0000	35.6005	35.6005	9.7300e-003	0.0000	35.8438
Total	**0.0410**	**0.4275**	**0.2301**	**3.9000e-004**	**0.0266**	**0.0219**	**0.0485**	**4.0200e-003**	**0.0204**	**0.0245**	**0.0000**	**35.6005**	**35.6005**	**9.7300e-003**	**0.0000**	**35.8438**

3.5 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5500e-003	0.0494	0.0169	1.1000e-004	2.0600e-003	2.9000e-004	2.3500e-003	5.7000e-004	2.8000e-004	8.4000e-004	0.0000	10.7100	10.7100	1.2500e-003	0.0000	10.7412
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.1000e-004	4.1100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0805	1.0805	3.0000e-005	0.0000	1.0812
Total	**2.1000e-003**	**0.0498**	**0.0210**	**1.2000e-004**	**3.2400e-003**	**3.0000e-004**	**3.5400e-003**	**8.8000e-004**	**2.9000e-004**	**1.1600e-003**	**0.0000**	**11.7905**	**11.7905**	**1.2800e-003**	**0.0000**	**11.8223**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0120	0.0000	0.0120	1.8100e-003	0.0000	1.8100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0410	0.4275	0.2301	3.9000e-004		0.0219	0.0219		0.0204	0.0204	0.0000	35.6005	35.6005	9.7300e-003	0.0000	35.8438
Total	**0.0410**	**0.4275**	**0.2301**	**3.9000e-004**	**0.0120**	**0.0219**	**0.0339**	**1.8100e-003**	**0.0204**	**0.0222**	**0.0000**	**35.6005**	**35.6005**	**9.7300e-003**	**0.0000**	**35.8438**

3.5 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5500e-003	0.0494	0.0169	1.1000e-004	2.0600e-003	2.9000e-004	2.3500e-003	5.7000e-004	2.8000e-004	8.4000e-004	0.0000	10.7100	10.7100	1.2500e-003	0.0000	10.7412
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.1000e-004	4.1100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0805	1.0805	3.0000e-005	0.0000	1.0812
Total	**2.1000e-003**	**0.0498**	**0.0210**	**1.2000e-004**	**3.2400e-003**	**3.0000e-004**	**3.5400e-003**	**8.8000e-004**	**2.9000e-004**	**1.1600e-003**	**0.0000**	**11.7905**	**11.7905**	**1.2800e-003**	**0.0000**	**11.8223**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161
Total	**4.4000e-004**	**3.1000e-004**	**3.2200e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0156**	**1.0156**	**2.0000e-005**	**0.0000**	**1.0161**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161
Total	**4.4000e-004**	**3.1000e-004**	**3.2200e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0156**	**1.0156**	**2.0000e-005**	**0.0000**	**1.0161**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0844	0.2679	0.9245	2.8000e-003	0.2429	3.5200e-003	0.2465	0.0653	3.3100e-003	0.0686	0.0000	255.3901	255.3901	9.9700e-003	0.0000	255.6393
Unmitigated	0.0844	0.2679	0.9245	2.8000e-003	0.2429	3.5200e-003	0.2465	0.0653	3.3100e-003	0.0686	0.0000	255.3901	255.3901	9.9700e-003	0.0000	255.6393

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	306.99	306.99	306.99	655,378	655,378
Total	306.99	306.99	306.99	655,378	655,378

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.498968	0.049513	0.248277	0.134909	0.018184	0.006326	0.020670	0.006254	0.003828	0.003354	0.008577	0.000418	0.000722

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.6900e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Unmitigated	3.6900e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Total	**3.7000e-003**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.0000**	**1.7000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Total	**3.7000e-003**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.0000**	**1.7000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.9184	4.9000e-004	1.0000e-004	10.9612
Unmitigated	10.9184	4.9000e-004	1.0000e-004	10.9612

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.7233	10.9184	4.9000e-004	1.0000e-004	10.9612
Total		**10.9184**	**4.9000e-004**	**1.0000e-004**	**10.9612**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.7233	10.9184	4.9000e-004	1.0000e-004	10.9612
Total		**10.9184**	**4.9000e-004**	**1.0000e-004**	**10.9612**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.1563	9.2400e-003	0.0000	0.3872
Unmitigated	0.1563	9.2400e-003	0.0000	0.3872

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.77	0.1563	9.2400e-003	0.0000	0.3872
Total		**0.1563**	**9.2400e-003**	**0.0000**	**0.3872**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.77	0.1563	9.2400e-003	0.0000	0.3872
Total		**0.1563**	**9.2400e-003**	**0.0000**	**0.3872**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Flood County Park Landscape Plan

San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	9.00	Acre	9.00	392,040.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Extend grading phase to 60 days based on number of hauling trips

Off-road Equipment -

Grading - Import 4,370 cy, export 5,630 cy on 9 acres

Demolition -

Vehicle Trips - Traffic study: 307 trips/day = 34.11 trips/acre/day

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	PhaseEndDate	11/5/2017	1/25/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/1/2017
tblConstructionPhase	PhaseEndDate	11/5/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	11/5/2017	2/22/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/15/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	3/12/2018
tblConstructionPhase	PhaseStartDate	11/6/2017	12/18/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	1/28/2019
tblConstructionPhase	PhaseStartDate	11/6/2017	12/4/2017
tblGrading	AcresOfGrading	30.00	9.00
tblGrading	MaterialExported	0.00	5,630.00
tblGrading	MaterialImported	0.00	4,370.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblVehicleTrips	ST_TR	22.75	34.11
tblVehicleTrips	SU_TR	16.74	34.11
tblVehicleTrips	WD_TR	1.89	34.11

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0276	52.3188	25.1063	0.0507	18.2141	2.8795	21.0936	9.9699	2.6491	12.6190	0.0000	5,236.2466	5,236.2466	1.2128	0.0000	5,266.5666
2018	3.5575	38.2049	24.9291	0.0581	6.7400	1.5834	8.3234	3.4754	1.4810	4.9333	0.0000	5,890.9909	5,890.9909	1.1667	0.0000	5,912.0117
2019	3.1516	29.4211	23.9189	0.0574	1.7874	1.3541	3.1415	0.4838	1.2739	1.7577	0.0000	5,799.7962	5,799.7962	0.8236	0.0000	5,820.3865
Maximum	**5.0276**	**52.3188**	**25.1063**	**0.0581**	**18.2141**	**2.8795**	**21.0936**	**9.9699**	**2.6491**	**12.6190**	**0.0000**	**5,890.9909**	**5,890.9909**	**1.2128**	**0.0000**	**5,912.0117**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0276	52.3188	25.1063	0.0507	18.2141	2.8795	21.0936	9.9699	2.6491	12.6190	0.0000	5,236.2466	5,236.2466	1.2128	0.0000	5,266.5666
2018	3.5575	38.2049	24.9291	0.0581	6.7400	1.5834	8.3234	3.4754	1.4810	4.9333	0.0000	5,890.9909	5,890.9909	1.1667	0.0000	5,912.0117
2019	3.1516	29.4211	23.9189	0.0574	1.7874	1.3541	3.1415	0.4838	1.2739	1.7577	0.0000	5,799.7962	5,799.7962	0.8236	0.0000	5,820.3865
Maximum	**5.0276**	**52.3188**	**25.1063**	**0.0581**	**18.2141**	**2.8795**	**21.0936**	**9.9699**	**2.6491**	**12.6190**	**0.0000**	**5,890.9909**	**5,890.9909**	**1.2128**	**0.0000**	**5,912.0117**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5105	1.3991	5.0965	0.0162	1.3919	0.0193	1.4112	0.3727	0.0182	0.3909		1,625.3316	1,625.3316	0.0604		1,626.8417
Total	**0.5308**	**1.3991**	**5.0974**	**0.0162**	**1.3919**	**0.0193**	**1.4112**	**0.3727**	**0.0182**	**0.3909**		**1,625.3336**	**1,625.3336**	**0.0604**	**0.0000**	**1,626.8438**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5105	1.3991	5.0965	0.0162	1.3919	0.0193	1.4112	0.3727	0.0182	0.3909		1,625.3316	1,625.3316	0.0604		1,626.8417
Total	**0.5308**	**1.3991**	**5.0974**	**0.0162**	**1.3919**	**0.0193**	**1.4112**	**0.3727**	**0.0182**	**0.3909**		**1,625.3336**	**1,625.3336**	**0.0604**	**0.0000**	**1,626.8438**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	3/12/2018	1/25/2019	5	230	
2	Site Preparation	Site Preparation	12/4/2017	12/15/2017	5	10	
3	Grading	Grading	12/18/2017	3/9/2018	5	60	
4	Demolition	Demolition	11/6/2017	12/1/2017	5	20	
5	Paving	Paving	1/28/2019	2/22/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 9

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Flood County Park Landscape Plan - San Mateo County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	165.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	246.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3343	8.5471	3.1690	0.0176	0.4319	0.0662	0.4981	0.1243	0.0633	0.1876		1,920.7081	1,920.7081	0.1674		1,924.8933
Worker	0.5437	0.3449	4.1797	0.0135	1.3554	8.3800e-003	1.3638	0.3595	7.7200e-003	0.3672		1,349.3476	1,349.3476	0.0313		1,350.1301
Total	**0.8780**	**8.8919**	**7.3487**	**0.0311**	**1.7874**	**0.0746**	**1.8619**	**0.4838**	**0.0710**	**0.5548**		**3,270.0557**	**3,270.0557**	**0.1987**		**3,275.0234**

3.2 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.935 1	2,620.935 1	0.6421		2,636.988 3
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.935 1**	**2,620.935 1**	**0.6421**		**2,636.988 3**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3343	8.5471	3.1690	0.0176	0.4319	0.0662	0.4981	0.1243	0.0633	0.1876		1,920.708 1	1,920.708 1	0.1674		1,924.893 3
Worker	0.5437	0.3449	4.1797	0.0135	1.3554	8.3800e-003	1.3638	0.3595	7.7200e-003	0.3672		1,349.347 6	1,349.347 6	0.0313		1,350.130 1
Total	**0.8780**	**8.8919**	**7.3487**	**0.0311**	**1.7874**	**0.0746**	**1.8619**	**0.4838**	**0.0710**	**0.5548**		**3,270.055 7**	**3,270.055 7**	**0.1987**		**3,275.023 4**

3.2 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2980	8.0395	3.0035	0.0174	0.4319	0.0559	0.4878	0.1243	0.0535	0.1778		1,900.891 1	1,900.891 1	0.1646		1,905.006 5
Worker	0.4924	0.3029	3.7516	0.0131	1.3554	8.3300e-003	1.3638	0.3595	7.6800e-003	0.3672		1,307.325 0	1,307.325 0	0.0277		1,308.016 5
Total	**0.7905**	**8.3423**	**6.7551**	**0.0305**	**1.7874**	**0.0642**	**1.8516**	**0.4838**	**0.0612**	**0.5450**		**3,208.216 1**	**3,208.216 1**	**0.1923**		**3,213.023 0**

3.2 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2980	8.0395	3.0035	0.0174	0.4319	0.0559	0.4878	0.1243	0.0535	0.1778		1,900.891 1	1,900.891 1	0.1646		1,905.006 5
Worker	0.4924	0.3029	3.7516	0.0131	1.3554	8.3300e-003	1.3638	0.3595	7.6800e-003	0.3672		1,307.325 0	1,307.325 0	0.0277		1,308.016 5
Total	**0.7905**	**8.3423**	**6.7551**	**0.0305**	**1.7874**	**0.0642**	**1.8516**	**0.4838**	**0.0612**	**0.5450**		**3,208.216 1**	**3,208.216 1**	**0.1923**		**3,213.023 0**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.9608	52.2754	23.4554	0.0380		2.8786	2.8786		2.6483	2.6483		3,894.950 0	3,894.950 0	1.1934		3,924.785 2
Total	**4.9608**	**52.2754**	**23.4554**	**0.0380**	**18.0663**	**2.8786**	**20.9448**	**9.9307**	**2.6483**	**12.5790**		**3,894.950 0**	**3,894.950 0**	**1.1934**		**3,924.785 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0668	0.0435	0.5179	1.5200e-003	0.1479	9.2000e-004	0.1488	0.0392	8.5000e-004	0.0401		151.7321	151.7321	3.9200e-003		151.8301
Total	**0.0668**	**0.0435**	**0.5179**	**1.5200e-003**	**0.1479**	**9.2000e-004**	**0.1488**	**0.0392**	**8.5000e-004**	**0.0401**		**151.7321**	**151.7321**	**3.9200e-003**		**151.8301**

3.3 Site Preparation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.9608	52.2754	23.4554	0.0380		2.8786	2.8786		2.6483	2.6483	0.0000	3,894.950 0	3,894.950 0	1.1934		3,924.785 2
Total	**4.9608**	**52.2754**	**23.4554**	**0.0380**	**18.0663**	**2.8786**	**20.9448**	**9.9307**	**2.6483**	**12.5790**	**0.0000**	**3,894.950 0**	**3,894.950 0**	**1.1934**		**3,924.785 2**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0668	0.0435	0.5179	1.5200e-003	0.1479	9.2000e-004	0.1488	0.0392	8.5000e-004	0.0401		151.7321	151.7321	3.9200e-003		151.8301
Total	**0.0668**	**0.0435**	**0.5179**	**1.5200e-003**	**0.1479**	**9.2000e-004**	**0.1488**	**0.0392**	**8.5000e-004**	**0.0401**		**151.7321**	**151.7321**	**3.9200e-003**		**151.8301**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	3.0705	33.8868	17.1042	0.0297		1.7774	1.7774		1.6352	1.6352		3,037.9107	3,037.9107	0.9308		3,061.1809
Total	**3.0705**	**33.8868**	**17.1042**	**0.0297**	**6.2000**	**1.7774**	**7.9774**	**3.3303**	**1.6352**	**4.9655**		**3,037.9107**	**3,037.9107**	**0.9308**		**3,061.1809**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2595	8.1496	2.8158	0.0180	1.7388	0.0485	1.7873	0.4370	0.0464	0.4834		2,007.9943	2,007.9943	0.2314		2,013.7781
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0362	0.4316	1.2700e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		126.4435	126.4435	3.2600e-003		126.5251
Total	**0.3152**	**8.1858**	**3.2474**	**0.0193**	**1.8621**	**0.0493**	**1.9113**	**0.4697**	**0.0471**	**0.5168**		**2,134.4378**	**2,134.4378**	**0.2346**		**2,140.3032**

3.4 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	3.0705	33.8868	17.1042	0.0297		1.7774	1.7774		1.6352	1.6352	0.0000	3,037.910 7	3,037.910 7	0.9308		3,061.180 9
Total	**3.0705**	**33.8868**	**17.1042**	**0.0297**	**6.2000**	**1.7774**	**7.9774**	**3.3303**	**1.6352**	**4.9655**	**0.0000**	**3,037.910 7**	**3,037.910 7**	**0.9308**		**3,061.180 9**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2595	8.1496	2.8158	0.0180	1.7388	0.0485	1.7873	0.4370	0.0464	0.4834		2,007.994 3	2,007.994 3	0.2314		2,013.778 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0362	0.4316	1.2700e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		126.4435	126.4435	3.2600e-003		126.5251
Total	**0.3152**	**8.1858**	**3.2474**	**0.0193**	**1.8621**	**0.0493**	**1.9113**	**0.4697**	**0.0471**	**0.5168**		**2,134.437 8**	**2,134.437 8**	**0.2346**		**2,140.303 2**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.2000**	**1.5513**	**7.7513**	**3.3303**	**1.4272**	**4.7575**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2194	7.5010	2.7432	0.0177	0.4168	0.0313	0.4481	0.1125	0.0300	0.1424		1,982.4612	1,982.4612	0.2336		1,988.3023
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0314	0.3800	1.2300e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		122.6680	122.6680	2.8500e-003		122.7391
Total	**0.2688**	**7.5324**	**3.1232**	**0.0189**	**0.5400**	**0.0321**	**0.5720**	**0.1452**	**0.0307**	**0.1758**		**2,105.1292**	**2,105.1292**	**0.2365**		**2,111.0414**

3.4 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.2000**	**1.5513**	**7.7513**	**3.3303**	**1.4272**	**4.7575**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2194	7.5010	2.7432	0.0177	0.4168	0.0313	0.4481	0.1125	0.0300	0.1424		1,982.4612	1,982.4612	0.2336		1,988.3023
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0314	0.3800	1.2300e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		122.6680	122.6680	2.8500e-003		122.7391
Total	**0.2688**	**7.5324**	**3.1232**	**0.0189**	**0.5400**	**0.0321**	**0.5720**	**0.1452**	**0.0307**	**0.1758**		**2,105.1292**	**2,105.1292**	**0.2365**		**2,111.0414**

3.5 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6578	0.0000	2.6578	0.4024	0.0000	0.4024			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425		3,924.2833	3,924.2833	1.0730		3,951.1070
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**2.6578**	**2.1935**	**4.8512**	**0.4024**	**2.0425**	**2.4449**		**3,924.2833**	**3,924.2833**	**1.0730**		**3,951.1070**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1532	4.8115	1.6625	0.0106	0.2135	0.0286	0.2421	0.0584	0.0274	0.0858		1,185.5199	1,185.5199	0.1366		1,188.9346
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0362	0.4316	1.2700e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		126.4435	126.4435	3.2600e-003		126.5251
Total	**0.2089**	**4.8478**	**2.0941**	**0.0119**	**0.3367**	**0.0294**	**0.3661**	**0.0911**	**0.0281**	**0.1192**		**1,311.9633**	**1,311.9633**	**0.1399**		**1,315.4597**

3.5 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6578	0.0000	2.6578	0.4024	0.0000	0.4024			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425	0.0000	3,924.283 3	3,924.283 3	1.0730		3,951.107 0
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**2.6578**	**2.1935**	**4.8512**	**0.4024**	**2.0425**	**2.4449**	**0.0000**	**3,924.283 3**	**3,924.283 3**	**1.0730**		**3,951.107 0**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1532	4.8115	1.6625	0.0106	0.2135	0.0286	0.2421	0.0584	0.0274	0.0858		1,185.519 9	1,185.519 9	0.1366		1,188.934 6
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0362	0.4316	1.2700e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		126.4435	126.4435	3.2600e-003		126.5251
Total	**0.2089**	**4.8478**	**2.0941**	**0.0119**	**0.3367**	**0.0294**	**0.3661**	**0.0911**	**0.0281**	**0.1192**		**1,311.963 3**	**1,311.963 3**	**0.1399**		**1,315.459 7**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0448	0.0275	0.3411	1.1900e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		118.8477	118.8477	2.5100e-003		118.9106
Total	**0.0448**	**0.0275**	**0.3411**	**1.1900e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**118.8477**	**118.8477**	**2.5100e-003**		**118.9106**

3.6 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0448	0.0275	0.3411	1.1900e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		118.8477	118.8477	2.5100e-003		118.9106
Total	**0.0448**	**0.0275**	**0.3411**	**1.1900e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**118.8477**	**118.8477**	**2.5100e-003**		**118.9106**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.5105	1.3991	5.0965	0.0162	1.3919	0.0193	1.4112	0.3727	0.0182	0.3909		1,625.3316	1,625.3316	0.0604		1,626.8417
Unmitigated	0.5105	1.3991	5.0965	0.0162	1.3919	0.0193	1.4112	0.3727	0.0182	0.3909		1,625.3316	1,625.3316	0.0604		1,626.8417

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	306.99	306.99	306.99	655,378	655,378
Total	306.99	306.99	306.99	655,378	655,378

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.498968	0.049513	0.248277	0.134909	0.018184	0.006326	0.020670	0.006254	0.003828	0.003354	0.008577	0.000418	0.000722

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Unmitigated	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.0203**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.0203**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Flood County Park Landscape Plan

San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	9.00	Acre	9.00	392,040.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Extend grading phase to 60 days based on number of hauling trips

Off-road Equipment -

Grading - Import 4,370 cy, export 5,630 cy on 9 acres

Demolition -

Vehicle Trips - Traffic study: 307 trips/day = 34.11 trips/acre/day

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation - BAAQMD Basic Construction Mitigation Measures

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	PhaseEndDate	11/5/2017	1/25/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/1/2017
tblConstructionPhase	PhaseEndDate	11/5/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	11/5/2017	2/22/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/15/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	3/12/2018
tblConstructionPhase	PhaseStartDate	11/6/2017	12/18/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	1/28/2019
tblConstructionPhase	PhaseStartDate	11/6/2017	12/4/2017
tblGrading	AcresOfGrading	30.00	9.00
tblGrading	MaterialExported	0.00	5,630.00
tblGrading	MaterialImported	0.00	4,370.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblVehicleTrips	ST_TR	22.75	34.11
tblVehicleTrips	SU_TR	16.74	34.11
tblVehicleTrips	WD_TR	1.89	34.11

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0276	52.3188	25.1063	0.0507	18.2141	2.8795	21.0936	9.9699	2.6491	12.6190	0.0000	5,236.2466	5,236.2466	1.2128	0.0000	5,266.5666
2018	3.5575	38.2049	24.9291	0.0581	6.7400	1.5834	8.3234	3.4754	1.4810	4.9333	0.0000	5,890.9909	5,890.9909	1.1667	0.0000	5,912.0117
2019	3.1516	29.4211	23.9189	0.0574	1.7874	1.3541	3.1415	0.4838	1.2739	1.7577	0.0000	5,799.7962	5,799.7962	0.8236	0.0000	5,820.3865
Maximum	**5.0276**	**52.3188**	**25.1063**	**0.0581**	**18.2141**	**2.8795**	**21.0936**	**9.9699**	**2.6491**	**12.6190**	**0.0000**	**5,890.9909**	**5,890.9909**	**1.2128**	**0.0000**	**5,912.0117**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0276	52.3188	25.1063	0.0507	8.2777	2.8795	11.1572	4.5080	2.6491	7.1572	0.0000	5,236.2466	5,236.2466	1.2128	0.0000	5,266.5666
2018	3.5575	38.2049	24.9291	0.0581	3.3300	1.5834	4.9134	1.6438	1.4810	3.1017	0.0000	5,890.9909	5,890.9909	1.1667	0.0000	5,912.0117
2019	3.1516	29.4211	23.9189	0.0574	1.7874	1.3541	3.1415	0.4838	1.2739	1.7577	0.0000	5,799.7962	5,799.7962	0.8236	0.0000	5,820.3865
Maximum	**5.0276**	**52.3188**	**25.1063**	**0.0581**	**8.2777**	**2.8795**	**11.1572**	**4.5080**	**2.6491**	**7.1572**	**0.0000**	**5,890.9909**	**5,890.9909**	**1.2128**	**0.0000**	**5,912.0117**

Flood County Park Landscape Plan - San Mateo County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.91	0.00	40.99	52.36	0.00	37.77	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5105	1.3991	5.0965	0.0162	1.3919	0.0193	1.4112	0.3727	0.0182	0.3909		1,625.3316	1,625.3316	0.0604		1,626.8417
Total	**0.5308**	**1.3991**	**5.0974**	**0.0162**	**1.3919**	**0.0193**	**1.4112**	**0.3727**	**0.0182**	**0.3909**		**1,625.3336**	**1,625.3336**	**0.0604**	**0.0000**	**1,626.8438**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5105	1.3991	5.0965	0.0162	1.3919	0.0193	1.4112	0.3727	0.0182	0.3909		1,625.3316	1,625.3316	0.0604		1,626.8417
Total	**0.5308**	**1.3991**	**5.0974**	**0.0162**	**1.3919**	**0.0193**	**1.4112**	**0.3727**	**0.0182**	**0.3909**		**1,625.3336**	**1,625.3336**	**0.0604**	**0.0000**	**1,626.8438**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	3/12/2018	1/25/2019	5	230	
2	Site Preparation	Site Preparation	12/4/2017	12/15/2017	5	10	
3	Grading	Grading	12/18/2017	3/9/2018	5	60	
4	Demolition	Demolition	11/6/2017	12/1/2017	5	20	
5	Paving	Paving	1/28/2019	2/22/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 9

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	165.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	246.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.2 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3343	8.5471	3.1690	0.0176	0.4319	0.0662	0.4981	0.1243	0.0633	0.1876		1,920.708 1	1,920.708 1	0.1674		1,924.893 3
Worker	0.5437	0.3449	4.1797	0.0135	1.3554	8.3800e-003	1.3638	0.3595	7.7200e-003	0.3672		1,349.347 6	1,349.347 6	0.0313		1,350.130 1
Total	**0.8780**	**8.8919**	**7.3487**	**0.0311**	**1.7874**	**0.0746**	**1.8619**	**0.4838**	**0.0710**	**0.5548**		**3,270.055 7**	**3,270.055 7**	**0.1987**		**3,275.023 4**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.935 1	2,620.935 1	0.6421		2,636.988 3
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.935 1**	**2,620.935 1**	**0.6421**		**2,636.988 3**

3.2 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3343	8.5471	3.1690	0.0176	0.4319	0.0662	0.4981	0.1243	0.0633	0.1876		1,920.708 1	1,920.708 1	0.1674		1,924.893 3
Worker	0.5437	0.3449	4.1797	0.0135	1.3554	8.3800e-003	1.3638	0.3595	7.7200e-003	0.3672		1,349.347 6	1,349.347 6	0.0313		1,350.130 1
Total	**0.8780**	**8.8919**	**7.3487**	**0.0311**	**1.7874**	**0.0746**	**1.8619**	**0.4838**	**0.0710**	**0.5548**		**3,270.055 7**	**3,270.055 7**	**0.1987**		**3,275.023 4**

3.2 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

3.2 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2980	8.0395	3.0035	0.0174	0.4319	0.0559	0.4878	0.1243	0.0535	0.1778		1,900.891 1	1,900.891 1	0.1646		1,905.006 5
Worker	0.4924	0.3029	3.7516	0.0131	1.3554	8.3300e-003	1.3638	0.3595	7.6800e-003	0.3672		1,307.325 0	1,307.325 0	0.0277		1,308.016 5
Total	**0.7905**	**8.3423**	**6.7551**	**0.0305**	**1.7874**	**0.0642**	**1.8516**	**0.4838**	**0.0612**	**0.5450**		**3,208.216 1**	**3,208.216 1**	**0.1923**		**3,213.023 0**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

3.2 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2980	8.0395	3.0035	0.0174	0.4319	0.0559	0.4878	0.1243	0.0535	0.1778		1,900.891 1	1,900.891 1	0.1646		1,905.006 5
Worker	0.4924	0.3029	3.7516	0.0131	1.3554	8.3300e-003	1.3638	0.3595	7.6800e-003	0.3672		1,307.325 0	1,307.325 0	0.0277		1,308.016 5
Total	**0.7905**	**8.3423**	**6.7551**	**0.0305**	**1.7874**	**0.0642**	**1.8516**	**0.4838**	**0.0612**	**0.5450**		**3,208.216 1**	**3,208.216 1**	**0.1923**		**3,213.023 0**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.9608	52.2754	23.4554	0.0380		2.8786	2.8786		2.6483	2.6483		3,894.950 0	3,894.950 0	1.1934		3,924.785 2
Total	**4.9608**	**52.2754**	**23.4554**	**0.0380**	**18.0663**	**2.8786**	**20.9448**	**9.9307**	**2.6483**	**12.5790**		**3,894.950 0**	**3,894.950 0**	**1.1934**		**3,924.785 2**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0668	0.0435	0.5179	1.5200e-003	0.1479	9.2000e-004	0.1488	0.0392	8.5000e-004	0.0401		151.7321	151.7321	3.9200e-003		151.8301
Total	**0.0668**	**0.0435**	**0.5179**	**1.5200e-003**	**0.1479**	**9.2000e-004**	**0.1488**	**0.0392**	**8.5000e-004**	**0.0401**		**151.7321**	**151.7321**	**3.9200e-003**		**151.8301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.9608	52.2754	23.4554	0.0380		2.8786	2.8786		2.6483	2.6483	0.0000	3,894.950 0	3,894.950 0	1.1934		3,924.785 2
Total	**4.9608**	**52.2754**	**23.4554**	**0.0380**	**8.1298**	**2.8786**	**11.0084**	**4.4688**	**2.6483**	**7.1171**	**0.0000**	**3,894.950 0**	**3,894.950 0**	**1.1934**		**3,924.785 2**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0668	0.0435	0.5179	1.5200e-003	0.1479	9.2000e-004	0.1488	0.0392	8.5000e-004	0.0401		151.7321	151.7321	3.9200e-003		151.8301
Total	**0.0668**	**0.0435**	**0.5179**	**1.5200e-003**	**0.1479**	**9.2000e-004**	**0.1488**	**0.0392**	**8.5000e-004**	**0.0401**		**151.7321**	**151.7321**	**3.9200e-003**		**151.8301**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	3.0705	33.8868	17.1042	0.0297		1.7774	1.7774		1.6352	1.6352		3,037.910 7	3,037.910 7	0.9308		3,061.180 9
Total	**3.0705**	**33.8868**	**17.1042**	**0.0297**	**6.2000**	**1.7774**	**7.9774**	**3.3303**	**1.6352**	**4.9655**		**3,037.910 7**	**3,037.910 7**	**0.9308**		**3,061.180 9**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2595	8.1496	2.8158	0.0180	1.7388	0.0485	1.7873	0.4370	0.0464	0.4834		2,007.994 3	2,007.994 3	0.2314		2,013.778 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0362	0.4316	1.2700e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		126.4435	126.4435	3.2600e-003		126.5251
Total	**0.3152**	**8.1858**	**3.2474**	**0.0193**	**1.8621**	**0.0493**	**1.9113**	**0.4697**	**0.0471**	**0.5168**		**2,134.437 8**	**2,134.437 8**	**0.2346**		**2,140.303 2**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7900	0.0000	2.7900	1.4986	0.0000	1.4986			0.0000			0.0000
Off-Road	3.0705	33.8868	17.1042	0.0297		1.7774	1.7774		1.6352	1.6352	0.0000	3,037.910 7	3,037.910 7	0.9308		3,061.180 9
Total	**3.0705**	**33.8868**	**17.1042**	**0.0297**	**2.7900**	**1.7774**	**4.5674**	**1.4986**	**1.6352**	**3.1339**	**0.0000**	**3,037.910 7**	**3,037.910 7**	**0.9308**		**3,061.180 9**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2595	8.1496	2.8158	0.0180	1.7388	0.0485	1.7873	0.4370	0.0464	0.4834		2,007.994 3	2,007.994 3	0.2314		2,013.778 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0362	0.4316	1.2700e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		126.4435	126.4435	3.2600e-003		126.5251
Total	**0.3152**	**8.1858**	**3.2474**	**0.0193**	**1.8621**	**0.0493**	**1.9113**	**0.4697**	**0.0471**	**0.5168**		**2,134.437 8**	**2,134.437 8**	**0.2346**		**2,140.303 2**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.021 6	2,988.021 6	0.9302		3,011.276 9
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.2000**	**1.5513**	**7.7513**	**3.3303**	**1.4272**	**4.7575**		**2,988.021 6**	**2,988.021 6**	**0.9302**		**3,011.276 9**

3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2194	7.5010	2.7432	0.0177	0.4168	0.0313	0.4481	0.1125	0.0300	0.1424		1,982.461 2	1,982.461 2	0.2336		1,988.302 3
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0314	0.3800	1.2300e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		122.6680	122.6680	2.8500e-003		122.7391
Total	**0.2688**	**7.5324**	**3.1232**	**0.0189**	**0.5400**	**0.0321**	**0.5720**	**0.1452**	**0.0307**	**0.1758**		**2,105.129 2**	**2,105.129 2**	**0.2365**		**2,111.041 4**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7900	0.0000	2.7900	1.4986	0.0000	1.4986			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.021 6	2,988.021 6	0.9302		3,011.276 9
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**2.7900**	**1.5513**	**4.3413**	**1.4986**	**1.4272**	**2.9258**	**0.0000**	**2,988.021 6**	**2,988.021 6**	**0.9302**		**3,011.276 9**

3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2194	7.5010	2.7432	0.0177	0.4168	0.0313	0.4481	0.1125	0.0300	0.1424		1,982.461 2	1,982.461 2	0.2336		1,988.302 3
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0314	0.3800	1.2300e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		122.6680	122.6680	2.8500e-003		122.7391
Total	**0.2688**	**7.5324**	**3.1232**	**0.0189**	**0.5400**	**0.0321**	**0.5720**	**0.1452**	**0.0307**	**0.1758**		**2,105.129 2**	**2,105.129 2**	**0.2365**		**2,111.041 4**

3.5 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6578	0.0000	2.6578	0.4024	0.0000	0.4024			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425		3,924.283 3	3,924.283 3	1.0730		3,951.107 0
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**2.6578**	**2.1935**	**4.8512**	**0.4024**	**2.0425**	**2.4449**		**3,924.283 3**	**3,924.283 3**	**1.0730**		**3,951.107 0**

3.5 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1532	4.8115	1.6625	0.0106	0.2135	0.0286	0.2421	0.0584	0.0274	0.0858		1,185.5199	1,185.5199	0.1366		1,188.9346
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0362	0.4316	1.2700e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		126.4435	126.4435	3.2600e-003		126.5251
Total	**0.2089**	**4.8478**	**2.0941**	**0.0119**	**0.3367**	**0.0294**	**0.3661**	**0.0911**	**0.0281**	**0.1192**		**1,311.9633**	**1,311.9633**	**0.1399**		**1,315.4597**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1960	0.0000	1.1960	0.1811	0.0000	0.1811			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425	0.0000	3,924.2833	3,924.2833	1.0730		3,951.1070
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**1.1960**	**2.1935**	**3.3895**	**0.1811**	**2.0425**	**2.2236**	**0.0000**	**3,924.2833**	**3,924.2833**	**1.0730**		**3,951.1070**

3.5 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1532	4.8115	1.6625	0.0106	0.2135	0.0286	0.2421	0.0584	0.0274	0.0858		1,185.5199	1,185.5199	0.1366		1,188.9346
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0362	0.4316	1.2700e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		126.4435	126.4435	3.2600e-003		126.5251
Total	**0.2089**	**4.8478**	**2.0941**	**0.0119**	**0.3367**	**0.0294**	**0.3661**	**0.0911**	**0.0281**	**0.1192**		**1,311.9633**	**1,311.9633**	**0.1399**		**1,315.4597**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0448	0.0275	0.3411	1.1900e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		118.8477	118.8477	2.5100e-003		118.9106
Total	**0.0448**	**0.0275**	**0.3411**	**1.1900e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**118.8477**	**118.8477**	**2.5100e-003**		**118.9106**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0448	0.0275	0.3411	1.1900e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		118.8477	118.8477	2.5100e-003		118.9106
Total	**0.0448**	**0.0275**	**0.3411**	**1.1900e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**118.8477**	**118.8477**	**2.5100e-003**		**118.9106**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5105	1.3991	5.0965	0.0162	1.3919	0.0193	1.4112	0.3727	0.0182	0.3909		1,625.331 6	1,625.331 6	0.0604		1,626.841 7
Unmitigated	0.5105	1.3991	5.0965	0.0162	1.3919	0.0193	1.4112	0.3727	0.0182	0.3909		1,625.331 6	1,625.331 6	0.0604		1,626.841 7

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	306.99	306.99	306.99	655,378	655,378
Total	306.99	306.99	306.99	655,378	655,378

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.498968	0.049513	0.248277	0.134909	0.018184	0.006326	0.020670	0.006254	0.003828	0.003354	0.008577	0.000418	0.000722

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Unmitigated	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.0203**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.0203**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Flood County Park Landscape Plan

San Mateo County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	9.00	Acre	9.00	392,040.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Extend grading phase to 60 days based on number of hauling trips

Off-road Equipment -

Grading - Import 4,370 cy, export 5,630 cy on 9 acres

Demolition -

Vehicle Trips - Traffic study: 307 trips/day = 34.11 trips/acre/day

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	PhaseEndDate	11/5/2017	1/25/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/1/2017
tblConstructionPhase	PhaseEndDate	11/5/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	11/5/2017	2/22/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/15/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	3/12/2018
tblConstructionPhase	PhaseStartDate	11/6/2017	12/18/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	1/28/2019
tblConstructionPhase	PhaseStartDate	11/6/2017	12/4/2017
tblGrading	AcresOfGrading	30.00	9.00
tblGrading	MaterialExported	0.00	5,630.00
tblGrading	MaterialImported	0.00	4,370.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblVehicleTrips	ST_TR	22.75	34.11
tblVehicleTrips	SU_TR	16.74	34.11
tblVehicleTrips	WD_TR	1.89	34.11

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0350	52.3290	25.1719	0.0505	18.2141	2.8795	21.0936	9.9699	2.6491	12.6190	0.0000	5,216.6798	5,216.6798	1.2145	0.0000	5,247.0428
2018	3.6331	38.4512	25.1533	0.0569	6.7400	1.5842	8.3242	3.4754	1.4823	4.9341	0.0000	5,775.1200	5,775.1200	1.1693	0.0000	5,796.2394
2019	3.2200	29.6334	24.1004	0.0563	1.7874	1.3554	3.1427	0.4838	1.2751	1.7589	0.0000	5,686.6085	5,686.6085	0.8269	0.0000	5,707.2813
Maximum	**5.0350**	**52.3290**	**25.1719**	**0.0569**	**18.2141**	**2.8795**	**21.0936**	**9.9699**	**2.6491**	**12.6190**	**0.0000**	**5,775.1200**	**5,775.1200**	**1.2145**	**0.0000**	**5,796.2394**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0350	52.3290	25.1719	0.0505	18.2141	2.8795	21.0936	9.9699	2.6491	12.6190	0.0000	5,216.6798	5,216.6798	1.2145	0.0000	5,247.0428
2018	3.6331	38.4512	25.1533	0.0569	6.7400	1.5842	8.3242	3.4754	1.4823	4.9341	0.0000	5,775.1200	5,775.1200	1.1693	0.0000	5,796.2394
2019	3.2200	29.6334	24.1004	0.0563	1.7874	1.3554	3.1427	0.4838	1.2751	1.7589	0.0000	5,686.6085	5,686.6085	0.8269	0.0000	5,707.2813
Maximum	**5.0350**	**52.3290**	**25.1719**	**0.0569**	**18.2141**	**2.8795**	**21.0936**	**9.9699**	**2.6491**	**12.6190**	**0.0000**	**5,775.1200**	**5,775.1200**	**1.2145**	**0.0000**	**5,796.2394**

Flood County Park Landscape Plan - San Mateo County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4694	1.5170	5.3466	0.0153	1.3919	0.0194	1.4113	0.3727	0.0183	0.3910		1,542.7120	1,542.7120	0.0617		1,544.2542
Total	**0.4897**	**1.5171**	**5.3475**	**0.0153**	**1.3919**	**0.0194**	**1.4113**	**0.3727**	**0.0183**	**0.3910**		**1,542.7140**	**1,542.7140**	**0.0617**	**0.0000**	**1,544.2563**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4694	1.5170	5.3466	0.0153	1.3919	0.0194	1.4113	0.3727	0.0183	0.3910		1,542.7120	1,542.7120	0.0617		1,544.2542
Total	**0.4897**	**1.5171**	**5.3475**	**0.0153**	**1.3919**	**0.0194**	**1.4113**	**0.3727**	**0.0183**	**0.3910**		**1,542.7140**	**1,542.7140**	**0.0617**	**0.0000**	**1,544.2563**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	3/12/2018	1/25/2019	5	230	
2	Site Preparation	Site Preparation	12/4/2017	12/15/2017	5	10	
3	Grading	Grading	12/18/2017	3/9/2018	5	60	
4	Demolition	Demolition	11/6/2017	12/1/2017	5	20	
5	Paving	Paving	1/28/2019	2/22/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 9

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	165.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	246.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3506	8.7060	3.4795	0.0173	0.4319	0.0676	0.4995	0.1243	0.0646	0.1889		1,888.0388	1,888.0388	0.1725		1,892.3510
Worker	0.6030	0.4257	4.0934	0.0127	1.3554	8.3800e-003	1.3638	0.3595	7.7200e-003	0.3672		1,266.1461	1,266.1461	0.0302		1,266.9001
Total	**0.9536**	**9.1317**	**7.5729**	**0.0300**	**1.7874**	**0.0760**	**1.8633**	**0.4838**	**0.0724**	**0.5562**		**3,154.1849**	**3,154.1849**	**0.2027**		**3,159.2511**

3.2 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.935 1	2,620.935 1	0.6421		2,636.988 3
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.935 1**	**2,620.935 1**	**0.6421**		**2,636.988 3**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3506	8.7060	3.4795	0.0173	0.4319	0.0676	0.4995	0.1243	0.0646	0.1889		1,888.038 8	1,888.038 8	0.1725		1,892.351 0
Worker	0.6030	0.4257	4.0934	0.0127	1.3554	8.3800e-003	1.3638	0.3595	7.7200e-003	0.3672		1,266.146 1	1,266.146 1	0.0302		1,266.900 1
Total	**0.9536**	**9.1317**	**7.5729**	**0.0300**	**1.7874**	**0.0760**	**1.8633**	**0.4838**	**0.0724**	**0.5562**		**3,154.184 9**	**3,154.184 9**	**0.2027**		**3,159.251 1**

3.2 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3121	8.1807	3.2855	0.0171	0.4319	0.0572	0.4891	0.1243	0.0547	0.1790		1,868.2983	1,868.2983	0.1690		1,872.5243
Worker	0.5467	0.3739	3.6512	0.0123	1.3554	8.3300e-003	1.3638	0.3595	7.6800e-003	0.3672		1,226.7301	1,226.7301	0.0265		1,227.3935
Total	**0.8588**	**8.5546**	**6.9366**	**0.0294**	**1.7874**	**0.0655**	**1.8529**	**0.4838**	**0.0624**	**0.5462**		**3,095.0284**	**3,095.0284**	**0.1956**		**3,099.9178**

3.2 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3121	8.1807	3.2855	0.0171	0.4319	0.0572	0.4891	0.1243	0.0547	0.1790		1,868.2983	1,868.2983	0.1690		1,872.5243
Worker	0.5467	0.3739	3.6512	0.0123	1.3554	8.3300e-003	1.3638	0.3595	7.6800e-003	0.3672		1,226.7301	1,226.7301	0.0265		1,227.3935
Total	**0.8588**	**8.5546**	**6.9366**	**0.0294**	**1.7874**	**0.0655**	**1.8529**	**0.4838**	**0.0624**	**0.5462**		**3,095.0284**	**3,095.0284**	**0.1956**		**3,099.9178**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.9608	52.2754	23.4554	0.0380		2.8786	2.8786		2.6483	2.6483		3,894.950 0	3,894.950 0	1.1934		3,924.785 2
Total	**4.9608**	**52.2754**	**23.4554**	**0.0380**	**18.0663**	**2.8786**	**20.9448**	**9.9307**	**2.6483**	**12.5790**		**3,894.950 0**	**3,894.950 0**	**1.1934**		**3,924.785 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0742	0.0536	0.5112	1.4300e-003	0.1479	9.2000e-004	0.1488	0.0392	8.5000e-004	0.0401		142.3817	142.3817	3.8000e-003		142.4766
Total	**0.0742**	**0.0536**	**0.5112**	**1.4300e-003**	**0.1479**	**9.2000e-004**	**0.1488**	**0.0392**	**8.5000e-004**	**0.0401**		**142.3817**	**142.3817**	**3.8000e-003**		**142.4766**

3.3 Site Preparation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.9608	52.2754	23.4554	0.0380		2.8786	2.8786		2.6483	2.6483	0.0000	3,894.950 0	3,894.950 0	1.1934		3,924.785 2
Total	**4.9608**	**52.2754**	**23.4554**	**0.0380**	**18.0663**	**2.8786**	**20.9448**	**9.9307**	**2.6483**	**12.5790**	**0.0000**	**3,894.950 0**	**3,894.950 0**	**1.1934**		**3,924.785 2**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0742	0.0536	0.5112	1.4300e-003	0.1479	9.2000e-004	0.1488	0.0392	8.5000e-004	0.0401		142.3817	142.3817	3.8000e-003		142.4766
Total	**0.0742**	**0.0536**	**0.5112**	**1.4300e-003**	**0.1479**	**9.2000e-004**	**0.1488**	**0.0392**	**8.5000e-004**	**0.0401**		**142.3817**	**142.3817**	**3.8000e-003**		**142.4766**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	3.0705	33.8868	17.1042	0.0297		1.7774	1.7774		1.6352	1.6352		3,037.910 7	3,037.910 7	0.9308		3,061.180 9
Total	**3.0705**	**33.8868**	**17.1042**	**0.0297**	**6.2000**	**1.7774**	**7.9774**	**3.3303**	**1.6352**	**4.9655**		**3,037.910 7**	**3,037.910 7**	**0.9308**		**3,061.180 9**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2666	8.4179	2.9365	0.0178	1.7388	0.0494	1.7883	0.4370	0.0473	0.4843		1,988.050 7	1,988.050 7	0.2344		1,993.911 5
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0447	0.4260	1.1900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.6514	118.6514	3.1600e-003		118.7305
Total	**0.3285**	**8.4626**	**3.3625**	**0.0190**	**1.8621**	**0.0502**	**1.9123**	**0.4697**	**0.0480**	**0.5177**		**2,106.702 1**	**2,106.702 1**	**0.2376**		**2,112.642 0**

3.4 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	3.0705	33.8868	17.1042	0.0297		1.7774	1.7774		1.6352	1.6352	0.0000	3,037.910 7	3,037.910 7	0.9308		3,061.180 9
Total	**3.0705**	**33.8868**	**17.1042**	**0.0297**	**6.2000**	**1.7774**	**7.9774**	**3.3303**	**1.6352**	**4.9655**	**0.0000**	**3,037.910 7**	**3,037.910 7**	**0.9308**		**3,061.180 9**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2666	8.4179	2.9365	0.0178	1.7388	0.0494	1.7883	0.4370	0.0473	0.4843		1,988.050 7	1,988.050 7	0.2344		1,993.911 5
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0447	0.4260	1.1900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.6514	118.6514	3.1600e-003		118.7305
Total	**0.3285**	**8.4626**	**3.3625**	**0.0190**	**1.8621**	**0.0502**	**1.9123**	**0.4697**	**0.0480**	**0.5177**		**2,106.702 1**	**2,106.702 1**	**0.2376**		**2,112.642 0**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.2000**	**1.5513**	**7.7513**	**3.3303**	**1.4272**	**4.7575**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2254	7.7400	2.8433	0.0175	0.4168	0.0321	0.4489	0.1125	0.0307	0.1432		1,962.1236	1,962.1236	0.2363		1,968.0311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0548	0.0387	0.3721	1.1500e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		115.1042	115.1042	2.7400e-003		115.1727
Total	**0.2802**	**7.7787**	**3.2154**	**0.0187**	**0.5400**	**0.0329**	**0.5729**	**0.1452**	**0.0314**	**0.1766**		**2,077.2278**	**2,077.2278**	**0.2390**		**2,083.2038**

3.4 Grading - 2018

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.2000**	**1.5513**	**7.7513**	**3.3303**	**1.4272**	**4.7575**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.2254	7.7400	2.8433	0.0175	0.4168	0.0321	0.4489	0.1125	0.0307	0.1432		1,962.1236	1,962.1236	0.2363		1,968.0311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0548	0.0387	0.3721	1.1500e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		115.1042	115.1042	2.7400e-003		115.1727
Total	**0.2802**	**7.7787**	**3.2154**	**0.0187**	**0.5400**	**0.0329**	**0.5729**	**0.1452**	**0.0314**	**0.1766**		**2,077.2278**	**2,077.2278**	**0.2390**		**2,083.2038**

3.5 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6578	0.0000	2.6578	0.4024	0.0000	0.4024			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425		3,924.283 3	3,924.283 3	1.0730		3,951.107 0
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**2.6578**	**2.1935**	**4.8512**	**0.4024**	**2.0425**	**2.4449**		**3,924.283 3**	**3,924.283 3**	**1.0730**		**3,951.107 0**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1574	4.9699	1.7337	0.0105	0.2135	0.0292	0.2427	0.0584	0.0279	0.0863		1,173.745 1	1,173.745 1	0.1384		1,177.205 4
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0447	0.4260	1.1900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.6514	118.6514	3.1600e-003		118.7305
Total	**0.2192**	**5.0146**	**2.1597**	**0.0117**	**0.3367**	**0.0300**	**0.3667**	**0.0911**	**0.0286**	**0.1197**		**1,292.396 5**	**1,292.396 5**	**0.1416**		**1,295.935 9**

3.5 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6578	0.0000	2.6578	0.4024	0.0000	0.4024			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425	0.0000	3,924.283 3	3,924.283 3	1.0730		3,951.107 0
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**2.6578**	**2.1935**	**4.8512**	**0.4024**	**2.0425**	**2.4449**	**0.0000**	**3,924.283 3**	**3,924.283 3**	**1.0730**		**3,951.107 0**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1574	4.9699	1.7337	0.0105	0.2135	0.0292	0.2427	0.0584	0.0279	0.0863		1,173.745 1	1,173.745 1	0.1384		1,177.205 4
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0447	0.4260	1.1900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.6514	118.6514	3.1600e-003		118.7305
Total	**0.2192**	**5.0146**	**2.1597**	**0.0117**	**0.3367**	**0.0300**	**0.3667**	**0.0911**	**0.0286**	**0.1197**		**1,292.396 5**	**1,292.396 5**	**0.1416**		**1,295.935 9**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.0340	0.3319	1.1200e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		111.5209	111.5209	2.4100e-003		111.5812
Total	**0.0497**	**0.0340**	**0.3319**	**1.1200e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**111.5209**	**111.5209**	**2.4100e-003**		**111.5812**

3.6 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.0340	0.3319	1.1200e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		111.5209	111.5209	2.4100e-003		111.5812
Total	**0.0497**	**0.0340**	**0.3319**	**1.1200e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**111.5209**	**111.5209**	**2.4100e-003**		**111.5812**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4694	1.5170	5.3466	0.0153	1.3919	0.0194	1.4113	0.3727	0.0183	0.3910		1,542.712 0	1,542.712 0	0.0617		1,544.254 2
Unmitigated	0.4694	1.5170	5.3466	0.0153	1.3919	0.0194	1.4113	0.3727	0.0183	0.3910		1,542.712 0	1,542.712 0	0.0617		1,544.254 2

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	306.99	306.99	306.99	655,378	655,378
Total	306.99	306.99	306.99	655,378	655,378

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.498968	0.049513	0.248277	0.134909	0.018184	0.006326	0.020670	0.006254	0.003828	0.003354	0.008577	0.000418	0.000722

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Unmitigated	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.0203**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.0203**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Flood County Park Landscape Plan

San Mateo County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	9.00	Acre	9.00	392,040.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 70

Climate Zone 5 **Operational Year** 2019

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Extend grading phase to 60 days based on number of hauling trips

Off-road Equipment -

Grading - Import 4,370 cy, export 5,630 cy on 9 acres

Demolition -

Vehicle Trips - Traffic study: 307 trips/day = 34.11 trips/acre/day

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation - BAAQMD Basic Construction Mitigation Measures

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	PhaseEndDate	11/5/2017	1/25/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/1/2017
tblConstructionPhase	PhaseEndDate	11/5/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	11/5/2017	2/22/2019
tblConstructionPhase	PhaseEndDate	11/5/2017	12/15/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	3/12/2018
tblConstructionPhase	PhaseStartDate	11/6/2017	12/18/2017
tblConstructionPhase	PhaseStartDate	11/6/2017	1/28/2019
tblConstructionPhase	PhaseStartDate	11/6/2017	12/4/2017
tblGrading	AcresOfGrading	30.00	9.00
tblGrading	MaterialExported	0.00	5,630.00
tblGrading	MaterialImported	0.00	4,370.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblVehicleTrips	ST_TR	22.75	34.11
tblVehicleTrips	SU_TR	16.74	34.11
tblVehicleTrips	WD_TR	1.89	34.11

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0350	52.3290	25.1719	0.0505	18.2141	2.8795	21.0936	9.9699	2.6491	12.6190	0.0000	5,216.6798	5,216.6798	1.2145	0.0000	5,247.0428
2018	3.6331	38.4512	25.1533	0.0569	6.7400	1.5842	8.3242	3.4754	1.4823	4.9341	0.0000	5,775.1200	5,775.1200	1.1693	0.0000	5,796.2394
2019	3.2200	29.6334	24.1004	0.0563	1.7874	1.3554	3.1427	0.4838	1.2751	1.7589	0.0000	5,686.6085	5,686.6085	0.8269	0.0000	5,707.2813
Maximum	**5.0350**	**52.3290**	**25.1719**	**0.0569**	**18.2141**	**2.8795**	**21.0936**	**9.9699**	**2.6491**	**12.6190**	**0.0000**	**5,775.1200**	**5,775.1200**	**1.2145**	**0.0000**	**5,796.2394**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0350	52.3290	25.1719	0.0505	8.2777	2.8795	11.1572	4.5080	2.6491	7.1572	0.0000	5,216.6798	5,216.6798	1.2145	0.0000	5,247.0428
2018	3.6331	38.4512	25.1533	0.0569	3.3300	1.5842	4.9142	1.6438	1.4823	3.1024	0.0000	5,775.1200	5,775.1200	1.1693	0.0000	5,796.2394
2019	3.2200	29.6334	24.1004	0.0563	1.7874	1.3554	3.1427	0.4838	1.2751	1.7589	0.0000	5,686.6085	5,686.6085	0.8269	0.0000	5,707.2813
Maximum	**5.0350**	**52.3290**	**25.1719**	**0.0569**	**8.2777**	**2.8795**	**11.1572**	**4.5080**	**2.6491**	**7.1572**	**0.0000**	**5,775.1200**	**5,775.1200**	**1.2145**	**0.0000**	**5,796.2394**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.91	0.00	40.99	52.36	0.00	37.77	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4694	1.5170	5.3466	0.0153	1.3919	0.0194	1.4113	0.3727	0.0183	0.3910		1,542.7120	1,542.7120	0.0617		1,544.2542
Total	**0.4897**	**1.5171**	**5.3475**	**0.0153**	**1.3919**	**0.0194**	**1.4113**	**0.3727**	**0.0183**	**0.3910**		**1,542.7140**	**1,542.7140**	**0.0617**	**0.0000**	**1,544.2563**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4694	1.5170	5.3466	0.0153	1.3919	0.0194	1.4113	0.3727	0.0183	0.3910		1,542.7120	1,542.7120	0.0617		1,544.2542
Total	**0.4897**	**1.5171**	**5.3475**	**0.0153**	**1.3919**	**0.0194**	**1.4113**	**0.3727**	**0.0183**	**0.3910**		**1,542.7140**	**1,542.7140**	**0.0617**	**0.0000**	**1,544.2563**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	3/12/2018	1/25/2019	5	230	
2	Site Preparation	Site Preparation	12/4/2017	12/15/2017	5	10	
3	Grading	Grading	12/18/2017	3/9/2018	5	60	
4	Demolition	Demolition	11/6/2017	12/1/2017	5	20	
5	Paving	Paving	1/28/2019	2/22/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 9

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Flood County Park Landscape Plan - San Mateo County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	165.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	246.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.2 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3506	8.7060	3.4795	0.0173	0.4319	0.0676	0.4995	0.1243	0.0646	0.1889		1,888.038 8	1,888.038 8	0.1725		1,892.351 0
Worker	0.6030	0.4257	4.0934	0.0127	1.3554	8.3800e-003	1.3638	0.3595	7.7200e-003	0.3672		1,266.146 1	1,266.146 1	0.0302		1,266.900 1
Total	**0.9536**	**9.1317**	**7.5729**	**0.0300**	**1.7874**	**0.0760**	**1.8633**	**0.4838**	**0.0724**	**0.5562**		**3,154.184 9**	**3,154.184 9**	**0.2027**		**3,159.251 1**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.935 1	2,620.935 1	0.6421		2,636.988 3
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.935 1**	**2,620.935 1**	**0.6421**		**2,636.988 3**

3.2 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3506	8.7060	3.4795	0.0173	0.4319	0.0676	0.4995	0.1243	0.0646	0.1889		1,888.038 8	1,888.038 8	0.1725		1,892.351 0
Worker	0.6030	0.4257	4.0934	0.0127	1.3554	8.3800e-003	1.3638	0.3595	7.7200e-003	0.3672		1,266.146 1	1,266.146 1	0.0302		1,266.900 1
Total	**0.9536**	**9.1317**	**7.5729**	**0.0300**	**1.7874**	**0.0760**	**1.8633**	**0.4838**	**0.0724**	**0.5562**		**3,154.184 9**	**3,154.184 9**	**0.2027**		**3,159.251 1**

3.2 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

3.2 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3121	8.1807	3.2855	0.0171	0.4319	0.0572	0.4891	0.1243	0.0547	0.1790		1,868.2983	1,868.2983	0.1690		1,872.5243
Worker	0.5467	0.3739	3.6512	0.0123	1.3554	8.3300e-003	1.3638	0.3595	7.6800e-003	0.3672		1,226.7301	1,226.7301	0.0265		1,227.3935
Total	**0.8588**	**8.5546**	**6.9366**	**0.0294**	**1.7874**	**0.0655**	**1.8529**	**0.4838**	**0.0624**	**0.5462**		**3,095.0284**	**3,095.0284**	**0.1956**		**3,099.9178**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.2 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3121	8.1807	3.2855	0.0171	0.4319	0.0572	0.4891	0.1243	0.0547	0.1790		1,868.298 3	1,868.298 3	0.1690		1,872.524 3
Worker	0.5467	0.3739	3.6512	0.0123	1.3554	8.3300e-003	1.3638	0.3595	7.6800e-003	0.3672		1,226.730 1	1,226.730 1	0.0265		1,227.393 5
Total	**0.8588**	**8.5546**	**6.9366**	**0.0294**	**1.7874**	**0.0655**	**1.8529**	**0.4838**	**0.0624**	**0.5462**		**3,095.028 4**	**3,095.028 4**	**0.1956**		**3,099.917 8**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.9608	52.2754	23.4554	0.0380		2.8786	2.8786		2.6483	2.6483		3,894.950 0	3,894.950 0	1.1934		3,924.785 2
Total	**4.9608**	**52.2754**	**23.4554**	**0.0380**	**18.0663**	**2.8786**	**20.9448**	**9.9307**	**2.6483**	**12.5790**		**3,894.950 0**	**3,894.950 0**	**1.1934**		**3,924.785 2**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0742	0.0536	0.5112	1.4300e-003	0.1479	9.2000e-004	0.1488	0.0392	8.5000e-004	0.0401		142.3817	142.3817	3.8000e-003		142.4766
Total	**0.0742**	**0.0536**	**0.5112**	**1.4300e-003**	**0.1479**	**9.2000e-004**	**0.1488**	**0.0392**	**8.5000e-004**	**0.0401**		**142.3817**	**142.3817**	**3.8000e-003**		**142.4766**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.9608	52.2754	23.4554	0.0380		2.8786	2.8786		2.6483	2.6483	0.0000	3,894.9500	3,894.9500	1.1934		3,924.7852
Total	**4.9608**	**52.2754**	**23.4554**	**0.0380**	**8.1298**	**2.8786**	**11.0084**	**4.4688**	**2.6483**	**7.1171**	**0.0000**	**3,894.9500**	**3,894.9500**	**1.1934**		**3,924.7852**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0742	0.0536	0.5112	1.4300e-003	0.1479	9.2000e-004	0.1488	0.0392	8.5000e-004	0.0401		142.3817	142.3817	3.8000e-003		142.4766
Total	**0.0742**	**0.0536**	**0.5112**	**1.4300e-003**	**0.1479**	**9.2000e-004**	**0.1488**	**0.0392**	**8.5000e-004**	**0.0401**		**142.3817**	**142.3817**	**3.8000e-003**		**142.4766**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	3.0705	33.8868	17.1042	0.0297		1.7774	1.7774		1.6352	1.6352		3,037.9107	3,037.9107	0.9308		3,061.1809
Total	**3.0705**	**33.8868**	**17.1042**	**0.0297**	**6.2000**	**1.7774**	**7.9774**	**3.3303**	**1.6352**	**4.9655**		**3,037.9107**	**3,037.9107**	**0.9308**		**3,061.1809**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2666	8.4179	2.9365	0.0178	1.7388	0.0494	1.7883	0.4370	0.0473	0.4843		1,988.050 7	1,988.050 7	0.2344		1,993.911 5
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0447	0.4260	1.1900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.6514	118.6514	3.1600e-003		118.7305
Total	**0.3285**	**8.4626**	**3.3625**	**0.0190**	**1.8621**	**0.0502**	**1.9123**	**0.4697**	**0.0480**	**0.5177**		**2,106.702 1**	**2,106.702 1**	**0.2376**		**2,112.642 0**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7900	0.0000	2.7900	1.4986	0.0000	1.4986			0.0000			0.0000
Off-Road	3.0705	33.8868	17.1042	0.0297		1.7774	1.7774		1.6352	1.6352	0.0000	3,037.910 7	3,037.910 7	0.9308		3,061.180 9
Total	**3.0705**	**33.8868**	**17.1042**	**0.0297**	**2.7900**	**1.7774**	**4.5674**	**1.4986**	**1.6352**	**3.1339**	**0.0000**	**3,037.910 7**	**3,037.910 7**	**0.9308**		**3,061.180 9**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2666	8.4179	2.9365	0.0178	1.7388	0.0494	1.7883	0.4370	0.0473	0.4843		1,988.0507	1,988.0507	0.2344		1,993.9115
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0447	0.4260	1.1900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.6514	118.6514	3.1600e-003		118.7305
Total	**0.3285**	**8.4626**	**3.3625**	**0.0190**	**1.8621**	**0.0502**	**1.9123**	**0.4697**	**0.0480**	**0.5177**		**2,106.7021**	**2,106.7021**	**0.2376**		**2,112.6420**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2000	0.0000	6.2000	3.3303	0.0000	3.3303			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.2000**	**1.5513**	**7.7513**	**3.3303**	**1.4272**	**4.7575**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2254	7.7400	2.8433	0.0175	0.4168	0.0321	0.4489	0.1125	0.0307	0.1432		1,962.123 6	1,962.123 6	0.2363		1,968.031 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0548	0.0387	0.3721	1.1500e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		115.1042	115.1042	2.7400e-003		115.1727
Total	**0.2802**	**7.7787**	**3.2154**	**0.0187**	**0.5400**	**0.0329**	**0.5729**	**0.1452**	**0.0314**	**0.1766**		**2,077.227 8**	**2,077.227 8**	**0.2390**		**2,083.203 8**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7900	0.0000	2.7900	1.4986	0.0000	1.4986			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.021 6	2,988.021 6	0.9302		3,011.276 9
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**2.7900**	**1.5513**	**4.3413**	**1.4986**	**1.4272**	**2.9258**	**0.0000**	**2,988.021 6**	**2,988.021 6**	**0.9302**		**3,011.276 9**

3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2254	7.7400	2.8433	0.0175	0.4168	0.0321	0.4489	0.1125	0.0307	0.1432		1,962.1236	1,962.1236	0.2363		1,968.0311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0548	0.0387	0.3721	1.1500e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		115.1042	115.1042	2.7400e-003		115.1727
Total	**0.2802**	**7.7787**	**3.2154**	**0.0187**	**0.5400**	**0.0329**	**0.5729**	**0.1452**	**0.0314**	**0.1766**		**2,077.2278**	**2,077.2278**	**0.2390**		**2,083.2038**

3.5 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6578	0.0000	2.6578	0.4024	0.0000	0.4024			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425		3,924.2833	3,924.2833	1.0730		3,951.1070
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**2.6578**	**2.1935**	**4.8512**	**0.4024**	**2.0425**	**2.4449**		**3,924.2833**	**3,924.2833**	**1.0730**		**3,951.1070**

3.5 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1574	4.9699	1.7337	0.0105	0.2135	0.0292	0.2427	0.0584	0.0279	0.0863		1,173.745 1	1,173.745 1	0.1384		1,177.205 4
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0447	0.4260	1.1900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.6514	118.6514	3.1600e-003		118.7305
Total	**0.2192**	**5.0146**	**2.1597**	**0.0117**	**0.3367**	**0.0300**	**0.3667**	**0.0911**	**0.0286**	**0.1197**		**1,292.396 5**	**1,292.396 5**	**0.1416**		**1,295.935 9**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1960	0.0000	1.1960	0.1811	0.0000	0.1811			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425	0.0000	3,924.283 3	3,924.283 3	1.0730		3,951.107 0
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**1.1960**	**2.1935**	**3.3895**	**0.1811**	**2.0425**	**2.2236**	**0.0000**	**3,924.283 3**	**3,924.283 3**	**1.0730**		**3,951.107 0**

3.5 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1574	4.9699	1.7337	0.0105	0.2135	0.0292	0.2427	0.0584	0.0279	0.0863		1,173.745 1	1,173.745 1	0.1384		1,177.205 4
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0447	0.4260	1.1900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.6514	118.6514	3.1600e-003		118.7305
Total	**0.2192**	**5.0146**	**2.1597**	**0.0117**	**0.3367**	**0.0300**	**0.3667**	**0.0911**	**0.0286**	**0.1197**		**1,292.396 5**	**1,292.396 5**	**0.1416**		**1,295.935 9**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.002 5	2,257.002 5	0.7141		2,274.854 8
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.002 5**	**2,257.002 5**	**0.7141**		**2,274.854 8**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.0340	0.3319	1.1200e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		111.5209	111.5209	2.4100e-003		111.5812
Total	**0.0497**	**0.0340**	**0.3319**	**1.1200e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**111.5209**	**111.5209**	**2.4100e-003**		**111.5812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.0340	0.3319	1.1200e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		111.5209	111.5209	2.4100e-003		111.5812
Total	**0.0497**	**0.0340**	**0.3319**	**1.1200e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**111.5209**	**111.5209**	**2.4100e-003**		**111.5812**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4694	1.5170	5.3466	0.0153	1.3919	0.0194	1.4113	0.3727	0.0183	0.3910		1,542.712 0	1,542.712 0	0.0617		1,544.254 2
Unmitigated	0.4694	1.5170	5.3466	0.0153	1.3919	0.0194	1.4113	0.3727	0.0183	0.3910		1,542.712 0	1,542.712 0	0.0617		1,544.254 2

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	306.99	306.99	306.99	655,378	655,378
Total	306.99	306.99	306.99	655,378	655,378

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.498968	0.049513	0.248277	0.134909	0.018184	0.006326	0.020670	0.006254	0.003828	0.003354	0.008577	0.000418	0.000722

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Unmitigated	0.0203	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.0203**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.0203**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C

Biological Resources Assessment

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May 25, 2017
Rincon Project No. 16-03145

Sam Herzberg, Senior Planner
County of San Mateo, Parks Department
455 County Center
Redwood City, California 94063
Via email: sherzberg@smcgov.org

Subject: **Biological Resources Assessment for Flood County Park, City of Menlo Park, San Mateo County, California**

Dear Mr. Herzberg:

Rincon Consultants, Inc. (Rincon) is pleased to submit this Biological Resources Assessment (BRA) letter report for the 24.5-acre property (Assessor's Parcel Numbers [APNs] 055-31-2010, 055-31-1010 and 093-55-1020, 093-55-1030), located at 215 Bay Road in the City of Menlo Park, San Mateo County, California. This letter documents the existing conditions on the subject property, identifies sensitive biological resources that represent potential constraints to development of the property, and provides recommendations to address any potential constraints associated with the presence of such resources. The proposed development area on the subject property is hereinafter referred to as the "Biological Study Area" (BSA), and consists of the entire 24.5-acre property known as Flood County Park that is addressed in the Flood County Park Landscape Plan. It is our understanding that this BRA will provide information for the completion of a Program Environmental Impact Report (EIR) for the Flood County Park Landscape Plan and biological information has been provided herein to meet the needs of the environmental review process associated with this EIR.

PROJECT LOCATION

The BSA is located along Bay Road, within the northern portion of the City of Menlo Park, San Mateo County, California (37°28'27.14''N and 122°10'19.94''W) (Attachment A, Figures 1 and 2). The BSA is comprised of four parcels, including the San Francisco Public Utilities Commission Hetch Hechy pipeline right of way. The BSA is depicted on the *Palo Alto, California* United States Geological Survey (USGS) 7.5-minute topographic quadrangle and located within the Central Coast Watershed (Hydrologic Unit Code Number 18050004; U.S. Geological Survey 1978). Elevations within the BSA range from approximately 14-25 feet above mean sea level. The site contains the following soil types: Botella-Urban land complex, 0 to 5 percent slopes; Orthents, cut and fill, 0 to 15 percent slopes; and Urban land-Orthents, cut and fill, 0 to 5 percent slopes. (U.S. Department of Agriculture, Natural Resources Conservation Service 2016).

UNDERSTANDING OF PROJECT

The site (i.e., the BSA) is a neighborhood park located in a single-family residential neighborhood in the City of Menlo Park. Flood County Park originally opened in the early 1930s, and existing adobe structures on-site were constructed during that era as Works Progress Administration (WPA) projects. The proposed project consists of a landscape plan for the long-term redevelopment of the park. On April 7, 2016, the San Mateo County Parks and Recreation Commission voted to approve this plan as the Draft Preferred Alternative for improving Flood County Park. In response to public comment, San Mateo County refined the proposed plan to optimize preservation of large oak and bay trees, increase offerings of sports, and provide a variety of active and passive uses for a range of user groups. A detailed project description is provided in the Flood County Park Landscape Plan EIR.

REGULATORY OVERVIEW

Regulated or sensitive biological resources studied and analyzed herein include sensitive vegetation communities, special status plant and wildlife species, raptors and other nesting birds, jurisdictional waters and wetlands, wildlife movement corridors, and locally protected resources, such as protected significant and heritage trees.

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes and ordinances (see Appendix A):

- Federal Endangered Species Act (FESA)
- California Endangered Species Act (CESA)
- California Environmental Quality Act (CEQA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- San Mateo County Regulation of the Removal and Trimming of Heritage Trees on Public and Private Property (Ordinance 2727, April 5, 1977)
- San Mateo County Significant Tree Ordinance, 2010 (Part Three of Division VIII of the San Mateo County Ordinance Code).

METHODOLOGY

This BRA report consists of the results of a desktop review of relevant biological resources information and the results of a biological reconnaissance-level field survey (field survey). Desktop review included information on regionally occurring sensitive biological resources from the following sources:

- U.S. Fish and Wildlife Service (USFWS), Information, Planning and Conservation (IPaC) System (U.S. Fish and Wildlife Service 2016a)
- USFWS Critical Habitat Portal (U.S. Fish and Wildlife Service 2016b)
- USFWS National Wetland Inventory (NWI) Mapper (U.S. Fish and Wildlife Service

2016c)

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB)(California Department of Fish and Wildlife 2016)
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants in California (California Native Plant Society 2016)

In addition to reviewing relevant biological resources information, Rincon also reviewed survey plans provided by the Parks Department, conducted a peer review of the Tree Report (Gates + Associates 2016), and reviewed aerial imagery prior to conducting the field survey to gain an understanding of how the proposed project activities might result in impacts to sensitive biological resources. The purpose of the field survey was to document the existing site conditions and to evaluate the potential for the presence of sensitive vegetation communities, special status plant and wildlife species, habitat for nesting birds, and any other sensitive biological resources. The field survey included a visual inspection of the entire BSA. The field biologist recorded all biological resources encountered within the BSA including vegetation communities, plant and wildlife species, and potential habitat types present, and documented any wildlife observed on adjacent properties within view of the site.

The field survey was conducted between the hours of 12:00 pm to 5:00 pm on October 31, 2016. Weather conditions during the survey were mild. The temperature ranged from 60 to 65 degrees Fahrenheit, with partly cloudy skies. The field survey was conducted outside of the blooming season for special status plant species that could potentially occur in the area. Protocol surveys to confirm the presence or absence of special status species were not performed and are not included within this analysis.

EXISTING SITE CONDITIONS

The BSA is the existing Flood County Park, a 24.5-acre neighborhood park serving the residents of Menlo Park, south-east Redwood City, East Menlo Park, and East Palo Alto. The site is completely disturbed by anthropogenic influences consisting of a neighborhood park with buildings, parking lots, sports facilities, and an extensive area of park lawn containing non-native grasses and native and non-native trees. Trees consist of old growth native oak and bay trees (Attachment B, Photographs 1, 4 and 6). The site is bordered by residential development to the southeast, southwest, and northwest, and a vacant school site and transitional housing to the northeast. The ground within the BSA consists of lawn areas, compacted soils characteristic of sports fields, paved areas of parking lots, walking paths, and tennis courts. The site is generally flat with little to no topographic relief.

During the field survey, the following ornamental native plants were observed:

- California buckeye *(Aesculus californica)*,
- Catalina cherry *(Prunus lyonii)*,
- Douglas fir *(Pseudotsuga menziesii)*,
- Engelmann oak (*Quercus engelmannii*),
- Giant sequoia *(Sequoiadendron giganteum)*,

- Holly leaf cherry *(Prunus illicifolia)*,
- Incense cedar *(Libocedrus decurrens)*,
- Monterey pine *(Pinus radiata)*,
- Ponderosa pine *(Pinus ponderosa)*,
- Pacific madrone *(Arbutus menziesii)*, and
- Toyon *(Heteromeles arbutifolia)*.

Dominant native trees observed on the site included old growth valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), California bay laurel (*Umbellularia californica*), and coast redwood (*Sequoia sempervirens*).

Wildlife observed in the BSA during the field survey included four species of birds, house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), and California scrub jay (*Aphelocoma californica*), and two species of squirrels, Douglas squirrel (*Tamiasciurus douglasii*) and western gray squirrel (*Sciurus griseus*). Both squirrel species were observed under and on trees within the park. No other wildlife was observed and no small mammal burrows were observed.

DISCUSSION AND IMPACT ANALYSIS

The following provides a discussion the results of the desktop analysis and field survey. An assessment of the potential for impacts to sensitive biological resources, under the CEQA, is also provided along with recommended avoidance and minimization measures designed to assist in avoiding and minimizing the potential for impacts.

Special Status Plants

No special status plant species were observed within the BSA. The site is considerably disturbed and does not provide suitable habitat for any special status plant species. Special status plant species typically have very specific habitat requirements and therefore, these species are not expected to occur within the BSA or otherwise be potentially subject to adverse impacts from implementation of the Flood County Park Landscape Plan (Attachment C).

Special Status Wildlife

No special status wildlife species were observed within the BSA. The high level of disturbance combined with the history of residential use of the BSA substantially reduces the potential of the site to be used by special status wildlife. Special status wildlife species typically have very specific habitat requirements and therefore, these species are not expected to occur within the BSA or otherwise be potentially subject to adverse impacts from implementation of the Flood County Park Landscape Plan. Nonetheless, abundant areas for nesting birds, such as trees, shrubs, lawns and buildings, are present throughout the BSA and provide opportunity for nesting, which generally occurs from early February through late August. Additionally, roosting areas for bat species are present in the BSA in the form of trees and buildings. No bats or bat sign were detected during the field survey, but bats could be present and roost and/or forage within the BSA generally during the months of April through August.

Sensitive Natural Communities

No sensitive natural communities were observed within the BSA. Trees present throughout the park do not represent any riparian vegetation community and no vegetation associations were observed to indicate the presence of intact natural communities. Therefore, sensitive natural communities are not expected to be subject to adverse impacts from implementation of the Flood County Park Landscape Plan.

Jurisdictional Waters, Streambeds, and Wetlands

No surface waters features, streambeds, or wetlands are present in the BSA. Therefore, jurisdictional waters, streambeds, and wetlands are not expected to be subject to adverse impacts from implementation of the Flood County Park Landscape Plan.

Wildlife Movement

The site is not located within any known regional wildlife movement corridors and the surrounding urban development reduces the potential for implementation of the landscape plan from having any effect on wildlife movement. Therefore, wildlife movement is not expected to be subject to adverse impacts from implementation of the Flood County Park Landscape Plan.

Trees Removal Ordinance

Flood Park is operated by the County of San Mateo Parks Department; as such it is not subject to the County Tree Ordinance; however, the County has opted to apply the County tree protection regulations for the purposes of this project.

San Mateo County Heritage Tree Ordinance

The San Mateo County Regulation of the Removal and Trimming of Heritage Trees on Public and Private Property (Ordinance 2727, April 5, 1977) protects the removal of heritage trees (San Mateo County 1977). A tree permit is required from the San Mateo County Planning Department for the removal of a heritage tree. Heritage trees include the following trees:

- Any tree or grove of trees so designated after Board inspection, advertised public hearing and resolution by the Board of Supervisors.
- Bigleaf maple (*Acer macrophyllum*) of more than 36 inches in diameter at breast height (dbh) west of Skyline Boulevard or 28 inches east of Skyline Boulevard.
- Madrone (*Arbutus menziesii*) with a single stem or multiple stems touching each other 4 1/2 feet above the ground of more than 48 inches in DBH, or clumps visibly connected above ground with a basal area greater than 20 square feet measured 4 1/2 feet above average ground level.
- Golden chinquapin (*Chrysolepis chrysophylla*) of more than 20 inches in dbh
- All Santa Cruz cypress (*Cupressus abramsiana*).
- Oregon ash (*Fraxinus latifolia*) of more than 12 inches in dbh

- Tan Oak (*Lithocarpus densiflorus*) of more than 48 inches in dbh
- Douglas fir (*Pseudotsuga menziesii*) of more than 60 inches in DBH east of Skyline Boulevard and north of Highway 92.
- Coast live oak (*Quercus agrifolia*) of more than 48 inches in dbh
- Canyon live oak (*Quercus chrysolepis*) of more than 40 inches in dbh
- All Oregon white oak (*Quercus garryana*)
- Black oak (*Quercus kellogii*) of more than 32 inches in dbh
- Interior live oak (*Quercus wislizenii*) of more than 40 inches in dbh
- Valley oak (*Quercus lobata*) of more than 48 inches in dbh
- Blue oak (*Quercus douglasii*) of more than 30 inches in dbh
- California bay (*Umbellularia californica*) with a single stem or multiple stems touching each other 4 1/2 feet above the ground of more than 48 inches in dbh, or clumps visibly connected above ground with a basal area of 20 square feet measured 4 1/2 feet above average ground level.
- California nutmeg (*Torreya californica*) of more than 30 inches in dbh
- Redwood (*Sequoia sempervirens*) of more than 84 inches in dbh west of Skyline Boulevard or 72 inches DBH east of Skyline Boulevard.

San Mateo County Significant Tree Ordinance

The San Mateo County Significant Tree Ordinance requires a permit for the removal of any native or non-native tree with a circumference of 38 inches (12.1 inches in diameter) as measured at breast height or immediately below the lowest branch, whichever is lower, and having the inherent capacity of naturally producing one main axis continuing to grow more vigorously than the lateral axes (San Mateo County 2010). A permit is also required for the removal of part of a community of trees, which is defined as a group of trees of any size that are ecologically or aesthetically related to each other such that loss of several of them would cause a significant ecological, aesthetic, or environmental impact in the immediate area.

In 2016, the County adopted amendments to the heritage and significant tree ordinances to increase tree protection requirements. These requirements include the submittal of a separate Existing Tree Plan as part of the development application. The plan must show the location, species, and size of all trees (both trunk and canopy), and the entire project foot print complete with all project elements including underground utilities. Proposed landscaping should not be included, however. If heritage or significant trees are proposed for removal, trimming, or work is proposed within the drip line, an arborists report is also required. This report shall address the current condition of all heritage or significant trees and provide measures to protect trees during construction. Where work is proposed within the dripline, the report shall also assess the longevity and survival of the impacted tree.

Gates + Associates (2016) prepared a Tree Report and Rincon's International Society of Arboriculture (ISA) Certified Arborist, Stephanie Lopez, conducted a peer review of the Tree Report (Attachment D). Based on the Tree Report, approximately 78 trees would be removed and approximately 30 trees would be impacted by canopy trimming or root cutting. These 30 trees have the potential to be preserved on site.

Additionally, to protect trees on site that do not qualify as heritage or significant trees and are not being removed due to construction, best management practices identified in the *ISA Managing Trees During Construction* (International Society of Arboriculture 2008) handbook should be implemented as applicable and when construction is within five feet of the critical root zone.

Habitat Conservation Plans and Other Conservation Plans

The nearest habitat conservation plan (HCP) is associated with the Stanford University campus in Palo Alto. This HCP (2011) covers the university's lands, located approximately three miles south of the BSA. Implementation of the Flood County Park Landscape Plan will have no impact on this HCP. Other conservation plans in the region include San Francisco Public Utilities Commission (SFPUC) Peninsula Watershed Management Plan (2002). Implementation of the Flood County Park Landscape Plan will have no impact on the SFPUC plan.

CONCLUSIONS AND RECOMMENDATIONS

No suitable habitat for any special status plant species was observed during the field survey. However, existing trees, shrubs, and structures onsite provide potential suitable habitat for nesting birds and potential suitable roosting sites for bats. We recommend future construction be conducted in compliance with the Migratory Bird Treaty Act and the California Fish and Game Code.

The proposed removal of trees, shrubs, and structures for the construction of recreational improvements has the potential to result in direct impacts to nesting birds, including special status birds, if birds are nesting within the site and/or immediate vicinity during construction activities. Implementation of the Flood County Park Landscape Plan could also result in direct or indirect impacts to roosting bats if bats are present and roosting within the site during construction activities. To assist in avoiding and minimizing the potential for impacts to nesting migratory birds and raptors, and roosting bats, the following avoidance and minimization measures are recommended. General measures apply to best management practices with respect to avoiding or reducing impacts to biological resources and specific measure are those relating to species identified as potentially impacted by implementation of the Flood County Park Landscape Plan.

Recommended Avoidance and Minimization Measures

<u>General Measures:</u>

- All vehicles should be in good working condition and free of leaks. All leaks should be contained and cleaned up immediately to reduce the potential for soil/vegetation contamination.
- Drip pans should be placed under all stationary vehicles and mechanical equipment.

- All trash that may attract wildlife to the site should be properly contained and removed from the work site. All such debris and waste should be picked up daily and properly disposed of at an appropriate site.
- All trenches, pipes, culverts or similar structures should be inspected for animals prior to burying, capping, moving, or filling. All excavations in excess of two feet deep should be sloped, have escape ramps installed that are suitable for the escape of wildlife, or be thoroughly covered at the end of the day. All trenches and excavations should be inspected for wildlife at the beginning of the work day and prior to backfilling.
- No exposed hollow open-ended posts or pipes in a vertical, skyward orientation should be left uncovered at the end of the work day. All pipes or posts on the site during construction that are exposed to the environment should be capped, screened or filled with material.
- No pets should be allowed at the site.

<u>Specific Measures:</u>

- A qualified biologist should conduct a pre-construction survey for roosting bats at least two weeks prior to, but not more than 30 days prior to, the start of construction. The pallid bat could potentially roost in hollow trees. The survey should be conducted within 200 feet of all planned construction activities within two weeks prior to any removal of trees (particularly trees 12 inches in diameter or greater at 4.5 feet above grade with loose bark or other cavities).
- A buffer zone of 100 feet that excludes construction activities or other disturbances should be established around active bat roosts.
- If active maternity roosts or non-breeding bat hibernacula are found in trees scheduled to be removed, relocation or other measures should be determined in consultation with the City of Menlo Park and/or CDFW, as appropriate, and a qualified biologist.
- If possible, trees and shrubs that would be impacted by construction activities should be removed during the non-nesting season (typically between September 1 and January 31).
- If trees and shrubs are removed during the nesting season (February 1 to August 31), all suitable nesting habitat within the limits of work should be surveyed by a qualified biologist prior to initiating construction-related activities. A pre-construction survey should be conducted within five days prior to the start of work. If no nests are observed, construction activities should be initiated within five days. If more than five days pass and construction has not been initiated, another survey should be required.
- If, during the nesting season, an active nest is discovered in trees or shrubs to be removed, the vegetation should be protected using orange construction fence or the equivalent. The protective fencing should be placed around the vegetation at the following distance(s) depending on species and upon recommendation from a qualified biologist: 100-250 feet from the drip line of the vegetation for passerines and non-raptors; and 300-500 feet from the drip line of the vegetation for raptors.

No parking, storage of materials, or work would be allowed within this area until the end of the nesting season or until the young have fledged, as determined by a qualified biologist.

- Avoidance and minimization measure outline in the Tree Report (Gates + Associates 2016) should be followed to reduce the potential for impacts to heritage and otherwise protected trees.

The above avoidance and minimization measures are included to provide guidance in the planning phase of the Flood County Park Landscape Plan and to inform the preparation of the EIR. These recommended avoidance and minimization measures in no way preclude the need to initiate consultation with resource agencies in the event listed or other protected species occur on the site.

Thank you for the opportunity to support your environmental analysis needs for this important project. Please do not hesitate to contact us if you have any questions.

Sincerely,

RINCON CONSULTANTS, INC.

Anna Kopitov
Senior Biologist

Colby J. Boggs, MS
Principal / Senior Ecologist

Attachments: *A: Figures*
B: Site Photographs
C: Evaluation of Regionally Occurring Special Status Species
D: Arborist Review of Tree Report

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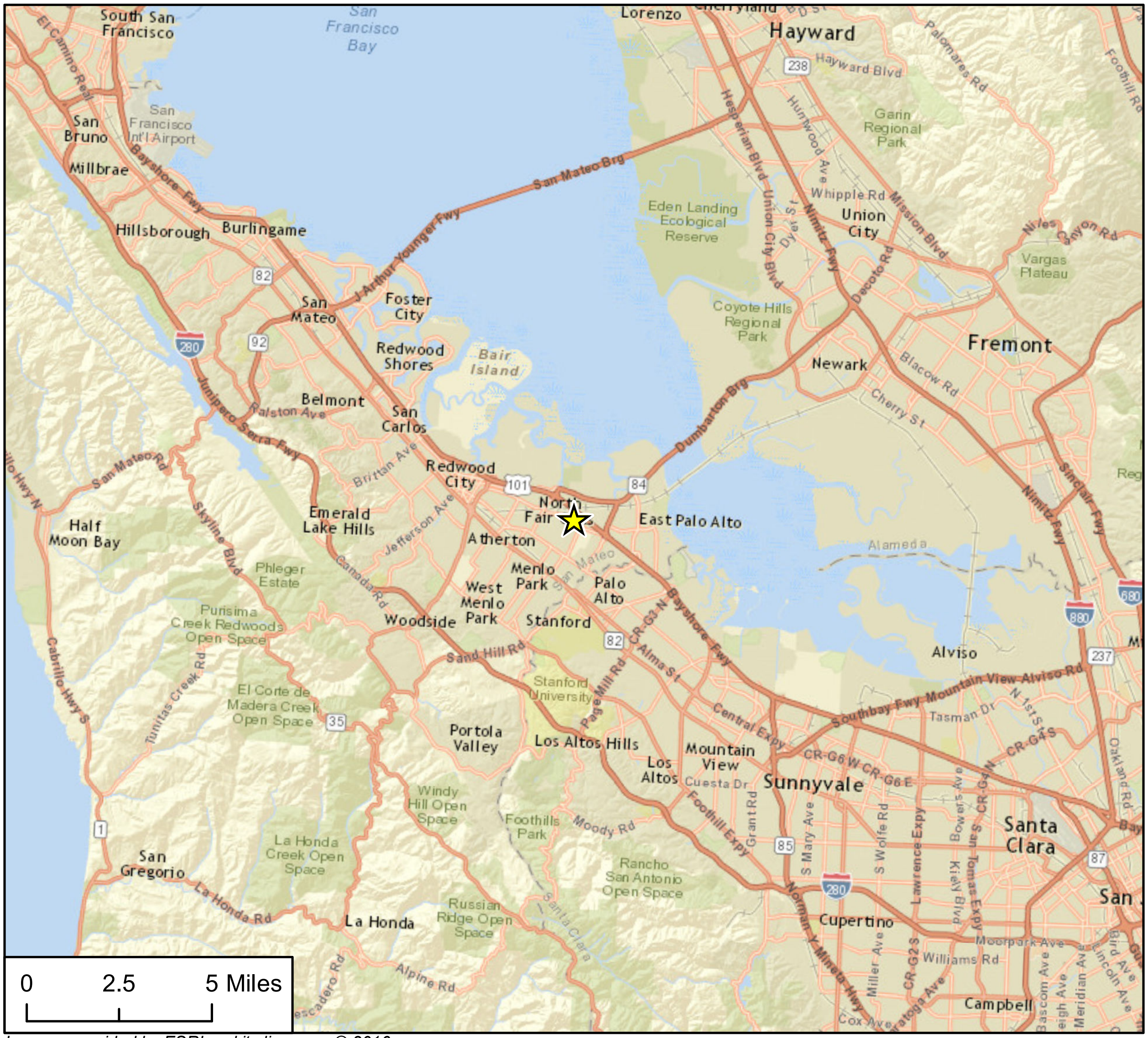
Attachment A

Figures



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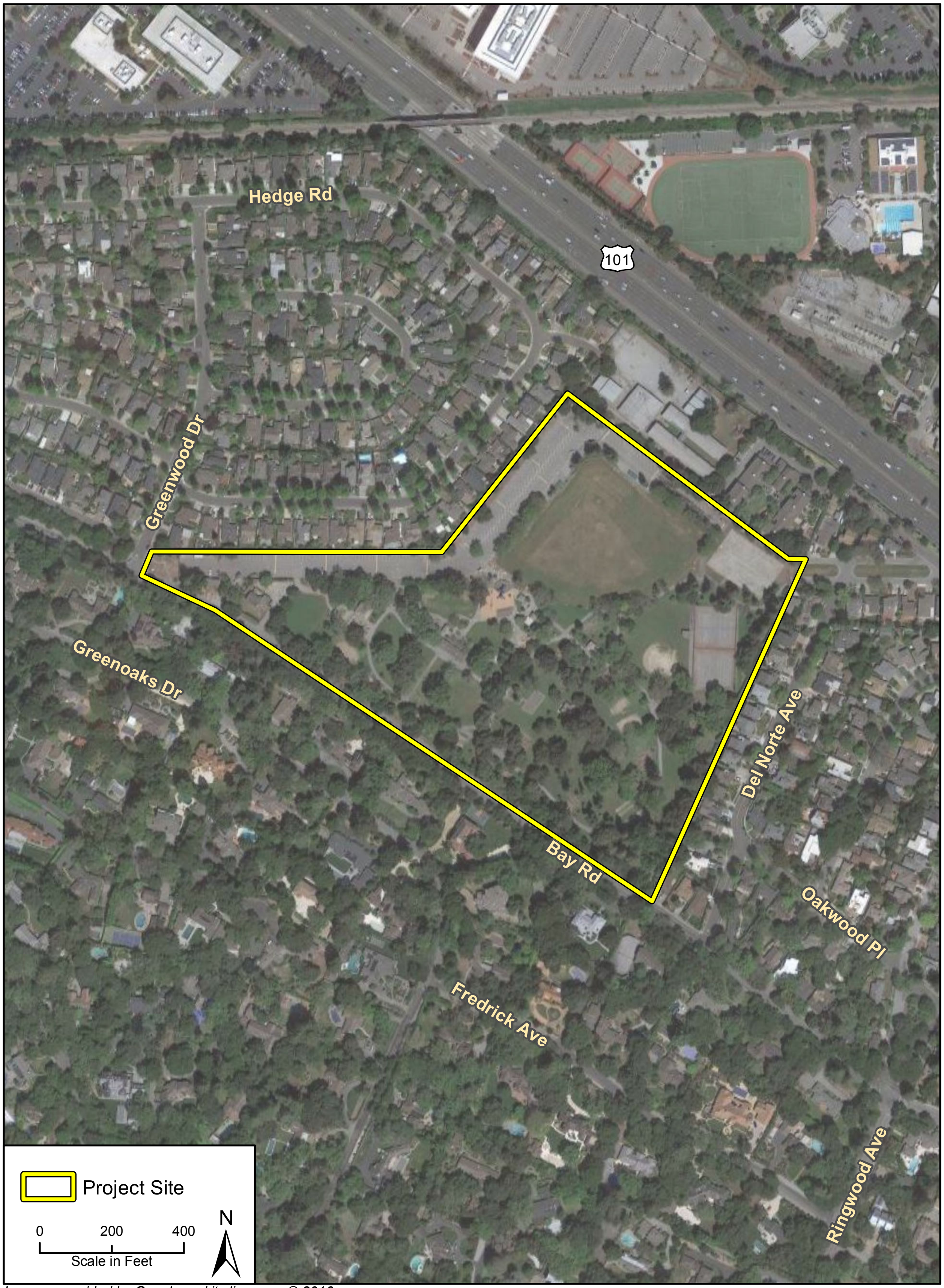
Project Location

N

Project Location Map

Figure 1

San Mateo County



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Project Site

Figure 2

Attachment B

Project Site Photos

Site Photographs

Photograph: 1. View of picnic area, lawn and trees that are typical of the park.

Photograph: 2. View of redwoods on the eastern side of the park.

Photograph: 3. View of the trees lining the existing parking lot behind the ballfield.

Photograph: 4. View of tennis courts and trees to the northeast of the BSA.

Photograph 5: View of the existing sports fields at the northern corner of the Project site and turf with trees along the perimeter.

Photograph 6: View of trees lining the existing parking lot on the northwest corner of the Project site.

Attachment C

Evaluation of Regionally Occurring Special Status Species

Scientific Name Common Name	Status Federal/State/CR PR/Other	Habitat Requirements Elevation range: meters (m)	Blooming Period Plants Only	Potential to Occur in Project Area
Plants				
Acanthomintha duttonii San Mateo thorn-mint	FE/CE/1B.1	Chaparral, valley and foothill grassland. Uncommon serpentinite vertisol clays; in relatively open areas. Elevation range: 50-300 m.	April-June	**No.** Suitable habitat is not present and the site elevation is out of range for this species.
Allium peninsulare var. franciscanum Franciscan onion	--/--/1B.2	Cismontane woodland, valley and foothill grassland. Clay soils; often on serpentine. Dry hillsides. Elevation range: 50-300 m.	April-June	**No.** Suitable habitat is not present and the site elevation is out of range for this species.
Amsinckia lunaris bent-flowered fiddleneck	--/--/1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. Elevation range: 3-795 m.	March-June	
Arctostaphylos andersonii Anderson's manzanita	--/--/1B.2	Broadleaved upland forest, chaparral, north coast coniferous forest. Open sites, redwood forest. Elevation range: 60-760 m.	November-May	**No.** Suitable habitat is not present and the site elevation is out of range for this species.
Arctostaphylos montaraensis Montara manzanita	--/--/1B.2	Chaparral, coastal scrub. Slopes and ridges. Elevation range: 150-500 m.	January-March	**No.** Suitable habitat is not present and the site elevation is out of range for this species.
Arctostaphylos regismontana Kings Mountain manzanita	--/--/1B.2	Broadleaved upland forest, chaparral, north coast coniferous forest. Granitic or sandstone outcrops. Elevation range: 305-730 m.	December-April	**No.** Suitable habitat is not present and the site elevation is out of range for this species.
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	--/--/1B.2	Coastal dunes, marshes and swamps, coastal scrub. Mesic sites in dunes or along streams or coastal salt marshes. Elevation range: 0-155 m.	April-October	**No.** Suitable habitat is not present. Site is highly disturbed.
Astragalus tener var. tener alkali milk-vetch	--/--/1B.2	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. Elevation range: 0-168 m.	March-June	
California macrophylla round-leaved filaree	--/--/1B.2	Cismontane woodland, valley and foothill grassland. Clay soils. Elevation range: 15-1200 m.	March-May	**No.** Suitable habitat is not present and the site elevation is out of range for this

				species.
Centromadia parryi ssp. congdonii Congdon's tarplant	--/--/1B.1	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. Elevation range: 0-230 m.	May-November	**No.** Suitable habitat is not present. Site is highly disturbed.
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	--/--/1B.2	Coastal salt marsh. Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. Elevation range: 0-10 m.	June-October	**No.** Suitable habitat is not present; site is highly disturbed.
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	--/--/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub. Closely related to C. pungens. Sandy soil on terraces and slopes. Elevation range: 3-215 m.	April-August	**No.** Suitable habitat is not present; site is highly disturbed.
Cirsium fontinale var. fontinale Crystal Springs fountain thistle	FE/CE/1B.1	Valley and foothill grassland, chaparral, cismontane woodland, meadows and seeps. Serpentine seeps and grassland. Elevation range: 45-185 m.	April-October	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Cirsium praeteriens lost thistle	--/--/1A	Little information exists on this plant; it was collected from the Palo Alto area at the turn of the 20th Century. Although not seen since 1901, this Cirsium is thought to be quite distinct from other Cirsiums acc. to D. Keil. Elevation range: 0-100 m.	June-July	**No.** This species has not been seen since 1901 and the highly disturbed nature of the site makes it unlikely to occur on the BSA.
Clarkia concinna ssp. automixa Santa Clara red ribbons	--/--/4.3	Cismontane woodland, chaparral. On slopes and near drainages. Elevation range: 90-1500 m.	April-July	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Collinsia multicolor San Francisco collinsia	--/--/1B.2	Closed-cone coniferous forest, coastal scrub. On decomposed shale (mudstone) mixed with humus; sometimes on serpentine. Elevation range: 30-250 m.	February-May	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.

Dirca occidentalis western leatherwood	--/--/1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen & foothill woodland communities. Elevation range: 25-425 m	January-April	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Eriogonum nudum var. decurrens Ben Lomond buckwheat	--/--/1B.1	Chaparral, cismontane woodland, lower montane coniferous forest. Ponderosa pine sandhills in Santa Cruz County. Elevation range: 50-800 m.	June-October	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Eriophyllum latilobum San Mateo woolly sunflower	FE/CE/1B.1	Cismontane woodland. Often on roadcuts; found on and off of serpentine. Elevation range: 30-610 m.	May-June	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Eryngium aristulatum var. hooveri Hoover's button-celery	--/--/1B.21	Vernal pools. Alkaline depressions, vernal pools, roadside ditches and other wet places near the coast. 3-45 m.	June-August	**No.** Suitable habitat is not present and the site is highly disturbed.
Eryngium jepsonii Jepson's coyote thistle	--/--/1B.2	Valley and foothill grassland, vernal pools. Clay soils. Elevation range: 3-300 m.	April-August	**No.** Suitable habitat is not present and the site is highly disturbed.
Extriplex joaquinana San Joaquin spearscale	--/--/1B.2	Chenopod scrub, alkali meadow, playas, valley and foothill grassland. In seasonal alkali wetlands or alkali sink scrub with Distichlis spicata, Frankenia, etc. Elevation range: 1-835 m.	April-October	**No.** Suitable habitat is not present and the site is highly disturbed.
Fissidens pauperculus minute pocket moss	--/--/1B.2	North coast coniferous forest. Moss growing on damp soil along the coast. In dry streambeds and on stream banks. Elevation range: 10-1024 m.	--	**No.** Suitable habitat is not present and the site is highly disturbed.
Fritillaria biflora var. ineziana Hillsborough chocolate lily	--/--/1B.2	Cismontane woodland, valley and foothill grassland. Probably only on serpentine; most recent site is in serpentine grassland. Elevation range: 90-160 m.	March-April	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.

Fritillaria liliacea fragrant fritillary	--/--/1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. Elevation range: 3-400 m.	February-April	**No.** Suitable habitat is not present and the site is highly disturbed.
Hesperevax sparsiflora var. brevifolia short-leaved evax	--/--/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Sandy bluffs and flats. Elevation range: 0-215 m.	March-June	**No.** Suitable habitat is not present and the site is highly disturbed.
Hesperolinon congestum Marin western flax	FT/CT/1B.1	Chaparral, valley and foothill grassland. In serpentine barrens and in serpentine grassland and chaparral. Elevation range: 60-370 m.	April-July	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Hoita strobilina Loma Prieta hoita	--/--/1B.1	Chaparral, cismontane woodland, riparian woodland. Serpentine; mesic sites. Elevation range: 60-975 m.	May-October	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Lasthenia conjugens Contra Costa goldfields	FE/--/1B.1	Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland. Vernal pools, swales, low depressions, in open grassy areas. Elevation range: 1-470 m.	March-June	**No.** Suitable habitat is not present and the site is highly disturbed.
Legenere limosa legenere	--/--/1B.1	Vernal pools. In beds of vernal pools. Elevation range: 1-880 m.	April-June	**No.** Suitable habitat is not present and the site is highly disturbed.
Lessingia arachnoidea Crystal Springs lessingia	--/--/1B.2	Coastal sage scrub, valley and foothill grassland, cismontane woodland. Grassy slopes on serpentine; sometimes on roadsides. Elevation range: 90-200 m.	July-October	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Lilium maritimum coast lily	--/--/1B.1	Closed-cone coniferous forest, coastal prairie, coastal scrub, broadleaved upland forest, north coast coniferous forest, marshes and swamps. Historically in sandy soil, often on raised hummocks or bogs; today mostly in roadside ditches. Elevation range: 4-475 m.	May-August	**No.** Suitable habitat is not present and the site is highly disturbed.
Malacothamnus arcuatus arcuate bush-mallow	--/--/1B.2	Chaparral, cismontane woodland. Gravelly alluvium. Elevation range: 1-735 m.	April-September	**No.** Suitable habitat is not present and the site is highly disturbed.

Malacothamnus davidsonii Davidson's bush-mallow	--/--/1B.2	Coastal scrub, riparian woodland, chaparral, cismontane woodland. Sandy washes. Elevation range: 185-855 m.	June-January	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Monolopia gracilens woodland woollythreads	--/--/1B.2	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, north coast coniferous forest. Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns but may have only weak affinity to serpentine. Elevation range: 100-1200 m.	February-July	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Navarretia myersii ssp. myersii pincushion navarretia	--/--/1B.1	Vernal pools. Clay soils within non-native grassland. Elevation range: 45-100 m.	April-May	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Navarretia paradoxiclara Patterson's navarretia	--/--/1B.3	Meadows and seeps. Serpentinite, openings, vernally mesic, often drainages. Elevation range: 150-430 m.	May-July	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Pedicularis dudleyi Dudley's lousewort	--/CR/1B.2	Chaparral, north coast coniferous forest, valley and foothill grassland. Deep shady woods of older coast redwood forests; also in maritime chaparral. Elevation range: 60-900 m.	April-June	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Pentachaeta bellidiflora white-rayed pentachaeta	FE/CE/1B.1	Valley and foothill grassland, cismontane woodland. Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. Elevation range: 35-610 m.	March-May	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Piperia candida white-flowered rein orchid	--/--/1B.2	North coast coniferous forest, lower montane coniferous forest, broadleafed upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. Elevation range: 45-1615 m.	March-September	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.

Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	--/--/1B.2	Chaparral, coastal scrub, coastal prairie. Mesic sites. Elevation range: 15-160 m.	March-June	**No.** Suitable habitat is not present and the site is highly disturbed.
Plagiobothrys glaber hairless popcornflower	--/--/1A	Meadows and seeps, marshes and swamps. Coastal salt marshes and alkaline meadows. Elevation range: 5-180 m.	March-May	**No.** Suitable habitat is not present.
Polemonium carneum Oregon polemonium	--/--/2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. Elevation range: 0-1830 m.	April-September	**No.** Suitable habitat is not present and the site is highly disturbed.
Senecio aphanactis chaparral ragwort	--/--/2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. Elevation range: 20-855 m.	January-May	**No.** Suitable habitat is not present and the site is highly disturbed.
Silene verecunda ssp. verecunda San Francisco campion	--/--/1B.2	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie. Often on mudstone or shale; one site on serpentine. Elevation range: 30-645 m.	February-August	**No.** Suitable habitat is not present and the site elevation is out of range for this species. Site is highly disturbed.
Stuckenia filiformis ssp. alpina slender-leaved pondweed	--/--/2B.2	Marshes and swamps. Shallow, clear water of lakes and drainage channels. Elevation range: 300-2150 m.	May-July	**No.** Suitable habitat is not present.
Suaeda californica California seablite	FE/--/1B.1	Marshes and swamps. Margins of coastal salt marshes. Elevation range: 0-5 m.	July-October	**No.** Suitable habitat is not present.
Trifolium amoenum two-fork clover	FE/--/1B.1	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. Elevation range: 5-310 m.	April-June	**Unlikely.** Suitable habitat is not present and the site is highly disturbed. An occurrence was recorded in September 2016 near Stanford Shopping Center; however, confirmation of this species was not noted (cn1415).
Trifolium hydrophilum saline clover	--/--/1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. Elevation range: 0-300 m.	April-June	**Unlikely.** Suitable habitat is not present and the site is highly disturbed by human activity. An observation was recorded in San Mateo (cn1492).

Triphysaria floribunda San Francisco owl's-clover	--/--/1B.2	Coastal prairie, coastal scrub, valley and foothill grassland. On serpentine and nonserpentine substrate (such as at Pt. Reyes). Elevation range: 10-160 m.	April-June	**No.** Suitable habitat is not present.
Tropidocarpum capparideum caper-fruited tropidocarpum	--/--/1B.1	Valley and foothill grassland. Alkaline clay. Elevation range: 0-360 m.	March-April	**No.** Suitable habitat is not present.
Usnea longissima Methuselah's beard lichen	--/-- /4.2	North coast coniferous forest, broadleafed upland forest. Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. Elevation range: 45-1465 m in California.	--	**No.** Suitable habitat is not present.
Wildlife				
Invertebrates				
Euphydryas editha bayensis Bay checkerspot butterfly	FT/--	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. Plantago erecta is the primary host plant; Orthocarpus densiflorus & O. purpurscens are the secondary host plants.	**No**. Suitable habitat, such as host and nectar plants, are not present on the site.	
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE/--	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County. Larval food plant thought to be Viola adunca.	**No.** Species is extirpated from San Mateo County.	
Fish				
Oncorhynchus mykiss irideus steelhead - central California coast DPS	FT/--	From Russian River, south to Soquel Cr & to, but not including, Pajaro River. Also San Francisco & San Pablo Bay basins.	**No.** Suitable habitat is not present.	

Spirinchus thaleichthys longfin smelt	FC/CT/SSC	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	**No.** Suitable habitat is not present.
Amphibians			
Ambystoma californiense California tiger salamander	FT/CT/WL	Central Valley DPS federally listed as threatened. Santa Barbara & Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows, & vernal pools or other seasonal water sources for breeding.	**No**. Suitable aquatic and upland habitat is not present on the site. Although a population of CTS exists on the Stanford University site within approximately 5 miles, the BSA is a highly urbanized and disturbed park property with no connectivity to suitable aquatic habitats. In addition to numerous barriers in the form of urban roads and buildings, the Stanford population is beyond the typical dispersal distance for CTS.
Aneides niger Santa Cruz black salamander	--/--/SSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara counties. Adults found under rocks, talus, and damp woody debris.	**No**. Suitable habitat is not present.
Dicamptodon ensatus California giant salamander	--/--/SSC	Known from wet coastal forests near streams and seeps from Mendocino Co. south to Monterey Co. and east to Napa Co. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near strea	**No**. Suitable habitat is not present.
Rana boylii foothill yellow-legged frog	--/--/SSC	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	**No**. Suitable habitat is not present.

Rana draytonii California red-legged frog	FT/--/SSC	Lowlands & foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**No**. Suitable aquatic and upland habitats are not present.
Reptiles			
Emys marmorata western pond turtle	FSC/--/SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg laying.	**No**. Suitable habitat is not present.
Thamnophis sirtalis tetrataenia San Francisco gartersnake	FE/CE/FP	Vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County & extreme northern Santa Cruz County. Prefers dense cover & water depths of at least one foot. Upland areas near water are also very important.	**No**. Suitable aquatic habitat is not present.
Birds			
Accipiter cooperii Cooper's hawk	--/--/WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	**Yes.** Potential to occur during migration and foraging. Habitat is generally not suitable for nesting; however, oaks may be used for nesting.
Agelaius tricolor tricolored blackbird	FC/--/CSSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony.	**Unlikely**. Small potential to occur during migration due to proximity to Baylands. No suitable habitat for nesting.

Asio flammeus short-eared owl	--/--/SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	**Yes.** No suitable nesting habitat present; however, the species is known to occur in San Mateo County. Species has the potential to occur during dispersal.
Asio otus long-eared owl	--/--/SSC	Riparian bottomlands grown to tall willows & cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	**Unlikely.** No suitable foraging and nesting habitat present; however, the species is known to occur in San Mateo County and has the potential to occur during dispersal.
Athene cunicularia burrowing owl	--/--/SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**No.** Suitable nest and winter habitat is not present.
Brachyramphus marmoratus marbled murrelet	FT/CE/SSC	Feeds near-shore; nests inland along coast from Eureka to Oregon border & from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	**No**. Suitable aquatic and nest habitat is not present.
Charadrius alexandrinus nivosus western snowy plover	FT/--/SSC	Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**No**. Suitable habitat is not present.
Circus cyaneus northern harrier	--/--/SSC	Coastal salt & fresh-water marsh. Nest & forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	**No**. Suitable nesting and foraging habitat is not present.

Coccyzus americanus Western yellow-billed cuckoo	FT/CE	Requires dense, large tracts of riparian woodlands with well-developed understories for breeding. Occurs in deciduous trees and shrubs, especially willows which are required for roost and nest sites. During the breeding season, the cuckoo is restricted to river bottoms and other moist habitats along slow-moving watercourses where humidity is high.	**No**. Suitable habitat is not present.
Elanus leucurus white-tailed kite	--/--/FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Yes**. One winter observation was recorded in Ebird in 2013 within a few hundred feet of the park. Suitable nesting habitat is not present; however, this species may occur during winter.
Falco peregrinus anatum American peregrine falcon	FD/CD/FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	**Yes**. Several observations were recorded in Ebird in 2010, 2011 and 2015 within a few hundred feet of the park. Suitable nesting habitat is not present.
Geothlypis trichas sinuosa saltmarsh common yellowthroat	--/--/SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**No.** Suitable habitat is not present.
Laterallus jamaicensis coturniculus California black rail	--/CT/FP	Inhabits freshwater marshes, wet meadows & shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year & dense vegetation for nesting habitat.	**No.** Suitable habitat is not present.
Melospiza melodia pusillula Alameda song sparrow	--/--/SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits Salicornia marshes; nests low in Grindelia bushes (high enough to escape high tides) and in Salicornia.	**No.** Suitable habitat is not present.

Phalacrocorax auritus double-crested cormorant	--/--/WL	Colonial nester on coastal cliffs, offshore islands, & along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	**No.** Suitable habitat is not present.
Rallus obsoletus Ridgway's rail (formerly California clapper rail)	FE/CE/FP	Salt-water & brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	**No.** Suitable habitat is not present.
Riparia riparia bank swallow	--/CT	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nest cavity.	**No.** Suitable habitat is not present.
Rynchops niger black skimmer	--/--/SSC	Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	**No.** Suitable habitat is not present.
Sternula antillarum browni California least tern	FE/CE/FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**No.** Suitable habitat is not present.
Mammals			
Antrozous pallidus pallid bat	--/--/SSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Yes.** Suitable forage and roosting habitat present on site. Nearest recorded occurrence at Stanford University from 1951.

Corynorhinus townsendii Townsend's big-eared bat	--/CCT/SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**No.** No recorded occurrences within 5 miles of the site. Given the urban setting, the BSA has a high degree of human disturbance.
Lasiurus cinereus hoary bat	--/--/CEQA	Prefers open habitats or habitat mosaics, with access to trees for cover & open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Yes.** Suitable forage and roosting habitat present on site. Four recorded occurrences within 5 miles of the BSA on the Palo Alto quad.
Myotis yumanensis Yuma myotis	--/--/CEQA	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	**No**. Suitable roosting habitat may be associated with buildings; however, no recorded occurrences within 5 miles of the BSA.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--/--/SSC	Forest habitats of moderate canopy & moderate to dense understory. May prefer chaparral & redwood habitats. Constructs nests of shredded grass, leaves & other material. May be limited by availability of nest-building materials.	**No.** Suitable habitat is not present.
Reithrodontomys raviventris salt-marsh harvest mouse	FE/CE/FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat, but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow, builds loosely organized nests. Requires higher area	**No.** Suitable habitat is not present.
Sorex vagrans halicoetes salt-marsh wandering shrew	--/--/SSC	Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6-8 ft above sea level where abundant driftwood is scattered among Salicornia.	**No.** Suitable habitat is not present.

Taxidea taxus American badger	--/--/SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**No.** Suitable habitat is not present.

Legend:
FC Federal candidate
FD Federal delisted
FE Federal endangered
FT Federal threatened
CD California delisted
CE California endangered
CT Califonia threatened
CCT California candidate threatened
SSC Species of special concern
FP Fully protected, California
WL Watch list, California

CRPR: California Rare Plant Rank
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Attachment D

Arborist Review of Tree Report

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November 30, 2016
Rincon Project No. 16-03145

Sam Herzberg, Senior Planner
County of San Mateo, Parks Department
455 County Center
Redwood City, California 94063
Via email: sherzberg@smcgov.org

Subject: Peer Review of Arborist Report for the Program EIR for the Flood County Park Landscape Plan, Flood County Park, City of Menlo Park, California

Dear Mr. Herzberg:

Rincon Consultants, Inc. (Rincon) is pleased to submit this peer review of the Flood Park Tree Report prepared by Gates + Associates dated July 2016 for the Flood County Park Landscape Plan project. The purpose of this peer review is to evaluate the tree data with an emphasis on the accuracy of the data and adequacy of avoidance, minimization, and monitoring measures proposed.

For this peer review, a Rincon International Society of Arboriculture (ISA) Certified Arborist, Stephanie Lopez reviewed the Tree Report and conducted a site visit to check the accuracy of the data in the report by evaluating a sub-sample of trees at the park. Based on the Tree Report, approximately 78 trees would be removed and approximately 30 trees would be impacted with a potential to preserve them on site.

Understanding of Project

The Project site is a neighborhood park located in a single-family residential neighborhood in the City of Menlo Park. Flood County Park originally opened in the early 1930s, and existing adobe structures on-site were constructed during that era as Works Progress Administration (WPA) projects. The proposed Project consists of a Landscape Plan for the long-term redevelopment of the park. On April 7, 2016, the County Parks and Recreation Commission voted to approve this plan as the Draft Preferred Alternative for improving Flood County Park. In response to public comment, the County refined the proposed plan to optimize preservation of large oak and bay trees, increase offerings of sports, and provide a variety of active and passive uses for a range of user groups. A detailed project description is provided in the Flood County Park Landscape Plan EIR.

Regulatory Background

The City of Menlo Park's Heritage Tree Ordinance (Chapter 13.24 of the Menlo Park Municipal Code) defines heritage trees, establishes permitting policies and procedures for removal, heavy pruning and protection of heritage trees, and specifies penalties for violation.

The code's definition for a heritage tree is:

- Any tree having a trunk with a circumference of 47.1 inches (diameter of 15 inches) or more measured at 54 inches above natural grade.
- Any oak tree native to California, with a circumference of 31.4 inches (diameter of 10 inches) or more measured at 54 inches above natural grade.
- Any tree or group of trees specifically designated by the City Council for protection because of its historical significance, special character or community benefit.
- Any tree with more than one trunk measured at the point where the trunks divide, with a circumference of 47.1 inches (diameter of 15 inches) or more, with the exception of trees that are under twelve (12) feet in height, which are exempt from the ordinance.

Any property owner wanting to remove a heritage tree, or prune more than one fourth of the canopy and/or roots, must apply for a permit from the City.

Observations and Tree Data

The Tree Report prepared by Gates + Associates identified existing heritage trees in Flood Park that could potentially be impacted by the proposed Flood County Park Landscape Plan. The report identifies trees that would "necessarily" be removed and those that could be possibly preserved depending upon the location, configuration, and construction requirements of the project elements. Therefore, the report provides an estimate and approximation of removals/preservations.

On October 31, 2016, a Rincon ISA Certified Arborist conducted a brief onsite inventory of a sub-section of the onsite trees (70 trees), comparing the data in the Tree Report (table on pages 5-9) to observations made that day.

Not all of the trees present on site were accounted for in the Tree Report. Approximately 300 trees are addressed in the report and there are an estimated 900+ plus trees within the park. Some of the trees on site are tagged, but some are not. In instances where the tree report used a number and a letter to identify trees, only the number was on the tag; therefore, some trees were tagged with the same number.

Table 1 (provided as an attachment to this letter report) provides the tree data for the sub-section of trees evaluated. The table corresponds directly to the original report's tree numbers. The table shows only those trees that were evaluated by the ISA Certified Arborist. Where the arborist's assessment is the same as what is noted in the original Tree Report no changes were made to the data. Where the assessment differed from the Tree Report, the arborist's assessments are noted in red. For trees 216-220 and 263- 268, 270, 272, and 275 the original report listed the circumference measurement in the Diameter at Breast Height (DBH) column of the Tree Report. In most instances, the data collected by the arborist is similar to or the same as what is in the Tree Report but there are inconsistencies. For the sake of consistency tree health was categorized using the same parameters from the Tree Report: A - Good health, minor problems; B - Health or structure compromised, monitor over time; and C - Poor health or dead, consider removal.

AVOIDANCE AND MINIMIZATION MEASURES

The Tree Report did not contain any avoidance and minimization measures or recommendations.

Impacts to greater than 30 percent (%) of the critical root zone (CRZ) (which is defined as the area of soil around a tree trunk where roots are located that provide stability and uptake of water and minerals required for tree survival by the ISA's Best Management Practices – Managing Trees During Construction handbook) will likely adversely affect the tree's long-term health and structural stability.

Trees with canopies and/or CRZs that are impacted more than 30% may require replacement. Those trees with CRZs impacted by construction activities (canopies and roots) should be monitored for distress.

To minimize impacts to trees related to construction, the following guidelines are recommended for heritage trees. For trees on site that do not qualify as heritage and are not being removed due to construction, best management practices identified in the ISA Managing Trees During Construction handbook should be implemented as applicable and when construction is within 5 feet of the CRZ.

TREE REPLACMENT

Per the City of Menlo Park's Heritage Tree Replacement Procedures, the replacement ratio for lost trees is 2 to 1. Approximately 50% of the replacement trees should be in 15 gallon containers.

Suitable replacement trees as specified in the City of Menlo Park's Heritage Tree Replacement Procedures are as follows.

Evergreen Trees

Brisbane Box *Lophostemon confertus*

Camphor Tree *Cinnammomum camphora*

Canary Island Pine *Pinus canariensis*

Catalina Ironwood *Lyonothamnus floribundus*

Coast Live Oak *Quercus agrifolia*

Cork Oak *Quercus suber*

Deodar Cedar *Cedrus deodara*

Incense Cedar *Calocedrus decurrens*

Deciduous Trees

Accolade Elm *Ulmus 'Morton'*

Black Oak *Quercus kelloggii*

Blue Oak *Quercus douglasii*

Burr Oak *Quercus macrocarpa*

California Sycamore *Platanus racemosa*

Columbia Sycamore *Platanus x acerifolia*

Maidenhair Tree *Gingko biloba*

Sawleaf Zelkova *Zelkova serrata*

EXCAVATION/TRENCHING—ROOT SEVERANCE

- Excavation should avoid the CRZ to the greatest extent feasible. Where appropriate, tunneling should be used to preserve roots two inches in diameter or greater, and wherever possible underground lines should occupy common trenches.
- When root cutting occurs, exposed major roots (greater than 2 inches (")) in diameter or within 5 feet ['] of the trunk) should not be ripped by construction equipment. Instead, they should be cut cleanly, if possible back to a lateral branching root. Cuts should be clean and made at right angles to the roots.
- A Certified Arborist should be present if more than 30% of the root zone is impacted or roots greater than 2" or within 5' of the trunk will be cut, to document impacts to the CRZ.
- Absorbent tarp or heavy cloth fabric should cover new grade cuts and be overlain by compost or woodchip mulch.

SOIL COMPACTION (DURING AND POST-CONSTRUCTION)

Soil compaction is a complex set of physical, chemical, and biological constraints on tree growth. Principal components leading to limited growth are the loss of aeration and pore space, poor gas exchange with the atmosphere, lack of available water, and mechanical impedance of root growth. Soil compaction is considered to be the largest single factor responsible for the decline of trees on construction sites. Given the current site characteristics, some of the existing trees have already undergone soil compaction; however, the following guidelines are recommended to protect trees from any additional excessive soil compaction that may develop due to project activities:

- Staging should be limited to areas outside of the CRZs.
- Construction precautions, such as steel traffic plates and fencing should be employed to protect sensitive root zones from undue soil compaction.

CHANGES IN GRADE

Changes in grade, by the addition or removal of soil (filling or cutting), can be injurious. Lowering the grade around trees can have immediate and long-term effects on trees. Typically, the vast majority of the root mass exists within the top 3 feet of soil, and most of the fine roots active in water and nutrient absorption are in the top 12 inches.

- Natural or preconstruction grade should be maintained within the CRZ.

SUBSTANTIAL TRIMMING OF CANOPY OR ROOTS

- A permit from the City of Menlo Park must be applied for if pruning of more than one fourth of the canopy and/or roots is needed.
- Pruning for clearance, if needed, should be done to prevent damaging branches with large equipment.
- All above-ground pruning should be in accordance with the Tree Pruning Guidelines (International Society of Arboriculture) and/or the ANSI A300 Pruning Standard (American National Standard for Tree Care Operations) and adhere to the most recent edition of ANSI Z133.1.
- Pruning cuts or damaged bark should be cut clean to heal. No tree seal or paint should be used after pruning.

PROTECTIVE FENCING

Protective fencing around heritage trees shall be installed prior to any earthwork and remain until all work is complete, or until adjacent construction activity no longer threatens tree health. Fencing shall be 6-foot high chain link fencing (or comparable material) and installed at the outer most edge of the CRZ, or 8 feet from the trunk of heritage trees, whichever is greatest. Signs stating "Tree Protection Zone – Keep Out" shall be posted on the fence.

MONITORING WORK WITHIN THE CRZ

A Certified Arborist or qualified monitor working under the direction of a Certified Arborist will monitor work conducted within the CRZ of heritage trees and should document impacts to the trees for the duration of the project. The Certified Arborist should make recommendations for removals based on the field notes if trees are impacted more than 30%.

EVALUATION AND RECOMMENDATIONS

The Tree Report did not provide avoidance and minimization measures for construction impacts to trees. We recommend the above measures be implemented for the project.

The Tree Report did not provide a comprehensive tree inventory. We recommend that the Tree Report be updated to include a complete inventory that delineates heritage trees (as defined by the municipal code) with a canopy/dripline within 50 feet of the project footprint once the project plan is finalized. Heritage trees should be clearly mapped and identified.

A Tree Removal Permit will be required by the City of Menlo Park. A final planting plan will need to be included in the application package. The grading plan (or a similar plan) should show the identification number, size, and DBH of heritage trees to be removed and/or impacted by the project. The application package will also include a planting plan that illustrates the replacement plantings with species and container size.

The City of Menlo Park's Heritage Tree Replacement Procedures states that all commercial applicants (this project would be categorized as such, per the City Arborist Christian Bonner) who are granted approval to remove a heritage tree are required to replace the lost tree(s) on a 2 to 1 basis. A suitable replacement tree in 15 gallon containers is the current acceptable minimum size. However, the City of Menlo Park staff may exercise discretion on the size and number of trees an applicant may be required to install. All requirements in the replacement procedures should be followed.

The final grading plan should show all of the heritage trees with the identification number, species and DBH. The grading plan should include the tree protection measures identified in this report.

We believe inclusion of the above avoidance and minimizations measures and recommendations will improve the clarity and completeness of the tree report.

Sincerely,

Rincon Consultants, Inc.

Stephanie Lopez, WE-10-442A, TRAQ
Certified Arborist, Senior Biologist

Colby J. Boggs, MS
Principal / Senior Ecologist

Attachment: Table 1 – Tree Data & Observations

Appendix D

Tree Report

Re:imagine FLOOD PARK

County of San Mateo

TREE REPORT

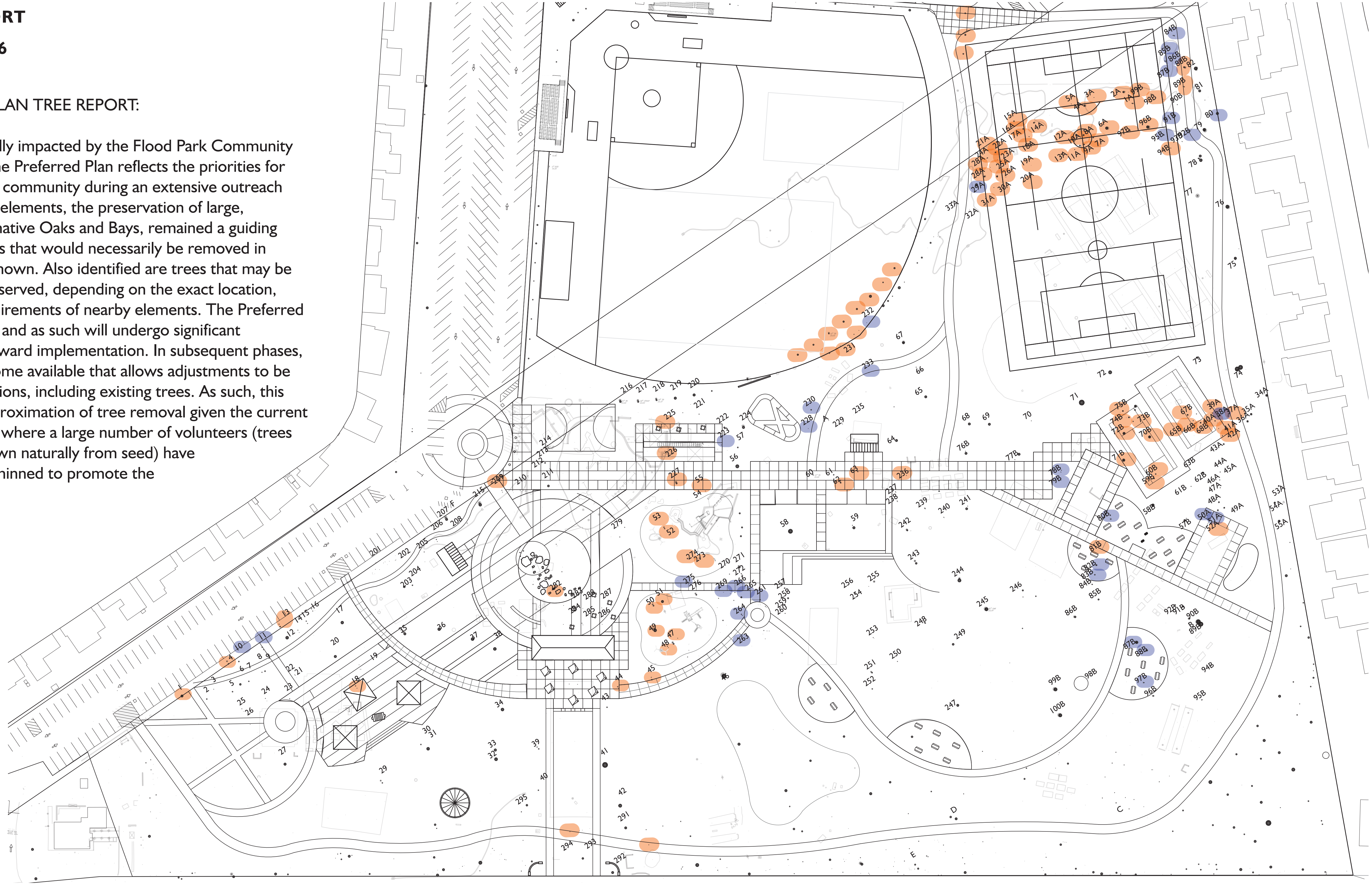
JULY 2016

GATES +ASSOCIATES

FLOOD PARK
TREE REPORT
JULY 2016

FLOOD PARK PREFERRED SITE PLAN TREE REPORT:

This report identifies trees potentially impacted by the Flood Park Community Preferred Plan dated April 2016. The Preferred Plan reflects the priorities for amenities and uses identified by the community during an extensive outreach process. In locating these program elements, the preservation of large, healthy existing trees, in particular native Oaks and Bays, remained a guiding principle. This report identifies trees that would necessarily be removed in the implementation of the plan as shown. Also identified are trees that may be removed, but could possibly be preserved, depending on the exact location, configuration and construction requirements of nearby elements. The Preferred Plan is at a "planning" level of detail and as such will undergo significant refinement as the project moves toward implementation. In subsequent phases, more detailed information will become available that allows adjustments to be made to address specific site conditions, including existing trees. As such, this report should be considered an approximation of tree removal given the current level of design detail. In some areas where a large number of volunteers (trees that were not planted but have grown naturally from seed) have emerged over time, some may be thinned to promote the health and growth of others.



LEGEND

Trees to be removed

Trees to be studied for preservation during design refinement

Uncolored trees are not expected to be impacted by the plan and could be preserved if size, health and species warrant it.

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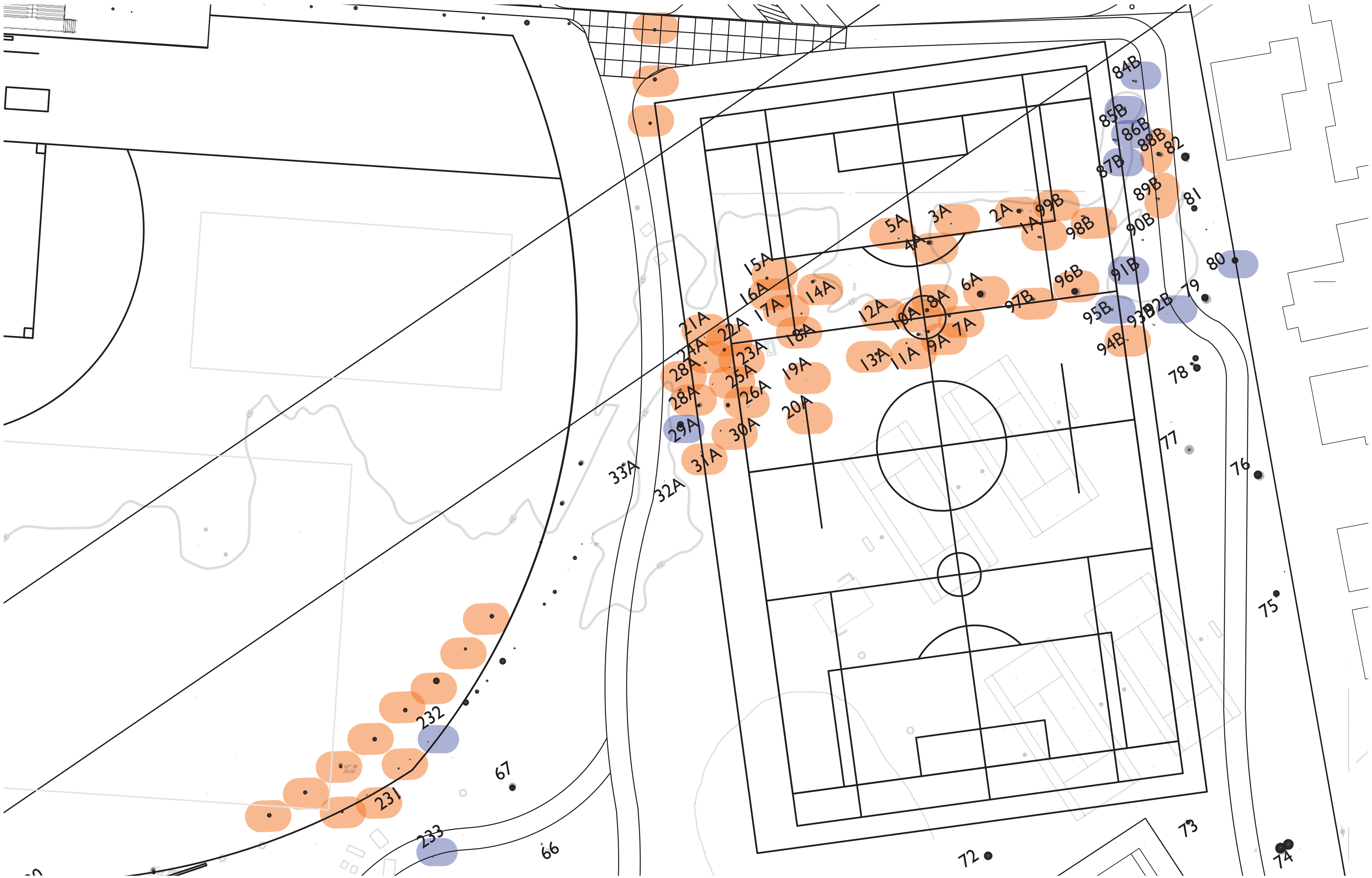
Re:imagine FLOOD PARK County of San Mateo

COUNTY OF SAN MATEO CALIFORNIA



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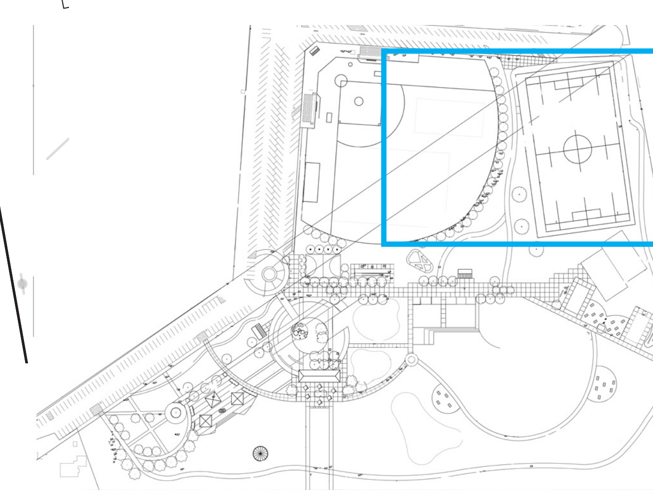

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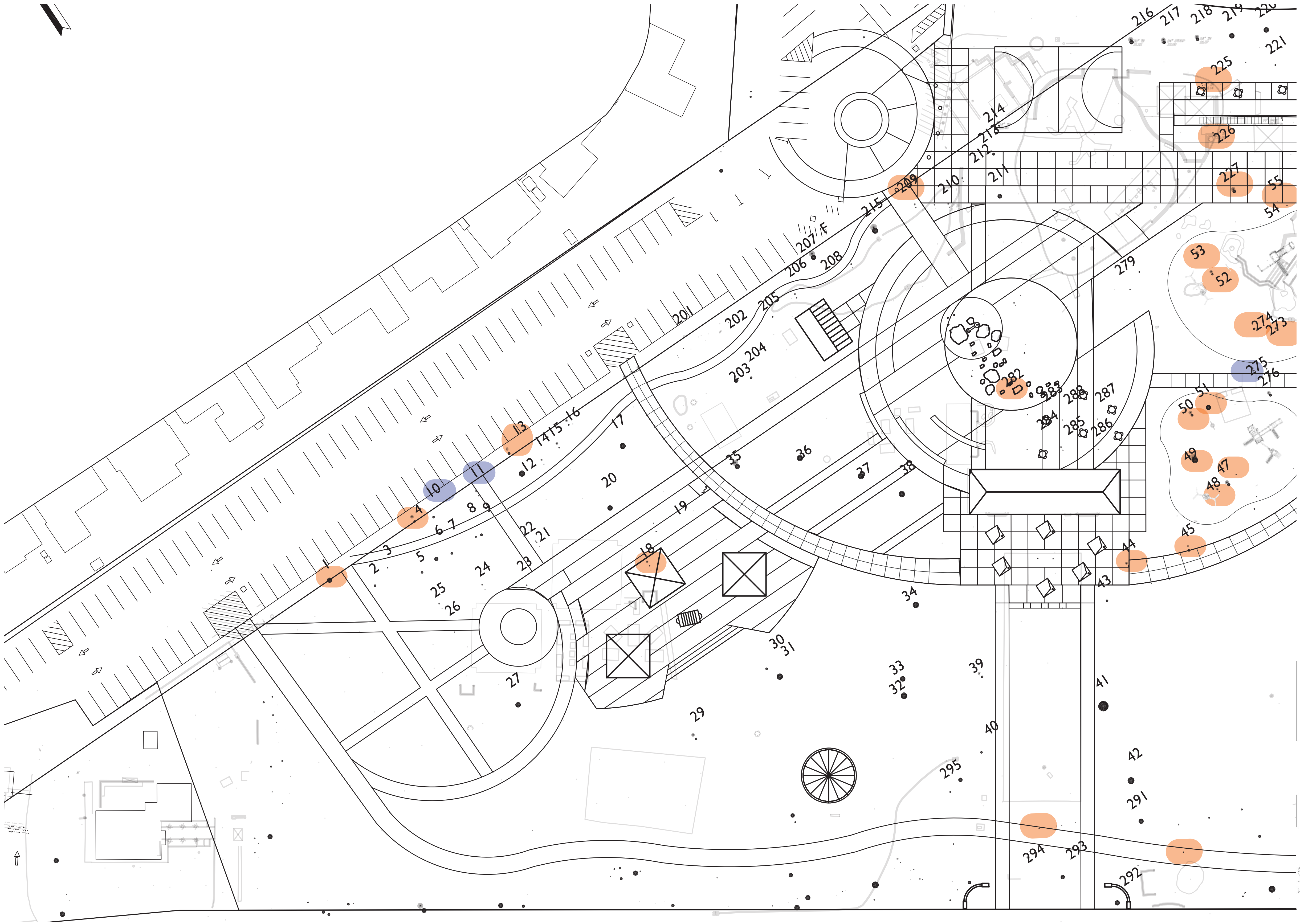
Re:imagine FLOOD PARK

County of San Mateo

COUNTY OF SAN MATEO CALIFORNIA



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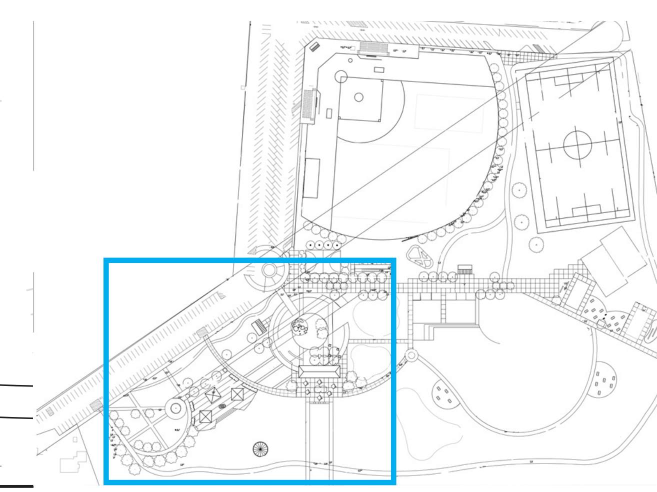

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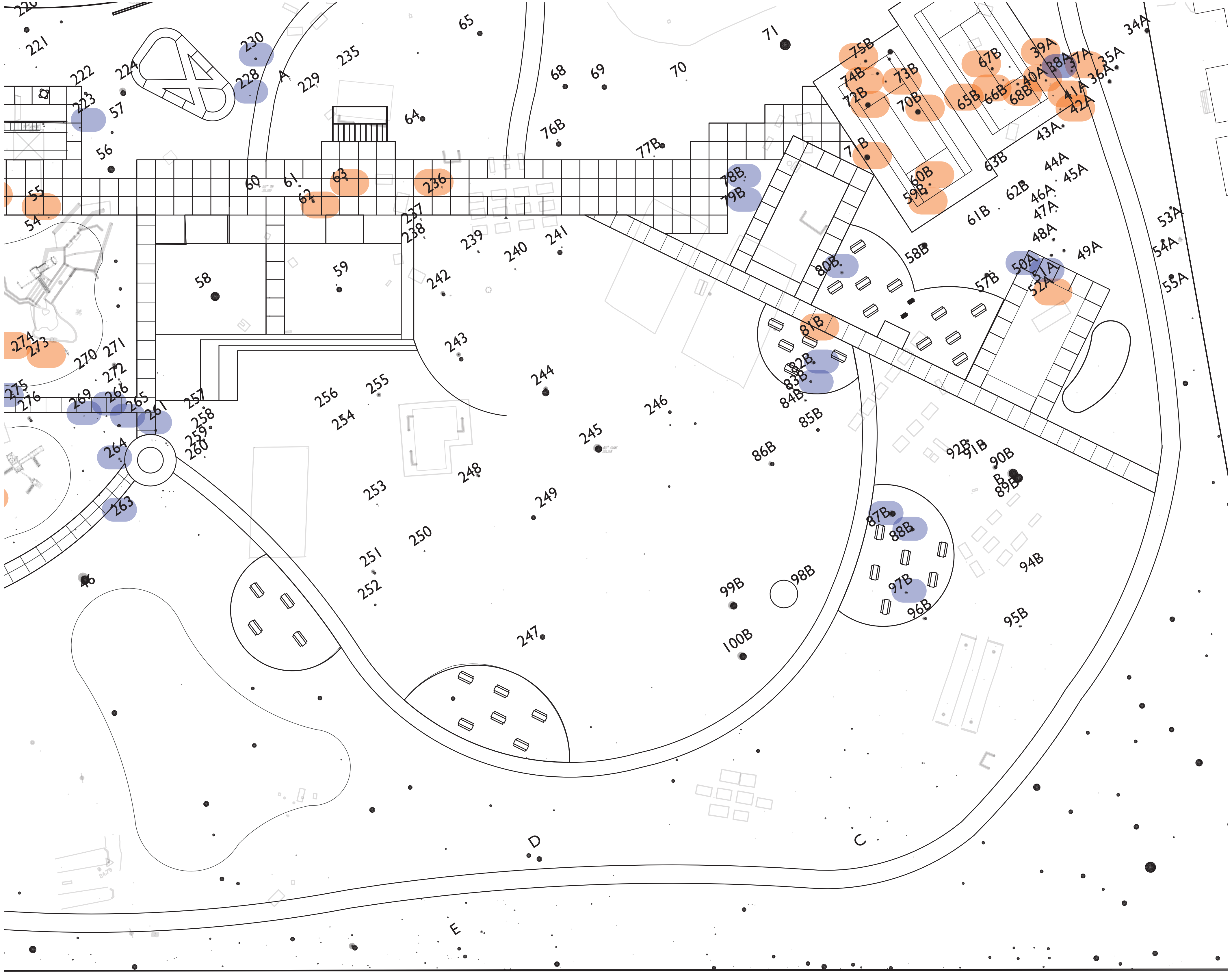
Re:imagine FLOOD PARK

County of San Mateo



LEGEND

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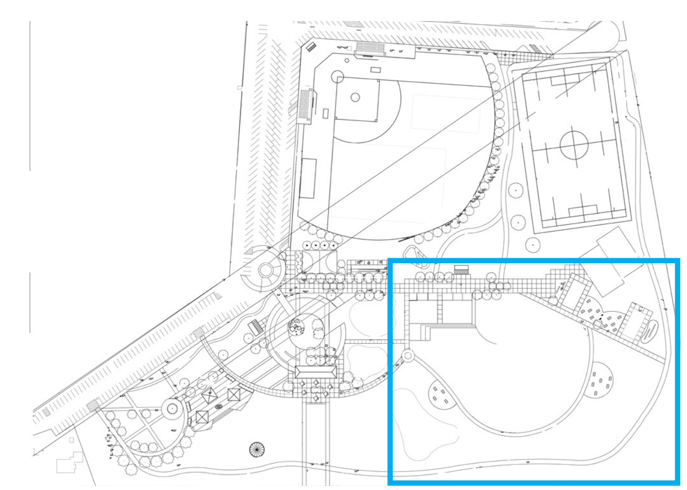

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Re:imagine FLOOD PARK County of San Mateo

COUNTY OF SAN MATEO CALIFORNIA

Tree Health Code Key:

A: Good health, minor problems

B: Health or structure compromised - monitor over time

C: Poor health or dead- consider removal

Tree No.	Botanical Name	Common Name	DBH (in.)	Circum-ference (in.)	Height (feet)	Health	Heritage Tree	Comments	Outcome
1	Quercus agrifolia	Coast Live Oak	31.5	99	36'	A	Yes		Remove
2	Quercus agrifolia	Coast Live Oak	16.6	52		A	Yes		
3	Quercus agrifolia	Coast Live Oak	10.2	32		A	Yes		
4	Quercus agrifolia	Coast Live Oak	19.7	62		A	Yes		Remove
5	Quercus agrifolia	Coast Live Oak	19.7	62		A	Yes		
6	Quercus agrifolia	Coast Live Oak	33.1	104		A	Yes		
7	Quercus agrifolia	Coast Live Oak	21.3	67		A	Yes		
8	Quercus agrifolia	Coast Live Oak	15.6	49		A	Yes		
9	Quercus agrifolia	Coast Live Oak	21.6	68		A	Yes		
10	Quercus agrifolia	Coast Live Oak	17.5	55		A	Yes		Potential to Preserve
11	Quercus agrifolia	Coast Live Oak	14.3	45		A	Yes		Potential to Preserve
12	Quercus agrifolia	Coast Live Oak	33.4	105		A-	Yes	High Branch-ing, Stressed Appearance	
13	Quercus agrifolia	Coast Live Oak	15.0	47		A	Yes	Multi-Trunk , 30" and 47"	Remove
14	Quercus agrifolia	Coast Live Oak	8.3	26		B	No	Some Bark Damage	
15	Quercus agrifolia	Coast Live Oak	10.8	34		A	Yes		
16	Ulmus genus	Elm Tree	15.0	47		B-	Yes	Leaning, Poor Structure	
17	Quercus lobabta	Valley Oak	40.4	127	60'	A	Yes	Old Growth	
18	Quercus lobabta	Valley Oak	8.0	25		A	No		Remove
19	Quercus agrifolia	Coast Live Oak	16.9	53		A	Yes		
20	Quercus lobabta	Valley Oak	35.0	110		A	Yes	Old Growth, High Branching	
21	Quercus agrifolia	Coast Live Oak	8.0	25		A	No	Young, Branch-ing at 5'	
22	Umbellularia californica	California Bay Laurel	3.5	11	15'	A	No	Competing with Surround-ing Native Oaks	Remove
23	Pistacia chinensis	Chinese Pistache	11.5	36	25'	A	No		Remove
24	Pistacia chinensis	Chinese Pistache	7.6	24		A	No		
25	Pistacia chinensis	Chinese Pistache	7.0	22		C	No	Canopy Conflicts with Native Oaks	
26	Pistacia chinensis	Chinese Pistache	9.5	30		B	No	Poor Branching Structure	Potential to Preserve
27	Quercus lobabta	Valley Oak	35.7	112		A	Yes	Old Growth	
28	Quercus agrifolia	Coast Live Oak	28.0	88	35'	A	Yes		
29	Acer genus	Maple	19.4	61					
30	Quercus lobabta	Valley Oak	18.5	58		C	Yes	Topped	
31	Quercus lobabta	Valley Oak	37.2	117	60'	A	Yes		
32	Quercus agrifolia	Coast Live Oak	43.6	137	80'	A+	Yes		
33	Quercus agrifolia	Coast Live Oak	35.3	111		A	Yes	Lost Tag, Major Broken Branch	
34	Quercus agrifolia	Coast Live Oak	43.6	137		A+	Yes		
35	Callitris genus	Pine	37.2	117	60'	A	Yes		
36	Quercus lobabta	Valley Oak	34.4	108	50'	B+	Yes	Some Cabling	
37	Quercus lobabta	Valley Oak	31.8	100		A	Yes		
38	Quercus lobabta	Valley Oak	43.0	135		A	Yes		
39			14.3	45	40'	A	No		
40			17.2	54		A	Yes		
41	Umbellularia californica	California Bay Laurel	58.3	183	60	A	Yes	Old Growth	
42	Arbutus unedo	Strawberry Tree	10.5	33		A-	No	Low Branching, Old Growth	
43	Platanus x aceri-foloa	London Plane Tree	19.1	60		A	Yes		
44	Arbutus unedo	Strawberry Tree	8.3	26		C	No	Near Dead	Remove
45	Quercus ilex	Holly Oak	15.3	48	25'	A	Yes		Remove
46	Quercus agrifolia	Coast Live Oak	58.9	185	70'	A	Yes	Fungus at Base, Cabling	
47	Umbellularia californica	California Bay Laurel	22.0	69		B	Yes	Lost Terminal Bud	Remove
48	Lithocarpus	Tanbark Oak	9.5	30		A	No	Competing with California Bay Laurel	Remove
49	Quercus lobabta	Valley Oak	41.4	130	60'	A	Yes	Old Growth, High Branching	Remove
50	Quercus lobabta	Valley Oak	22.6	71		A	Yes		Remove
51	Prunus caroliniana	Carolina Cherry Laurel	0.0				No		Remove
52	Pyrus calleryana	Callery Pear	15.9	50	25'	A	Yes		Remove
53	Pyrus calleryana	Callery Pear	16.6	52	25'	A	Yes		Remove
54	Pittosporum	Mock-Orange	6.7	21		A	No	Large, Multi-Trunk (9)	
55	Maytenus boaria	Mayten Tree	3.8	12		A	No	Low Branching	Remove
56	Quercus lobabta	Valley Oak	34.4	108		A	Yes	Leaning	
57	Quercus agrifolia	Coast Live Oak	16.9	53	35'	A	Yes		
58	Quercus agrifolia	Coast Live Oak	50.9	160	70'	A	Yes		
59	Quercus agrifolia	Coast Live Oak	35.7	112		A	Yes		

GATES +ASSOCIATES

Re:imagine FLOOD PARK County of San Mateo

Tree No.	Botanical Name	Common Name	DBH (in.)	Circum-ference (in.)	Height (feet)	Health	Heritage Tree	Comments	Outcome
60	Quercus agrifolia	Coast Live Oak	15.0	47	35'	A	Yes		
61	Quercus lobabta	Valley Oak	20.4	64	35'	A	Yes		
62	Quercus lobabta	Valley Oak	23.2	73	35'	A	Yes		Remove
63	Quercus agrifolia	Coast Live Oak	12.1	38	30'	A	Yes		Remove
64	Quercus lobabta	Valley Oak	33.1	104	55'	A	Yes		
65	Quercus lobabta	Valley Oak	34.4	108	60'	A	Yes	Cabling	
66	Quercus agrifolia	Coast Live Oak	45.8	144		A	Yes	Small, Shrub Form	
67	Quercus lobabta	Valley Oak	31.8	100	40'	A	Yes	Leaning	
68	Quercus lobabta	Valley Oak	35.7	112	60'	A	Yes		
69	Quercus agrifolia	Coast Live Oak	36.3	114	55'	A	Yes		
70	Quercus agrifolia	Coast Live Oak	3.8	12	15'		No		
71	Quercus lobabta	Valley Oak	31.2	98	60'	A	Yes	Canopy Lean-ing West, Double Trunk	
72	Quercus agrifolia	Coast Live Oak	42.0	132		A	Yes		
73	Quercus lobabta	Valley Oak	29.9	94	50'	A	Yes	Leaning North	
74	Quercus lobabta	Valley Oak	29.9	94		A	Yes	Double Trunk, Leaning North	
75	Quercus agrifolia	Coast Live Oak	25.1	79		A	Yes	Leaning East	
76	Quercus agrifolia	Coast Live Oak	45.8	144	60'	A	Yes	Canopy North	
77	Sequoia semper-virens	Coast Redwood	7.3	23	20'	A	No		
78	Sequoia semper-virens	Coast Redwood	35.3	111	80'	A	Yes	(3) Trunks	
79	Sequoia semper-virens	Coast Redwood	37.2	117		A	Yes		
80	Quercus agrifolia	Coast Live Oak	20.1	63		A	Yes		Potential to Preserve
81	Sequoia semper-virens	Coast Redwood	33.7	106		A	Yes		
82	Sequoia semper-virens	Coast Redwood	40.7	128		A	Yes		Remove
A	Platanus x aceri-foloa	London Plane Tree	0.0		40'	A			
B	Sequoia semper-virens	Coast Redwood	0.0		80	A			
C	Sequoia semper-virens	Coast Redwood	0.0		30				
D	Melaleuca	Honeymyrtle	0.0						
E	Mix: Quercus, Umbellularia, Photenia	California Bay Laurel	0.0			A			

Tree Health Code Key:

A: Good health, minor problems
B: Health or structure compromised - monitor over time
C: Poor health or dead- consider removal

F	Quercus agrifolia	Coast Live Oak	0.0			A			
57B	Umbellularia californica	California Bay Laurel	36.3	114		A	Yes		
58B	Quercus agrifolia	Coast Live Oak	26.7	84			Yes		
59B	Quercus agrifolia	Coast Live Oak	16.6	52			Yes		Remove
60B	Quercus agrifolia	Coast Live Oak	13.7	43			Yes		Remove
61B	Quercus agrifolia	Coast Live Oak	13.7	43		A-	Yes		
62B	Quercus agrifolia	Coast Live Oak	5.1	16		A-	No		
63B	Quercus agrifolia	Coast Live Oak	11.5	36		A-	Yes		
64B	Pittosporum	Mock-Orange	11.5	36		B+	No		
65B	Pittosporum	Mock-Orange	8.6	27		B-	No		Remove
66B	Pittosporum	Mock-Orange	8.6	27		B-	No		Remove
67B	Pittosporum	Mock-Orange	8.9	28		C	No		Remove
68B	Pittosporum	Mock-Orange	7.0	22		B-	No		Remove
69B	Quercus agrifolia	Coast Live Oak	13.4	42		A+	Yes		
70B	Quercus agrifolia	Coast Live Oak	28.6	90		A+	Yes		Remove
71B	Quercus agrifolia	Coast Live Oak	0.0			A		(12) Trunks	Remove
72B	Quercus agrifolia	Coast Live Oak	12.7	40		A+	Yes		Remove
73B	Quercus agrifolia	Coast Live Oak	11.1	35		A	Yes		Remove
74B	Quercus agrifolia	Coast Live Oak	17.5	55		A	Yes		Remove
75B	Quercus agrifolia	Coast Live Oak	17.2	54		A	Yes		Remove
76B	Quercus genus	Oak	34.4	108		B-	Yes	Declining Health	
77B	Quercus lobabta	Valley Oak	35.0	110		A+	Yes		
78B	Liquidambar styraciflua	American Sweet Gum	12.4	39		A	No		Potential to Preserve
79B	Liquidambar styraciflua	American Sweet Gum	7.3	23		A	No		Potential to Preserve
80B	Platanus x aceri-foloa	London Plane Tree	18.5	58		A	Yes		Potential to Preserve
84B	Sequoia semper-virens	Coast Redwood	15.0	47		A	Yes		
85B	Sequoia semper-virens	Coast Redwood	12.7	40		A	No		Potential to Preserve
86B	Sequoia semper-virens	Coast Redwood	12.7	40		A	No		
87B	Sequoia semper-virens	Coast Redwood	7.6	24		A	No		Potential to Preserve
88B	Fraxinus genus	Ash	22.0	69		A	Yes	Conflicts with Adjacent Red-woods	Potential to Preserve

Tree No.	Botanical Name	Common Name	DBH (in.)	Circum-ference (in.)	Height (feet)	Health	Heritage Tree	Comments	Outcome
89B	Fraxinus genus	Ash	5.1	16		A	No		
90B	Fraxinus genus	Ash	11.8	37		C	No		
91B	Sequoia semper-virens	Coast Redwood	4.8	15		A	No		
92B	Sequoia semper-virens	Coast Redwood	4.1	13		A	No		Potential to Preserve
93B	Sequoia semper-virens	Coast Redwood	4.8	15		A	No		
94B	Sequoia semper-virens	Coast Redwood	7.3	23		A	No		
95B	Sequoia semper-virens	Coast Redwood	14.0	44		A	No		Potential to Preserve
96B	Fraxinus genus	Ash	25.1	79		A	Yes	Bare	
97B	Fraxinus genus	Ash	18.5	58		A	Yes	Bare	Potential to Preserve
98B	Sequoia semper-virens	Coast Redwood	13.7	43		A	No		
99B	Sequoia semper-virens	Coast Redwood	10.8	34		A	No		
1A	Sequoia semper-virens	Coast Redwood	14.3	45		A	No		Remove
2A	Sequoia semper-virens	Coast Redwood	25.5	80		A	Yes		Remove
3A	Sequoia semper-virens	Coast Redwood	10.5	33		A	No		Remove
4A	Sequoia semper-virens	Coast Redwood	27.1	85		A	Yes		Remove
5A	Sequoia semper-virens	Coast Redwood	9.5	30		A	No		Remove
6A	Fraxinus genus	Ash	24.2	76		C	Yes	Bare, Some Splitting	Remove
7A	Sequoia semper-virens	Coast Redwood	18.1	57			Yes		Remove
8A	Sequoia semper-virens	Coast Redwood	22.0	69			Yes		Remove
9A	Quercus agrifolia	Coast Live Oak	17.2	54			Yes	Crowded by Redwoods	Remove
10A	Sequoia semper-virens	Coast Redwood	17.5	55			Yes		Remove
11A	Quercus agrifolia	Coast Live Oak	15.0	47			Yes		Remove
12A	Sequoia semper-virens	Coast Redwood	21.6	68			Yes		Remove
13A	Sequoia semper-virens	Coast Redwood	15.3	48			Yes		Remove
14A	Fraxinus genus	Ash	19.1	60			Yes		Remove

Tree Health Code Key:

A: Good health, minor problems

B: Health or structure compromised - monitor over time

C: Poor health or dead- consider removal

15A	Fraxinus genus	Ash	9.9	31			No	Bare, Crowd-ed, Multi Trunk	Remove
16A	Sequoia semper-virens	Coast Redwood	18.1	57			Yes		Remove
17A	Sequoia semper-virens	Coast Redwood	14.0	44			No		Remove
18A	Sequoia semper-virens	Coast Redwood	19.4	61			Yes		Remove
19A	Quercus lobabta	Valley Oak	4.8	15		A	No		Remove
20A	Quercus agrifolia	Coast Live Oak	3.5	11			No		Remove
21A	Sequoia semper-virens	Coast Redwood	21.0	66			Yes		Remove
22A	Sequoia semper-virens	Coast Redwood	20.7	65			Yes		Remove
23A	Sequoia semper-virens	Coast Redwood	9.5	30			No		Remove
24A	Sequoia semper-virens	Coast Redwood	10.8	34			No		Remove
25A	Sequoia semper-virens	Coast Redwood	9.2	29			No		Remove
26A	Quercus agrifolia	Coast Live Oak	22.3	70			Yes		Remove
27A	Sequoia semper-virens	Coast Redwood	20.1	63			Yes		Remove
28A	Sequoia semper-virens	Coast Redwood	10.8	34			No		Remove
29A	Sequoia semper-virens	Coast Redwood	18.8	59			Yes		Potential to Preserve
30A	Acer genus	Maple	8.6	27			No		Remove
31A	Acer genus	Maple	9.2	29			No		Remove
32A	Quercus genus	Oak	7.0	22			No		
33A	Arbutus unedo	Strawberry Tree	10.8	34			No	Poor	
34A	Quercus agrifolia	Coast Live Oak	22.6	71			Yes		
35A	Pittosporum undulatum	Victorian Box Pit-tosporum	10.5	33		B	No		
36A	Pittosporum undulatum	Victorian Box Pit-tosporum	9.2	29		B	No		
37A	Pittosporum undulatum	Victorian Box Pit-tosporum	6.0	19			No		Remove
38A	Pittosporum undulatum	Victorian Box Pit-tosporum	5.1	16			No		Potential to Preserve
39A	Pittosporum undulatum	Victorian Box Pit-tosporum	8.0	25			No		Remove

Tree Health Code Key:

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Tree No.	Botanical Name	Common Name	DBH (in.)	Circum-ference (in.)	Height (feet)	Health	Heritage Tree	Comments	Outcome
40A	Pittosporum undulatum	Victorian Box Pit-tosporum	7.3	23			No		Remove
41A	Sequoia semper-virens	Coast Redwood	3.2	10			No		Remove
42A	Pittosporum undulatum	Victorian Box Pit-tosporum	7.0	22			No		Remove
43A	Pittosporum undulatum	Victorian Box Pit-tosporum	7.0	22		C	No		
44A	Pittosporum undulatum	Victorian Box Pit-tosporum	8.9	28		B	No		
45A	Pittosporum undulatum	Victorian Box Pit-tosporum	8.3	26		C	No		
46A	Pittosporum undulatum	Victorian Box Pit-tosporum	7.6	24		B	No		
47A	Pittosporum undulatum	Victorian Box Pit-tosporum	8.9	28			No		
48A	Pittosporum undulatum	Victorian Box Pit-tosporum	8.0	25		C	No		
49A	Pittosporum undulatum	Victorian Box Pit-tosporum	9.9	31		B	No		
50A	Pittosporum undulatum	Victorian Box Pit-tosporum	8.3	26		C	No		Potential to Preserve
51A	Pittosporum undulatum	Victorian Box Pit-tosporum	8.0	25		B	No	Leaning East	Potential to Preserve
52A	Pittosporum undulatum	Victorian Box Pit-tosporum	9.9	31		C	No		Remove
53A	Quercus agrifolia	Coast Live Oak	29.9	94		A+	Yes		
54A	Acacia melanoxy-lon	Australian Black-wood	14.3	45		B	No	Crowded	
55A	Acacia melanoxy-lon	Australian Black-wood	35.7	112		A+	Yes		
56A	Pittosporum undulatum	Victorian Box Pit-tosporum	8.3	26		B	No		
81B	Platanus x aceri-foloa	London Plane Tree	15.3	48		A	Yes		
82B	Platanus x aceri-foloa	London Plane Tree	19.7	62		A	Yes		Potential to Preserve
83B	Platanus x aceri-foloa	London Plane Tree	14.3	45		A	No		Potential to Preserve
84B	Platanus x aceri-foloa	London Plane Tree	13.1	41		A	No		
85B	Quercus lobabta	Valley Oak	24.2	76		A	Yes		
86B	Callitris genus	Pine	33.1	104		B-	Yes		
87B	Quercus wislizeni	Interior Live Oak	8.3	26		B-	No	Appears Stressed	
88B	Quercus wislizeni	Interior Live Oak	8.3	26		B-	No		
89B	Sequoia semper-virens	Coast Redwood	36.6	115		A+	Yes		
90B	Sequoia semper-virens	Coast Redwood	12.1	38		A+	No		
91B	Sequoia semper-virens	Coast Redwood	21.6	68		A	Yes		Potential to Preserve
92B	Sequoia semper-virens	Coast Redwood	17.2	54		A	Yes		
93B	None	None							
94B	Umbellularia californica	California Bay Laurel	64.9	204		A+	Yes		Remove
95B	Prunus cerasifera	Purple Leaf Plum	9.5	30		C-	No		
96B	Platanus x aceri-foloa	London Plane Tree	17.2	54		A+	Yes		Remove
97B	Platanus x aceri-foloa	London Plane Tree	8.6	27			No		Remove
98B	Umbellularia californica	California Bay Laurel	69.7	219		A+	Yes		Remove
99B	Umbellularia californica	California Bay Laurel	44.2	139		A+	Yes		Remove
100B	Umbellularia californica	California Bay Laurel	42.0	132		A+	Yes		
216	Ligustrum	Privet60	86			C		Near end of life cycle, not healthy	
217	Ligustrum	Privet	67”			C			
218	Ligustrum	Privet	75”						
219	Ligustrum	Privet	75”						
220	Ligustrum	Privet	63”						
221	Grove	Lucense Cedar				C			
222	Zelkova	Water-elm	30”						
222A	Zelkova	Water-elm	27”						
222B	Zelkova	Water-elm	24”						
223	Quercus agrifolia	Coast Live Oak	27”						Potential to Preserve
224	Zelkova	Water-elm	6 Trunks 24” - 28”						
225	Pyrus	Pear Tree	20”						Remove
226	Pyrus	Pear Tree							Remove
227	Pittosporia Tobra	Mock-Orange	Multi 9 18” -24”						Remove
228	Sequoia semper-virens	Redwood	32”						Potential to Preserve

GATES +ASSOCIATES

Re:imagine FLOODPARK County of San Mateo

Tree No.	Botanical Name	Common Name	DBH (in.)	Circum-ference (in.)	Height (feet)	Health	Heritage Tree	Comments	Outcome
229	Quercus agrifolia	Coast Live Oak	22”						
229A	Quercus lobate	Valley Oak							
229B	Quercus Lobate	Valley Oak							
230	Sequoia semper-virens	Redwood							Potential to Preserve
248	Quercus agrifolia	Coast Live Oak	70”						
249	Pinus	Pine Tree	110”						
250	Quercus agrifolia	Coast Live Oak	43”						
251	Laurus genus	Bay	27”, 27”, 12”						
252	Quercus agrifolia	Coast Live Oak	12”, 36”, 12”						
253	Quercus Lobate	Valley Oak	19”						
254	Quercus agrifolia	Coast Live Oak	27”						
255	Quercus Lobate	Valley Oak	16”						
256	Quercus agrifolia	Coast Live Oak	28”						
257	Pinus canariensis	Canary Island Pine	76”						
258	Pseudotsuga menziesii	Douglas Fir	48”						
258A	Pinus nigra	Black Pine	63”						
260	Pinus sabiniana	Digger Pine	41”						
261	Quercus agrifolia	Coast Live Oak	55”						Potential to Preserve
262	Calocedrus genus	Incense Cedar	42”						
263	Laurus genus	Bay	41”						Potential to Preserve
264	Quercus agrifolia	Coast Live Oak	43”						Potential to Preserve
265	Quercus agrifolia	Coast Live Oak	78”						Potential to Preserve
266	Quercus agrifolia	Coast Live Oak	49”						Potential to Preserve
267	Quercus agrifolia	Coast Live Oak	42”						
268	Quercus agrifolia	Coast Live Oak	47”						
269	Quercus agrifolia	Coast Live Oak	35”						Potential to Preserve
270	Quercus agrifolia	Coast Live Oak	50”						
271	Quercus agrifolia	Coast Live Oak	72”						
272	Quercus agrifolia	Coast Live Oak	40”, 38”						
273	Sequoia semper-virens	Redwood	41”						Remove
274	Sequoia semper-virens	Redwood	63”						Remove
275	Sequoia semper-virens	Redwood	38”						Potential to Preserve
276	Sequoia semper-virens	Redwood							
277									
278									
279	Sequoia semper-virens	Redwood	38”						
280	Sequoia semper-virens	Redwood	44”						
281	Pistacia	Pistachio Tree	34”						
282	Pistacia	Pistachio Tree	23”						Remove
283	Pistacia	Pistachio Tree	31”					In Planter	
284	Pistacia	Pistachio Tree	38”					In Planter	
285	Pistacia	Pistachio Tree	27”						
286		Plaza Tree	29”						
287		Plaza Tree	14”						
288		Plaza Tree	21”						
290	None	None	None						
291	Laurus genus	Bay							
292	Quercus agrifolia	Coast Live Oak	47”, 47”, 50”					Keep	
293	Laurus genus	Bay	86”					Declining	
294	Quercus agrifolia	Coast Live Oak	45”					Keep	
295	Arbutus	Strawberry Tree	51”						

Tree Health Code Key:

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B: Health or structure compromised - monitor over time

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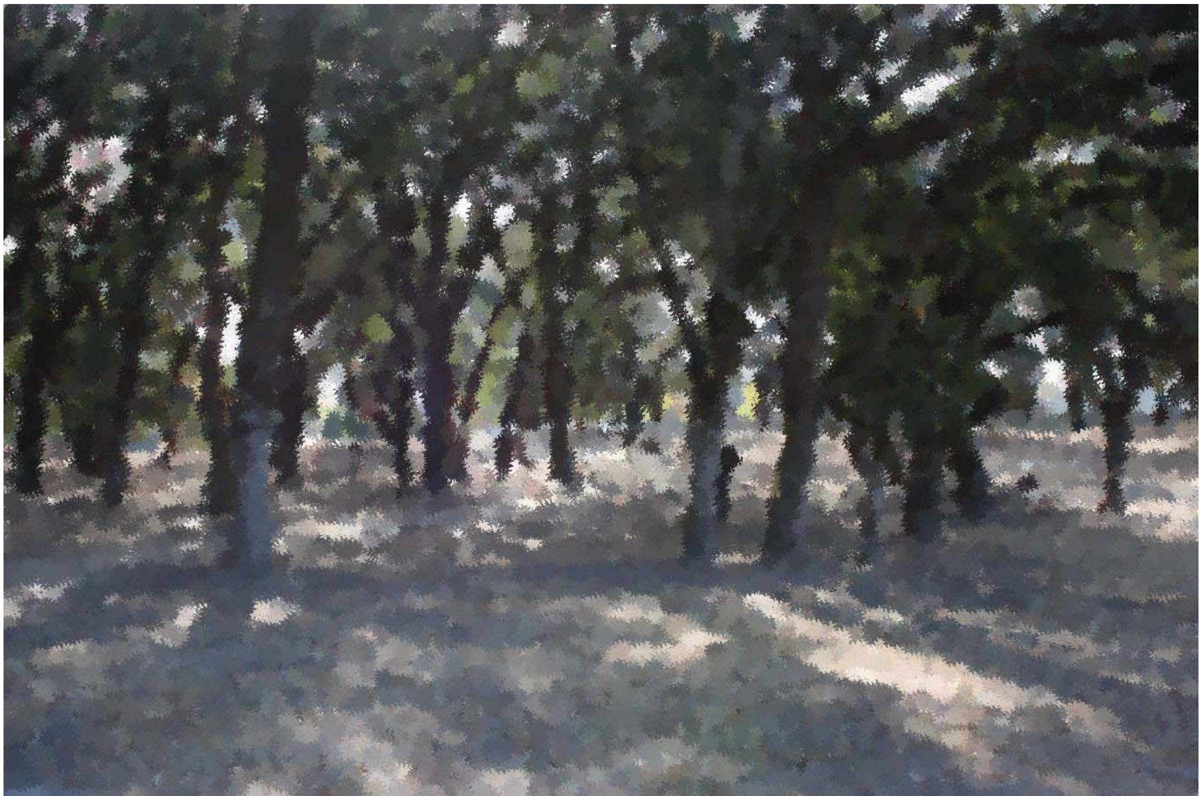
Re:imagine FLOOD PARK County of San Mateo

Appendix E

Cultural Resources Study



County of San Mateo, Flood County Park Landscape Plan

Cultural Resources Study
Technical Report

prepared for
County of San Mateo Parks Department
455 County Center, Fourth Floor
Redwood City, California 94063-1665

prepared by
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June 2017

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Management Summary

Purpose and Scope: Rincon Consultants, Inc. (Rincon) was retained by the San Mateo County Parks Department to perform a cultural resources study for the Flood County Park Landscape Plan Project in the City of Menlo Park, San Mateo County, California. This study included a cultural resources records search, Native American scoping, archival research, and a cultural resources field survey and evaluation. The project site corresponds with the 24.5-acre Flood County Park, located in the city of Menlo Park in San Mateo County. All activities were conducted in accordance with the requirements of the California Environmental Quality Act (CEQA) and all applicable local regulations.

Dates of Investigation: Staff at the Northwest Information Center (NWIC), located at Sonoma State University, conducted a California Historical Resources Information System (CHRIS) records search and sent Rincon the results on October 18, 2016. The results of a search of the Sacred Lands Files from the Native American Heritage Commission (NAHC) were received on October 13, 2016. Letters were sent to identified Native American groups and individuals on December 13, 2016. An intensive-level cultural resources survey of the project site was conducted an intensive archaeological pedestrian survey of the project area on November 22, 2016.

Summary of Findings: Background research identified 33 previous studies within a 0.5-mile radius of the project site. Of these, three included portions of the project site. Background research further identified seven previously recorded cultural resources; one of which, site P-41-001515 (Flood County Park), was within the project site. Recorded and evaluated in 1990, Flood County Park was found to be locally significant as one of the few remnants of open, public land from the period of the Flood estate and as the only WPA built structure in the Menlo Park. The CHRIS records search also indicated that Flood County Park was designated a California Point of Historical Interest in 1986 as an outstanding example of financial, material, and human resources during the Great Depression.

As a result of the intensive-level survey, one multi-feature built environment resource, Flood County Park, was recorded on California Department of Parks and Recreation (DPR) 523 series forms. Originally developed with support from the Works Progress Administration (WPA) in 1938, the park was evaluated for historic significance and recommended eligible for listing in the CRHR under Criteria 1 and 3 for its direct association with the WPA program in San Mateo County and its representation of a significant architectural type and method of construction; it is therefore considered a historical resource for the purposes of CEQA. The boundaries of the historical resource correspond with those of Flood County Park and its contributing historic elements are limited to five extant adobe buildings: the Ranger's House, an adobe maintenance building, an electrical building, the Park Office, and Restroom D.

Recommendations: No archaeological or tribal cultural resources were identified within the project site, and thus the Project would result in no impact to archaeological or tribal cultural resources. Although Rincon recommends no further archaeological resources work for the proposed Project at this time, the following measures should be implemented to reduce potential impacts to unanticipated archaeological and tribal cultural resources: cease all construction work in the event that unanticipated buried cultural deposits are encountered and contact a qualified archaeologist; follow Native American consultation procedures if a previously unidentified cultural resource is determine to be of Native American origin by the qualified archaeologist; and contact the San Mateo County Coroner if human remains are discovered.

As discussed above, Flood County Park is a historical resource for the purposes of CEQA. Many of the elements of the proposed multi-phased Project would result in no direct or indirect impacts to the characteristics of Flood County Park that convey the reasons for the historical significance, specifically the five extant adobe buildings. Development of new playing fields, recreational facilities, and ancillary buildings are consistent with the continued historic use of the resource and, therefore, would have limited potential to substantially change the overall setting of the park.

As currently proposed, the Project would involve demolition of one of the extant adobe buildings, Restroom D (Map Reference [MR] 15). Although this adobe building contributes to the significance of Flood County Park, it is one of five such buildings that do so and its loss would not materially impair the resource such that it would be unable to convey the reasons for its significance. To mitigate the loss of the single adobe building, the measures detailed in the following sections are recommended.

The seismic retrofit of the Park Office building (MR 7) could have the potential to negatively impact those characteristics of the building that convey the reasons for its significance. To ensure that the retrofit the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Standards) (Weeks and Grimmer 1995). A project that follows the Standards generally shall be considered as mitigated to a level of less than a significant impact on the historical resource (CEQA Guidelines Section 15064.5[b][3]).While the Standards present guidelines for four treatments (Preservation, Rehabilitation, Restoration, and Reconstruction), Rehabilitation is perhaps most frequently used as it provides the greatest flexibility for making alterations to a historic property in accommodating a compatible and contemporary use.

Incorporation of the following mitigation measures would reduce impacts to historical resources to less than significant: preparation of a historic documentation package that do the as-built and as-found condition of the buildings; and a Standards review to ensure the seismic work on the Park Office building (MR 7) is consistent with the Standards.

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Appendices

1 Introduction

Rincon Consultants, Inc. (Rincon) was retained by the San Mateo County Parks Department to perform a cultural resources study for the Flood County Park Landscape Plan Project (Project) in the City of Menlo Park, San Mateo County, California. This study included a cultural resources records search, Native American scoping, archival research, and a cultural resources field survey and evaluation. All activities were conducted in accordance with the requirements of the California Environmental Quality Act (CEQA) and all applicable local regulations.

1.1 Project Description

The project site comprises the 24.5-acre Flood County Park, located in the city of Menlo Park in San Mateo County (Figures 1 and 2). The proposed Project consists of a Landscape Plan for the long-term redevelopment of the park, which is anticipated to be implemented in three phases. Proposed improvements include the construction, replacement and alteration of new and existing athletic and other recreational facilities, as well as the development of new gardens, walkways and landscaping. The Project proposes seismically retrofit the Park Office and demolish Restroom D, which would be replaced with new restroom buildings. Grading activity would occur during Phase I of the proposed Project in the northern portion of the park and would be required primarily to raise the ground surface for construction of new facilities.

Figure 1 Project vicinity

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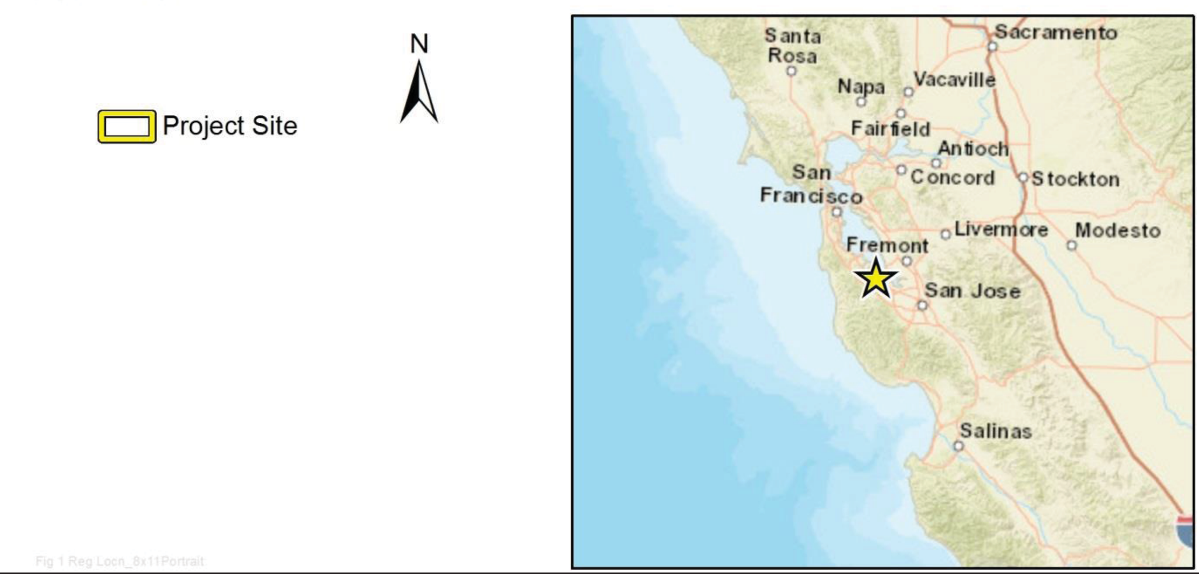
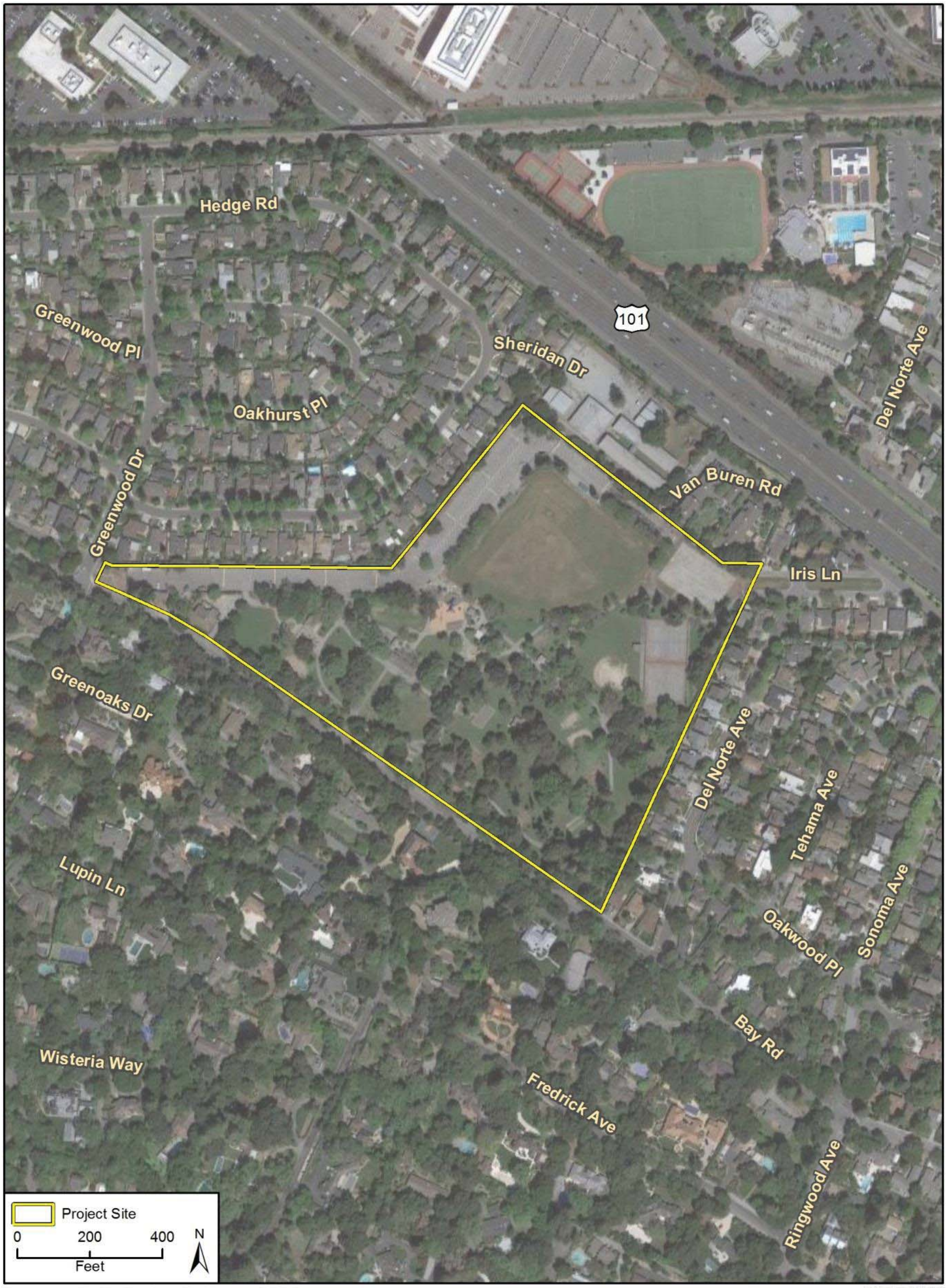


Figure 2 Project Location



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2 Regulatory Setting

This section discusses applicable federal, state, and local laws, ordinances, regulations, and standards governing cultural resources, which must be adhered to before and during implementation of the proposed Project.

2.1 Federal

The proposed Project does not have a federal nexus and, therefore, compliance with reference to the NHPA and other federal laws is provided here for informational purposes only. Projects that involve federal funding or permitting (i.e., have a federal nexus) must comply with the provisions of the National Historic Preservation Act of 1966 (NHPA), as amended (16 United States Code [U.S.C.] 470f). Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA through one of its implementing regulations, 36 Code of Federal Regulations (CFR) 800 (Protection of Historic Properties), as well as the National Environmental Policy Act (NEPA). Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of the NHPA. Other relevant federal laws include the Archaeological Data Preservation Act of 1974, American Indian Religious Freedom Act of 1978, Archaeological Resources Protection Act of 1979, and Native American Graves Protection and Repatriation Act of 1989.

The National Register of Historic Places was established by the NHPA of 1966 as “an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation’s cultural resources and to indicate what properties should be considered for protection from destruction or impairment” (CFR 36 CFR 60.2). The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if:

A. Is associated with events that have made a significant contribution to the broad patterns of our history; or
B. Is associated with the lives of persons significant in our past; or
C. Embodies the distinctive characteristics of a type, period, or method of installation, or represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
D. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting these criteria, a property must retain historic integrity, which is defined in National Register Bulletin 15 as the “ability of a property to convey its significance” (National Park Service 1990). In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

1. Location – the place where the historic property was constructed or the place where the historic event occurred;
2. Design – the combination of elements that create the form, plan, space, structure, and style of a property;
3. Setting – the physical environment of a historic property;
4. Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. Workmanship – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
6. Feeling – a property's expression of the aesthetic or historic sense of a particular period of time;
7. Association – the direct link between an important historic event or person and a historic property.

2.2 State

As the lead agency for the proposed Project, the San Mateo County Parks Department must comply with the provisions of the California Environmental Quality Act (CEQA), which requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1). A historical resource is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered historically significant if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important to our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, if a project can be demonstrated to cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC, Section 21083.2[a], [b], and [c]).

PRC, Section 21083.2(g) defines a unique archaeological resource as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

As of July 1, 2015, California Assembly Bill 52 of 2014 (AB 52) was enacted and expands CEQA by defining a new resource category, "tribal cultural resources." Assembly Bill 52 establishes that "A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3). PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and meets either of the following criteria:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. AB 52 requires that lead agencies "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

2.3 Local

Although the City of Menlo Park does not have a historic preservation ordinance with criteria for local designation, the General Plan, which was adopted in 2013, includes goals and polices relating to cultural resources (City of Menlo Park 1994). As presented in the Open Space/Conservation, Noise and Safety Element these include:

Goals

Goal OSC3 – Protect and enhance cultural and historical resources for their aesthetic, scientific, educational, and cultural values.

> It is the goal of Menlo Park to have protected and maintained historic buildings and archaeological resources as part of Menlo Park's cultural heritage. City policy has been to protect and build upon the historic character that exists in the City. City policy also protects known archeological resources to the maximum extent feasible.

Policies

OSC3.1 Prehistoric or Historic Cultural Resources Investigation and Preservation. Preserve historical and cultural resources to the maximum extent practical.

OSC3.2 Prehistoric or Historic Cultural Resources Protection. Require significant historic or prehistoric artifacts be examined by a qualified consulting archaeologist or historian for appropriate protection and preservation, and to ensure compliance with local, State and Federal regulations.

OSC3.3 Archaeological or Paleontological Resources Protection. Protect prehistoric or historic cultural resources either on site or through appropriate documentation as a condition of removal. Require that when a development project has sufficient flexibility, avoidance and preservation of the resource shall be the primary mitigation measure, unless the City identifies superior mitigation. If resources are documented, undertake coordination with descendants and/or stakeholder groups, as warranted.

OSC3.4 Prehistoric or Historic Cultural Resources Found During Construction. Require that if cultural resources, including archaeological or paleontological resources, are uncovered during grading or other on-site excavation activities, construction shall stop until appropriate mitigation is implemented.

OSC3.5 Consultation with Native American Tribes. Consult with those Native American tribes with ancestral ties to the Menlo Park city limits regarding General Plan Amendments and land use policy changes.

OSC3.6 Identification of Potential Historic Resources. Identify historic resources for the historic district in the Zoning Ordinance and require design review of proposals affecting historic buildings.

3 Cultural Setting

3.1 Prehistory

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes within all or portions of northern California (Jones and Klar 2007; Moratto 1984). Flood County Park lies within the San Francisco Bay Area archaeological region (Milliken et al. 2007; Moratto 1984). Following Milliken et al. (2007), the prehistoric cultural chronology for the San Francisco Bay Area can be generally divided into five periods: the Early Holocene (8,000-3,500 B.C.), Early (3,500-500 B.C.), Lower Middle (500 B.C. to A.D. 430), the Upper Middle (A.D. 430-1050), and the Late Period (A.D. 1050-Contact).

It is presumed that early Paleoindian groups lived in the area prior to 8,000 B.C. However, no evidence for that period has been discovered in the San Francisco Bay Area to date (Milliken et al. 2007). Because sea level was much lower prior to 8,000 B.C., it is likely that any such sites may now be underwater. For this reason, the terminal Pleistocene to earliest Holocene Period (ca. 11,700-8,000 B.C.) is not discussed here.

The earliest intensive study of the archaeology of the San Francisco Bay Area began with N. C. Nelson of the University of California, Berkeley, between 1906 and 1908. He documented over 425 shell mounds along the shores of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties. Nelson was the first to identify the Bay Area as a discrete archaeological region (Moratto 1984; Nelson 1909).

3.1.1 Early Holocene (8,000 - 3,500 B.C.)

The Early Holocene in the San Francisco Bay Area is characterized by a mobile forager pattern and the presence of millingslabs, handstones, and a variety of leaf-shaped projectile points, though evidence for this period is limited. It is likely that Holocene alluvial deposits buried many prehistoric sites in the area (Moratto 1984; Ragir 1972). Sites such as CA-CCO-696 and CA-CCO-637 in Contra Costa County are two of just a few sites dating to this period. The earliest date for the Early Holocene comes from the CA-CCO-696 at Los Vaqueros Reservoir (Milliken et al. 2007).

3.1.2 Early Period (3,500 - 600 B.C.)

The Early Period saw increased sedentism from the Early Holocene as indicated by new ground stone technologies (introduction of the mortar and pestle), an increase in regional trade, and the earliest cut-bead horizon. The first documentation of the mortar and pestle, dating to 3,800 B.C., comes from CA-CCO-637 in the Los Vaqueros Reservoir area. By 1,500 B.C., mortars and pestles had almost completely replaced millingslabs and handstones. A shift to a sedentary or semi-sedentary lifestyle is marked by the prevalence of mortars and pestles, ornamental grave associations, and shell mounds. The earliest cut bead horizon, dating to this period, is represented by rectangular *Haliotis* (abalone) and *Olivella* (snail) beads from several sites, including CA-CCO-637, CA-SCL-832 in Sunnyvale, and CA-ALA-307 in Berkeley (Milliken et al. 2007). The advent of the mortar and pestle indicate a greater reliance on processing nuts such as acorns. Faunal evidence from various sites indicates a diverse diet based on mussel and other shellfish, marine mammals, terrestrial mammals, and birds (D'Oro 2009).

3.1.3 Lower Middle Period (500 B.C. - A.D. 430)

The Lower Middle Period saw numerous changes from the previous period. Rectangular shell beads, common during the Early Period, disappear completely and are replaced by split-beveled and saucer *Olivella* beads. In addition to the changes in beads, *Haliotis* ornaments, bone tools and ornaments, and basketry awls indicating coiled basketry manufacture appeared. Mortars and pestles continued to be the dominant grinding tool (Milliken et al. 2007). Evidence for the Lower Middle Period in the Bay Area comes from sites such as the Emeryville shell mound (CA-ALA-309) and Ellis Landing (CA-CCO-295). CA-ALA-309 is one of the largest shell mounds in the Bay Area and contains multiple cultural sequences. The lower levels of the site, dating to the Middle Period, contain flexed burials with bone implements, chert bifaces, charmstones, and oyster shells (Moratto 1984).

3.1.4 Upper Middle Period (A.D. 430 - 1050)

Around A.D. 430, *Olivella* saucer bead trade networks established during earlier periods collapsed and over half of known sites occupied during the Lower Middle Period were abandoned. *Olivella* saucer beads were replaced with *Olivella* saddle beads. New items appear at sites, including elaborate, decorative blades, fishtail charmstones, new *Haliotis* ornament forms, and mica ornaments. Sea otter bones became more frequent from earlier periods (Milliken et al. 2007). Excavations at CA-ALA-309 have indicated a shift from oysters to clams at that site. Subsistence analysis at various sites dating to this period indicate a diverse diet that included various species of fish, mammal species, bird species, shellfish, and plant resources that varied by location within the Bay Area (Hylkema 2002).

3.1.5 Late Period (A.D. 1050 - Contact)

The Late Period saw an increase in social complexity, indicated by differences in burials, and an increased level of sedentism relative to preceding periods. Small, finely worked projectile points associated with bow and arrow technology appear around A.D. 1250. *Olivella* shell beads disappeared and were replaced with clamshell disk beads. The toggle harpoon, hopper mortar, and magnesite tube beads also appeared during this period (Milliken et al. 2007). This period saw an increase in the intensity of resource exploitation that correlates with an increase in population (Moratto 1984). Many of the well-known sites of earlier periods, such as the Emeryville shell mound (CA-ALA-309) and the West Berkeley site (CA-ALA-307) were abandoned, possibly due to fluctuating climates and drought that occurred throughout the Late Period (Lightfoot and Luby 2002).

3.2 Ethnographic Background

The project site is situated within a region historically occupied by the Costanoan (also known as the Ohlone) (Kroeber 1925). The term Costanoan is a linguistic designation for populations that spoke one of eight Costanoan languages. These languages are part of the Utian language family which is a member of the Penutian linguistic stock. Linguistic research has grouped these languages into four branches: 1) the

Karkin branch located in Carquinez Strait area; 2) the Northern Costanoan branch which consists of the Chocheno, Ramaytush, Tamyen, and Awaswas languages; 3) the Soledad (Cholon) branch; and 4) the Southern Costanoan branch, consisting of the Rumsen and Mutsun languages (Mithun 2001:535).

The Costanoan were organized into numerous tribelets. Each tribelet's territory contained a main village and smaller satellite villages. The villages were typically situated along a river or stream for easy access to water (Levy 1978:487). The tribelets functioned as political units that were structured by similarities in language and ethnicity, each holding claim to a designated portion of territory. Milliken (1995:229) was able to conduct a detailed examination of mission records, marriage patterns, and dialect variation seen in personal names and delineated 43 separate political entities (tribelets) in the San Francisco Bay, Santa Cruz, and inland area, with another six or so tribelets in the south Monterey Bay and Carmel Valley region. In general, Costanoan territory extended between the Carquinez Strait and San Pablo Bay on the north, southward along the coast beyond Monterey Bay to Carmel Valley, and inland to the coast range (Levy 1978:485). Neighboring groups included the Coast Miwok to the north, the Miwok and Northern Valley Yokuts to the east, and the Salinan and Esselen to the south.

Costanoan groups came into contact with European culture at the beginning of Spain's land exploration and settlement of Alta California in A.D. 1769. During the late 1700's and early 1800's, traditional lifeways were drastically altered when the Spanish placed their capital at Monterey, built forts at Monterey and San Francisco, and established seven Franciscan missions to convert native peoples to Christianity and the European way of life. During this time, large-scale epidemics swept through the mission population and remaining Costanoan villages (Milliken 1995). It is estimated that the combined Costanoan population decreased from a pre-contact total of 10,000 down to 2,000 by the end of the mission period in 1834 (Levy 1978:486). During the mission period, the dwindling Costanoan population also intermarried with other interior tribes at the missions, mixing their cultural identities.

During the late 1800s, several multi-ethnic Native American communities began to appear in Costanoan territory. The best known of these were located in Pleasanton, Monterey, and San Juan Bautista. However, even these groups continued to shrink as young people married into other groups and moved away. Estimates of the total remaining population of people with recognizable Costanoan descent were fewer than 300 in 1973 (Levy 1978:487).

Descendants of the Costanoan united in 1971 to form a corporate entity known as the Ohlone Indian Tribe. This entity was successful in obtaining title to the Ohlone Indian Cemetery where their ancestors who died at Mission San José are buried (Levy 1978:487). Since that time, other descendants of Costanoan tribelets, notably the Rumsen and Mutsun groups, have organized political and cultural heritage organizations that are active locally and statewide. All are concerned with revitalizing aspects of their culture, learning the language through notes collected by anthropologist John Harrington, and preserving the natural resources that played a vital role in traditional culture.

In addition, some Costanoan groups (namely the Amah-Mutsun Band of Mission Indians, Costanoan Band of Carmel Mission Indians, Costanoan Rumsen Carmel Tribe, the Indian Canyon Mutsun Band of Costanoan, and the Muwekma Ohlone Tribe) are seeking federal recognition of their tribe, petitioning the Bureau of Indian Affairs with reconstructed tribal histories and genealogies.

3.3 History

Post-European contact history for California is generally divided into three periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848–present).

3.3.1 Spanish Period (1769 - 1822)

Juan Rodriguez Cabrillo in 1542 led the first European expedition to observe what was known by the Spanish as Alta (upper) California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003). In 1769, Gaspar de Portolá and Franciscan Father Junipero Serra established the first Spanish settlement in Alta California at Mission San Diego de Alcalá. This was the first of 21 missions erected by the Spanish between 1769 and 1823. In addition to the missions four presidios and three pueblos (towns) were established throughout the state (State Lands Commission 1982). During his expedition, de Portola traveled to Sweeney Ridge in present day Pacifica (San Mateo County) and was the first European to identify San Francisco Bay. Following this discovery, San Pedro Valley Mission Outpost (1786-1793) of Mission Dolores was constructed in Pacifica.

During this period, Spain also deeded ranchos to prominent citizens and soldiers, though very few in comparison to the subsequent Mexican Period. To manage and expand their herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population (Engelhardt 1927a). The missions were responsible for administrating to the local Indians as well as converting the population to Christianity (Engelhardt 1927b). The influx of European settlers brought the local Native American population in contact with European diseases which they had no immunity against, resulting in a catastrophic reduction in native populations throughout the state (McCawley 1996).

3.3.2 Mexican Period (1822 - 1848)

The Mexican Period commenced when news of the success of the Mexican Revolution (1810-1821) against the Spanish crown reached California in 1822. This period saw the privatization of mission lands in California with the passage of the Secularization Act of 1833. This Act enabled Mexican governors in California to distribute mission lands to individuals in the form of land grants. Successive Mexican governors made more than 700 land grants between 1822 and 1846, putting most of the state’s lands into private ownership for the first time (Shumway 2006). About 22 land grants (ranchos) were located in San Mateo County. The City of Menlo Park and the project site is located on the Rancho de las Pulgas land grant originally given to Jose Dario Arguello in 1795 and then to Maria Soledad Ortega de Arguello in 1835 (Hoffman 1862).

The Mexican Period ended in early January 1848, following several decisive battles against the United States. On January 10, leaders of the Pueblo of Los Angeles surrendered peacefully after Mexican General Jose Maria Flores withdrew his forces. Shortly thereafter, newly appointed Mexican Military Commander of California Andrés Pico surrendered all of Alta California to US Army Lieutenant Colonel John C. Fremont in the Treaty of Cahuenga.

3.3.3 American Period (1848 - Present)

The American Period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico $15 million for the conquered territory, which included California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. Settlement of southern California continued to increase during the early American Period. Many ranchos in the county were sold or otherwise acquired by Americans, and most were subdivided into agricultural parcels or towns.

The discovery of gold in northern California in 1848 led to the California Gold Rush (Guinn 1977; Workman 1935:26) and California's population grew exponentially. During this time, San Francisco became California's first true city, growing from a population of 812 to 25,000 in only a few years (Rolle 2003). By 1853, the population of California exceeded 300,000. Thousands of settlers and immigrants continued to pour into the state, particularly after the completion of the transcontinental railroad in 1869. By the 1880s, the railroads had established networks throughout northern California, resulting in fast and affordable shipment of goods, as well as a means to transport new residents to the booming region (Dumke 1944).

3.3.4 City of Menlo Park

In 1854, Dennis J. Oliver and D. C. McGlynn purchased a 1,700-acre area and began to develop what would become Menlo Park (Menlo Park Chamber of Commerce 2014). Oliver and McGlynn built two homes with a shared entrance; across the driveway they erected a gate with tall arches and placed the name Menlo Park and the date August 1854 on it. The name Menlo likely originated from the name of the Menlough region in Ireland, where the two men were from. The name Menlo was not officially adopted however until the railroad extended to the area in 1868 and the station had no name and was in need of formal designation. A railroad official chose the name Menlo Park for the station and today this station is a California State Landmark No. 955 and the oldest California station in continuous operation.

After San Mateo County became independent from San Francisco County in 1856, a road was laid between the two counties that opened the area to settlement. Several large tracts in the area were subsequently sold to notable San Francisco businessmen looking to establish summer country homes, including Faxon Atherton, James C. Flood, John B. Felton, and Mark Hopkins Jr. (Menlo Park Chamber of Commerce 2014). The Hopkins' estate extended into Menlo Park and several structures were built including a general merchandise store, saloons, and working-man hotels. In 1874, Menlo Park became the second incorporated city in San Mateo County. The purpose for the incorporation was to quickly raise money for drainage repairs and railroad maintenance. However, Menlo Park was unincorporated two years later as a result of slow population growth (Menlo Park Chamber of Commerce 2014). Until World War I, Menlo Park comprised agricultural fields. The town was a center for strawberry farms as well as violets which were sold frequently in San Francisco. Much of these fields were located on the Hopkins' estate.

The area remained mostly agrarian until World War I, when almost overnight 43,000 soldiers began training at Camp Fremont located in Palo Alto and Menlo Park. Construction on the camp began in July 1917 in preparation for possible entry into World War I. The camp however was only functional until 1919 and was completely abandoned in 1920 with several buildings being sold at auction. During this boom in population, the first roads were constructed in Menlo Park by the 8th Division engineers and several new business and gas stations developed as a result of Camp Fremont (Kazak n.d.). Growth during this time prompted officials to reincorporate Menlo Park in 1927.

World War II and the decades that followed sparked major development in Menlo Park. Under the direction of city councilman Charles P. Burgess, the downtown area was revitalized through the widening and improvement of Santa Cruz Avenue and development of off-street parking lot programs (Kreuz 1974:53). Burgess then spearheaded development of a master plan for the city in 1952, which was adopted the following year and directed future uses within the city. Residential development was one of the primary focuses of the plan and was quickly realized, as the city’s population expanded to 26,957 by 1960 (Kreuz 1974:55). Growth continued into the early 1970s, and included the dedication the Civic Center complex and the Belle Haven Community Center at Kelly Park in 1971 and 1972 respectively. It was around this time, that the growth of technological industry and what would be known as Silicon Valley extended to include Menlo Park. Today, the area is well known as a hub for several technical industries including Facebook. The company recently opened a new facility in Menlo Park and is the largest employer in the area.

3.4 Environmental Setting

The project area is located near the southwestern Bay shore, in the flats east of the Santa Cruz Mountains. These mountains are part of the California Coast Ranges, a tectonic province dominated by active strike-slip and compressional tectonics. The flats ringing the Bay are separated from the main mass of the mountains by the San Andreas Fault, located west of the project area (Pampeyan 1993). The project area itself overlies primarily non-marine sedimentary rocks, comprising sandstones, siltstones, and shales that are up to 1.2 miles thick east of the San Andreas Fault (Brabb and Pampeyan 1983; Brabb et al. 1998; Brabb et al. 2000; Dibblee 1966; Dibblee and Minch 2007). These rocks range in age from Pliocene to Recent (ca. 5 million to present; Helley et al. 1994). Flood County Park consists of lawn areas, sports fields, paved parking lots, walking paths, and tennis courts. The site is generally flat with little to no topographic relief, though elevations range between approximately 14-25 feet above mean sea level. The park has a large assortment of native trees (e.g., valley oak, coast live oak, California bay laurel, and coast redwood). The park is also home to various species of birds and mammals. There are no surface water features within the park.

4 Background Research

4.1 Records Search

Rincon requested a review of the California Historical Resources Information System (CHRIS) at the Northwest Information Center (NWIC) to identify previously conducted cultural resources work within the Keiser Community Park project site and a 0.5-mile radius around it, as well as previously recorded cultural resources within or near the project site. The CHRIS search included a review of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. Rincon received the results of the records search on October 18, 2016.

4.1.1 Previous Cultural Resources Studies

The NWIC identified 32 previous studies within a 0.5-mile radius of the project site. Of these, two included portions of the project site (Table 1). Report S-032106 describes a small archaeological field study of an approximately 0.25-acre survey around the flagpole at Flood County Park. No resources were noted. Report S-040929 details the results of the Bay Division Pipeline Reliability Upgrade Project that involved the installation of 21 miles of 60-inch diameter welded-steel pipeline within an existing right-of-way of the San Francisco Public Utilities Commission. The Peninsula Segment Alignment was placed through the softball field and northwest parking lot of Flood County Park. No resources were recovered from the park.

Table 1 Previous Cultural Resource Studies within 0.5-miles of the Project Site

Report Number	Author	Year	Title	Relationship to Project Site
S-000848	David A. Fredrickson	1977	A Summary of Knowledge of the Central and Northern California Coastal Zone and Offshore Areas, Vol. III, Socioeconomic Conditions, Chapter 7: Historical & Archaeological Resources	Outside
S-001784	David Chavez	1979	Preliminary Cultural Resources Identification: San Francisco Bay study for Corps of Engineers Project	Outside
S-003021	Stephen A. Dietz	1976	An Archaeological Reconnaissance of the 100.6 Acre Raychem Corporation Properties in Menlo Park, California (letter report)	Outside

Report Number	Author	Year	Title	Relationship to Project Site
S-003146	Thomas F. King and Ronald Melander	1973	A Preliminary Inventory of Recorded Archaeological Resources in Pacific Gas & Electric Company's South bay Study Area, San Francisco Bay, California	Outside
S-003163	Stephen A. Dietz	1973	An Archaeological Reconnaissance of the Proposed Dumbarton Bridge Replacement Project (letter report)	Outside
S-003165	Archaeological Resource Management	1981	Cultural Resource Evaluation of the Menlo Place Project in the City of Menlo Park, County of San Mateo	Outside
S-006498	Matthew R. Clark, Miley Paul Holman, and Randy S. Wiberg	1983	Archaeological Investigations at CA-SMA-242, the Johnson & Johnson "Bandaid Site", Menlo Park, San Mateo County, California	Outside
S-006508	Miley Paul Holman	1984	A Report of Further Auguring at the Johnson & Johnson Project Area, Menlo Park, California	Outside
S-007346	Janis K. Offerman	1985	Negative Archaeological Survey Report, Landscaping Project Along Routes 84 and 101 in San Mateo and Alameda Counties, 04- SM/Ala-101, 84, 04253-033231	Outside
S-009462	Teresa Ann Miller	1977	Identification and Recording of Prehistoric Petroglyphs in Marin and Related Bay Area Counties	Outside
S-009580	Randall T. Milliken	1983	The Spatial Organization of Human Population on Central California's San Francisco Peninsula at the Spanish Arrival	Outside
S-009583	David W. Mayfield	1978	Ecology of the Pre-Spanish San Francisco Bay Area	Outside
S-015529	Robert L. Gearhart II, Clell L. Bond, Steven D. Hoyt, James H. Clelan, James Anderson, Pandora Snethcamp, Gary Wesson, Jack Neville, Kim Marcus, Andrew York, and Jerry Wilson	1993	California, Oregon, and Washington: Archaeological Resource Study	Outside
S-018217	Glenn Gmoser	1996	Cultural Resource Evaluations for the Caltrans District 04 Phase 2 Seismic Retrofit Program, Status Report: April 1996	Outside
S-022178	Robert Cartier	1999	Cultural Resource Evaluation for 1.5 Acres of Land at 260 Van Buren Avenue in the City of Menlo Park, County of San Mateo	Outside

Report Number	Author	Year	Title	Relationship to Project Site
S-024987	Colin Busby	2001	Archaeological Literature Search-HOV Lanes (letter report)	Outside
S-026045	Richard Carrico, Theodore Cooley, and William Eckhardt	2000	Cultural Resources Reconnaissance Survey and Inventory Report for the Metromedia Fiberoptic Cable Project, San Francisco Bay Area and Los Angeles Basin Networks	Outside
S-029305	Miley Paul Holman	2004	Cultural Resources Study of the Clarum Homes/Hamilton Park Project, Menlo Park, San Mateo County, California (letter report)	Outside
S-030281	Historic Resource Associates	2004	Cultural Resources Study of the Ringwood Avenue Project, AT&T Wireless Services, Site No. SNFCCA1778, Right of Way at 800 Ringwood Avenue, Ringwood Avenue at Fredrick Court, Menlo Park, San Mateo County, California 94025	Outside
S-032106	Scott Billat	2006	New Tower ("NT") Submission Packet, FCC Form 620, Flood Park Flagpole, SF-15880A	**Within**
S-32596	Randall Milliken, Jerome King, and Patricia Mikkelsen	2006	The Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area, Cultural Resources Inventory of Caltrans District 4 Rural Conventional Highways	Outside
S-033600	Jack Meyer and Jeff Rosenthal	2007	Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4	Outside
S-035461	Gary S. Breschini	1998	An examination of a burial discovered in Los Altos (letter report)	Outside
S-036439	Lorna Billat	2009	New Tower ("NT") Submission Packet, FCC Form 620, PGE Cap 523 Bay Road, SF-53936A	Outside
S-036481	Adrian Whitaker, Phil Kaijankowski, Jack Meyer, and Brian Byrd	2009	Archaeological Survey Report for the Dumbarton Rail Corridor Project, San Mateo and Alameda Counties, California	Outside
S-038063	Neal Kaptain	2009	Smart Corridors Geoarchaeological Sensitivity Research (letter report)	Outside
S-038684	Stacy Kozakavich and Alexandra Merritt-Smith	2008	A Cultural Resources Study for the San Mateo County SMART Corridors Project, San Mateo County, California	Outside

Report Number	Author	Year	Title	Relationship to Project Site
S-039469	Neal Kaptain	2012	Historical Resources Compliance Report for the San Mateo County SMART Corridors Project, Segment III, Redwood City, Atherton, Menlo Park, East Palo Alto, and Palo Alto, San Mateo County & Santa Clara County, California; EA #4A9201; EFIS #0400001169, Caltrans District 4; SR 82 PM SM 0/4.8, SCL 24.1/26.4; SR 84 PM 24.6/28.7; US 101 PM 0.7/5.5; SR 109 PM 1.10/1.87; SR 114 PM 5.0/5.93	Outside
S-039604	Adrian Whitaker, Phillip Kaijankoski, Jack Meyer, Brian Byrd, and Sharon Waechter	2012	Archaeological Survey Report for the Dumbarton Rail Corridor Project, San Mateo and Alameda Counties, California	Outside
S-040929	Basin Research Associates, Inc.	2013	Archaeological Data Recovery Report (SMA-83) (ADRR) and Final Archaeological Resources Report (FARR), San Francisco Public Utilities Commission, Water System Improvement Program, Bay Division Pipeline Reliability Upgrade Project, East Bay and Peninsula Bay Division Pipeline No. 5, Alameda and San Mateo Counties, California	**Within**
S-042003	Ellen Joslin Johnck	2008	The South Bay Salt Pond Restoration Project: A Cultural Landscape Approach for the Resource Management Plan	Outside
S-047187	Daniel Shoup	2015	Cultural Resources Survey Report, SR-84 (Bayfront Expressway) Intersection Improvements Project, Chilco Street/Bayfront Expressway and Chrysler Drive/Bayfront Expressway, Menlo Park, San Mateo County	Outside

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4.1.2 Previously Recorded Cultural Resources

The NWIC records search additionally identified seven previously recorded cultural resources; one of which, site P-41-001515 (Flood County Park), is within the project site (Table 2). Flood County Park was recorded and evaluated for historical significance in 1990 by L. Wickert. At that time the park was described to appear largely as it does today and found to be locally significant as one of the few remnants of open, public land from the period of the Flood estate and as the only WPA built structure in the Menlo Park area (Wickert 1990). Included in the NWIC file for 41-001515 is California Departments of Recreation documentation for Flood County Park, identifying the resource as a California Point of Historical Interest. The property was officially designated in 1986 and found significant as an outstanding example of financial, material, and human resources during the Great Depression.

Table 2 Previously Recorded Resources within 0.5-miles of the Project Site

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to APE
P-41-000270	CA-SMA-275	Prehistoric site	Habitation site	Bocek, 1987; Christopher Canzonieri 2013	Recommended ineligible for the	Outside
P-41-000282	CA-SMA-242	Prehistoric site	Habitation site with potential for burials	R.S. Wiberg, M.R. Clark, Holman & Associates 1983; Adrian Whitaker, Far Western 2008	Unknown	Outside
P-41-000438	CA-SMA-351	Prehistoric site	Habitation site with burials	Gary S. Breschini 1998	Presumed eligible	Outside
P-41-001515	N/A	Historic buildings and structures	Flood County Park; California Point of Historical Interest SPHI-SMA-032	Anna G. Eshoo 1986; L. Wickert 1990	Recommended eligible	**Within**
P-41-002351	N/A	Historic District	Ravenswood Salt Works District	Lou Ann Speulda-Drews, Nick Valentine, Ellen Joslin Johnck, US Fish & Wildlife 2007	Ineligible	Outside
P-41-002415	CA-SMA-425	Prehistoric site	Habitation site or temporary camp	T. Garlinghouse, Albion Environmental, Inc. 2015	Unknown	Outside
P-41-002450	N/A	Historic building	150 Jefferson Drive; one story commercial building	JulieAnn Murphy, MIG, Inc.	Unknown	Outside

Source: Northwest Information Center 2016

4.2 Native American Scoping

Rincon contacted the Native American Heritage Commission (NAHC) to request a Sacred Lands File (SLF) search of the project site and a 0.5-mile buffer surrounding it. The purpose of the SLF search is to identify lands or resources important to Native Americans, and to assess the potential for project-related development to impact tribal cultural resources. The NAHC responded on October 13, 2016, stating that the SLF search was returned with negative results. However, the NAHC noted that the absence of specific site information in the SLF does not negate the possibility of important cultural resources existing within the project area. The NAHC additionally provided a list of Native American individuals and tribal organizations that may have knowledge of cultural resources in the area. Letters were sent via email to the five Native American individuals identified by the NAHC on December 13, 2016 (Appendix B). At the time of completion of this report, no responses had been received.

5 Methods

5.1 Field Survey

Rincon Archaeologist Kyle Brudvik, M.A., Registered Professional Archaeologist (RPA) and Senior Architectural Historian Steven Treffers, M.H.P. conducted intensive archaeological and historic resources field surveys of the project site on November 22, 2016. The field survey for archaeological resources (by Mr. Brudvik) consisted of walking closely-spaced transects (spaced no greater than 15 meters apart) to examine all areas of exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock [FAR]), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows, cut banks, and drainages were visually inspected. Mr. Brudvik documented the fieldwork using field notes and digital photographs. The field survey of the historic structures (by Mr. Treffers) consisted of a visual inspection of all built environment features on the property, including buildings, structures, and associated features to assess their overall condition and integrity, and to identify and document any potential character-defining features. Mr. Treffers documented the field survey using field notes and digital photographs. Copies of the field notes and digital photographs from both surveys are on file with Rincon's Oakland office.

5.2 Archival Research

Archival research was completed between October and December 2016. Research methodology focused on the review of a variety of primary and secondary source materials relating to the history and development of the property. Sources included, but were not limited to, historical maps, aerial photographs, and written histories of the area. The following repositories, publications, and individuals were contacted to identify known historical land uses and the locations of research materials pertinent to the project site:

- San Mateo County Historical Society Archives at the Menlo Park Public Library
- San Mateo County Parks Archives Collection at the San Mateo County History Museum
- Historic aerial photographs from the U.C. Santa Cruz Digital Collections
- Sanborn Fire Insurance Company Maps
- Historic United States Geological Survey topographic maps
- Historic archives of *The Times* and *the San Francisco Chronicle*
- Digital database of the National Register of Historic Places, National Park Service
- Digital collections of Standard University

- San Francisco Historical Photograph Collection, San Francisco Public Library
- Online Archive of California
- Calisphere, University of California
- Digital Public Library of America
- Samuel Herzberg, Senior Planner at the San Mateo County Parks Department
- Jay Corriea, State Historian III at the California Office of Historic Preservation
- Pam Noyer, former Supervisor of Flood County Park, San Mateo County Parks Department
- Stephen Kraemer, current Park Ranger at Flood County Park, San Mateo County Parks Department
- Gray Brechin, Ph.D., Project Scholar for The Living New Deal
- Other sources as noted in the references list

6 Findings

6.1 Archaeological Resources

The project site is within a developed, urban context and consists of Flood County Park and its associated activity fields and infrastructure. The project site is traversed by Starr Creek and is bounded on the north by Windsor River Road, on the south by Windsor High School, and on the east and west by residential developments. Existing conditions in the park include an oak tree grove with walking paths, five baseball fields with bleachers and parking, restroom facilities, and general parking, and the project site has been heavily disturbed by previous development. Visibility was variable, nearing 0 percent in paved areas with patches of low visibility (approximately 2 percent) in grassy areas interspersed with areas of moderately good (approximately 25 percent) in areas with little vegetation or patchy dirt cover. No evidence of prehistoric or historic archaeological materials was identified during the pedestrian survey.

6.2 Built Environment/Historical Resources

As a result of the intensive-level architectural survey, one built environment resource, Flood County Park, was recorded on California Department of Parks and Recreation (DPR) 523 Series forms and evaluated for listing in the NRHP and CRHR. Described in greater detail below, this multi-feature resource is an approximately 21-acre county park. The complete set of DPR 523 Series forms for Flood County Park can be found in Appendix C of this report.

6.2.1 Flood County Park

Flood County Park is located in the east-central portion of San Mateo County, within the city limits of Menlo Park. Generally, the park is situated between Bay Road to the south and the Bayshore Freeway to the north, Del Norte Avenue to the east and Hedge Road to the west. The park is surrounded by residential neighborhoods on all four sides, as well as an elementary school campus on the north. The park has an irregular configuration, and features paved surface parking lots along the majority of its western and northern edges.

Constructed in phases from the mid-1930s through the early 2000s, Flood County Park currently contains a variety of support buildings and structures, in addition to baseball and softball fields, tennis and volleyball courts, a pétanque court, horseshoe pits, playground equipment, paved paths, large expanses of lawn, barbecues, and picnic benches.

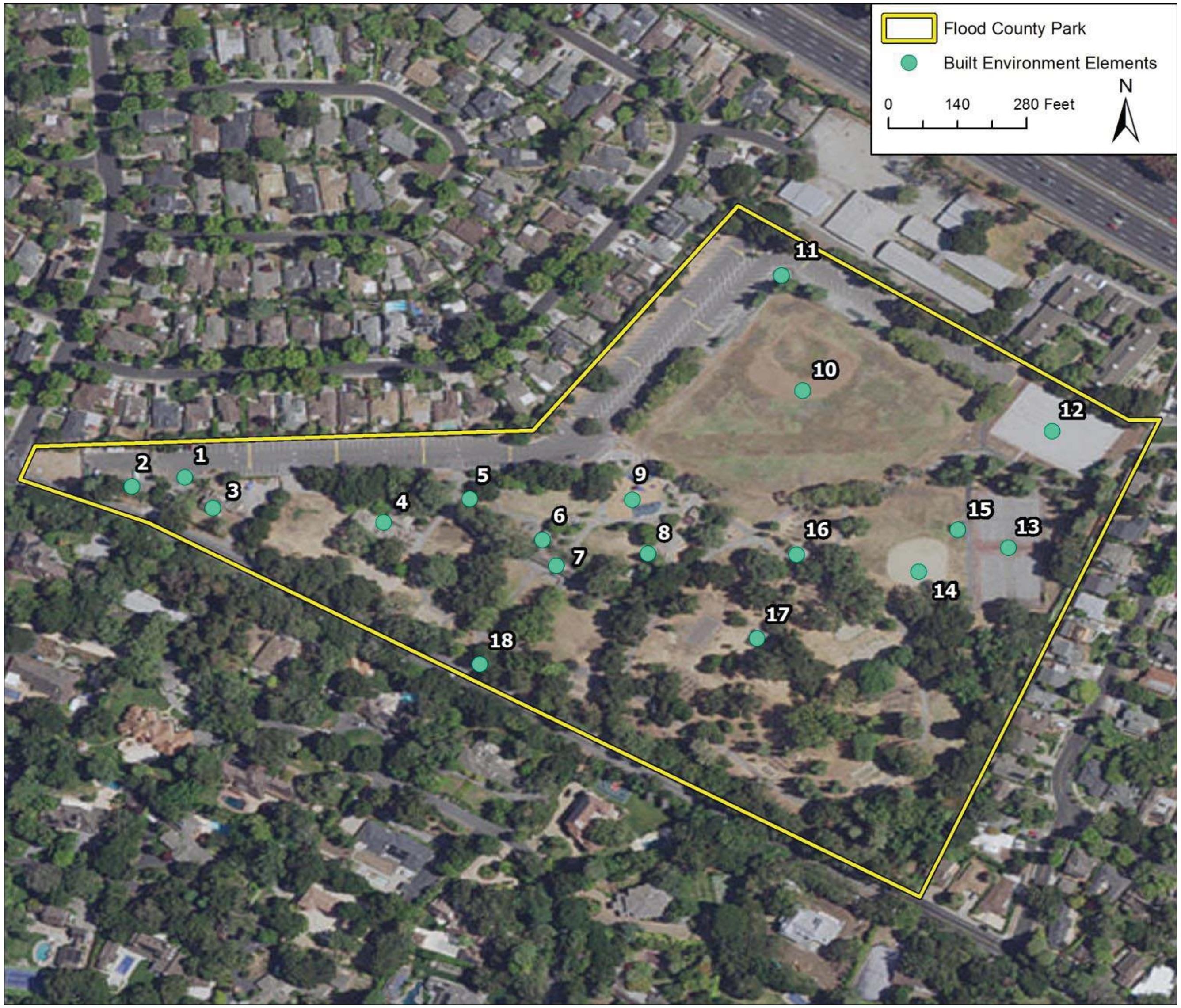
The identified built environment resources within Flood County Park are as follows (Table 3; Figure 3):

Table 3 Built Environment Resources of Flood County Park

Map Reference	Built Environment Resource	Construction Date
1	Ticket Office	ca. 1960s

Map Reference	Built Environment Resource	Construction Date
2	Maintenance Building	Unknown; moved ca. 1980s
3	Ranger’s House	1938
4	Oak Shelter Picnic Area	ca. 1988
5	Adobe Maintenance Building	ca. 1938
6	Restroom A	ca. 1988
7	Park Office	ca. 1938
8	Electrical Building	ca. 1938
9	Play Area	ca. 1988
10	Baseball Field	ca. 1945
11	Baseball Field Restroom	2003
12	Petánque Court	ca. 1988
13	Tennis Courts	ca. 1942
14	Softball Field	ca. 1942
15	Restroom D	ca. 1938
16	Restroom B	2003
17	Restroom C	ca. 1960s/1980s
18	Adobe Entrance Wall	ca. 1938

Figure 3 Built Environment Elements of Flood County Park



Located at the entrance at the southwestern corner of the property off Bay Road is the ticket booth (Map Reference [MR] 1; Figure 4). Constructed in the 1960s, it is a small, one-story, rectangular structure clad with vertical wood siding. It features a medium-pitched gable roof with overhanging eaves and exposed rafter tails, clad with composite shingles. The structure has openings on all four elevations that have been covered over and secured with padlocks. A solid, single entry door exists on the east elevation.

Figure 4 Ticket booth, facing northwest

Also constructed circa 1960s, the maintenance building (MR 2; Figure 5) is located immediately to the west of the entrance and is a one story building that is roughly rectangular in plan and clad with horizontal wood siding. It has an overhanging slanted roof – on approximately half of the building it slants down to the south and on the other half it slants down towards the north. Rafter ends are covered with a fascia board. Fenestration includes ribbon windows on the north and south elevations, which appear to be awning or hopper windows. A single small window exists on the east elevation. The north elevation contains two entries: one is a single entry door featuring a large rectangular pane in the center; the other is a double-door entry. The windows in each door have been covered over. A small rectangular plan, corrugated metal storage shed is also located on the opposite side of a small parking lot immediately north of the maintenance building.

Figure 5 Maintenance building, facing west

To the east of the entrance is the Ranger's House (MR 3; Figure 6). The one-story residential building was constructed in the late 1930s of adobe blocks and is rectangular in plan, with a low-pitched gabled roof that is clad in wooden shingles. It has slightly overhanging eaves and exposed rafter tails, some of which are decoratively carved. The primary entry on the south elevation consists of a single entry door made of vertical wooden boards, iron braces and hardware. It is covered by a small shed roof that is supported by curved brackets and covered with wooden shingles. Adjacent to the entry is a chimney also clad with adobe blocks. The building features recessed windows of various sizes, surrounded by wooden framing and lintels above. Some of the window sills are covered with red tile. Attached at the northeast corner of the residence is a small one-story garage, also constructed of adobe blocks. It is one story, rectangular in plan with a flat roof and parapets and contains two non-original, roll-up, paneled garage doors. The residence features a driveway off of Bay Road and a paved parking lot to the rear (north), and is largely enclosed by an adobe masonry wall that has had some sections removed and replaced with wood.

Figure 6 Ranger's House, facing north

The Oak Shelter picnic area (MR 4; Figure 7) is located east of the Ranger's House. Constructed in 1988, the picnic area consists of a large paved area with various picnic benches and two modern roof shelters. Each roof shelter is roughly square in shape, with a hipped roof, slightly overhanging eaves and exposed rafter tails. The corner supports are square concrete pillars and the roof is composed of glued laminated timber beams and wooden slats. Throughout are typical metal and wood picnic tables with benches, as well as concrete tables. The picnic area also contains barbecues and old growth trees surrounded by low wood rail fences.

Figure 7 Oak Shelter picnic area, facing west

North of the Oak Shelter picnic area is an adobe maintenance building, which was originally constructed as a restroom in the late 1930s (MR 5; Figure 8). the maintenance building is a one-story, structure that is rectangular in plan; it is constructed of adobe blocks and capped by a hipped roof with overhanging eaves and exposed rafter tails that is clad in wooden shingles. Wood doors appear to be original and are made of wide vertical wooden boards and iron hardware, with wooden lintels above. The rectangular window openings contain metal screens.

Figure 8 Adobe maintenance building, facing west

Constructed in 1988, Restroom A (MR 6; Figure 9) is located to the southeast of the adobe maintenance building. The one-story building is rectangular in plan and clad in stucco with wooden posts at the corners of the building and wooden base boards. The building has a hipped roof with overhanging eaves and exposed rafter tails. The roof is clad with wooden shingles and punctuated by flat skylights on the southeast side of the building. The building does not contain any windows, but contains a single entry door on the northwest elevation. The southeast elevation contains the entries to the two restrooms, which are screened by wooden privacy walls; the entry doors are styled as barn doors.

Figure 9 Restroom A, facing west

Adjacent to the east of Restroom A is the park office (MR 7; Figure 10), which was originally constructed in the late 1930s as entrance building to a no longer extant swimming pool to the north. The one-story, rectangular in plan building is constructed of adobe block. It features a hipped roof with overhanging eaves and exposed rafter tails, which is clad in wooden shingles. The ridgeline is punctuated by two chimneys that are currently covered by painted plywood. Originally the building featured open breezeways on the northeast and southwest elevations; however, these openings were infilled with wood windows and doors in the 1960s or 1970s. A centered entry is flanked by windows on each side and a ribbon of transom windows above. On the southwest elevation the wood cladding consists of vertical board and batten, and the windows are wood-framed with four panes each. On the northeast elevation the cladding is horizontal siding and the windows are all single pane with wooden framing. The single entry doors on both elevations feature one large vertical pane. While the planters under the windows on the southwest elevation appear to be original, the planters on the northeast elevation appear to be of more recent construction. The northwest elevation contains an original entry comprised of a single door made of wood with metal bracing, and a wooden lintel above. The door has contemporary hardware and a protective rubber strip across the bottom. A sign hung from the rafter tails above announces the San Mateo County Parks and Recreation Foundation Office. The building features various recessed, wood-framed windows, including a horizontal tripartite window, and vertical casement windows that have ornamental concrete surrounds. A window on the southeast elevation is covered by wooden shutters. Many of the window sills are covered with red tile.

Figure 10 Park office, facing northwest

A small rectangular building northeast of the Park Office, the electrical building (MR 8; Figure 11) is constructed of adobe block and has a flat concrete roof. There are punctured concrete blocks below the roofline, likely for ventilation. The building contains a single door which appears to be made of wood with iron hardware. Repairs to the structure are visible at places, such as concrete patching at one of the corners.

Figure 11 Electrical building, facing west

North of the electrical building and Park Office is the play area (MR 9; Figure 12), which is in the location of the no longer extant pool, which was removed in the 1970s. The play area replaced a subsequent petánque court and was installed in the 1980s. The play area features a playground area with play equipment, sand boxes constructed of concrete, and a shade structure built of concrete columns and a wood canopy.

Figure 12 Play area, facing north

The primary baseball field (MR 10; Figure 13) is situated to the north of the play area. It features major league dimensions with a chain link home run fence with a range of 350 feet. A wood and chain link fence backstop is behind (northwest of) the diamond, which is currently overgrown with grass. Wood bleachers are located on either side of the infield. Immediately to the northwest of the backstop is the baseball field restroom (MR 11). Constructed circa 2003, the restroom is a prefabricated one-story building with a rectangular plan. Its low-pitched gabled roof is clad with composite shingles and is punctured by domed skylights. The building has small, rectangular windows and solid, single entry doors.

Figure 13 Baseball field, facing northeast

East of the baseball field is the petánque court (MR 12; Figure 14), which appears to have been built in the late 1980s when it was moved from its previous location of the current play area. The flat, rectangular court is approximately 125 by 175 feet and is covered in crushed granite. South of the petánque court is the tennis courts (MR 13; Figure 15), which were constructed as part of the original development of the park and were, were completed by 1943. There are four individual concrete courts within a rectangular area that is approximately 115 by 240 feet and surrounded by a chain link fence. West of the tennis courts is a small softball field (MR 14; Figure 16) that was also installed as part of the original development of the park in the late 1930s/early 1940s. It contains a small backstop, dirt diamond, and wood bleachers.

Figure 14 Petánque court, facing northeast

Figure 15 Tennis Courts, facing north

Figure 16 Softball field, facing west

Situated in between the tennis courts and softball field is Restroom D (MR 15; Figure 17). One of the original buildings constructed in the late 1930s, the Restroom D building is one-story, rectangular in plan, and built with adobe blocks. It features a hipped roof with overhanging eaves and exposed rafter tails, and is clad with wooden shingles. Doors and windows appear to be original. The rectangular window openings contain metal screens. The entry doors are made of wide vertical wooden boards and iron hardware, with wooden lintels above. Wooden privacy fences screen the entries to the restrooms.

Figure 17 Restroom D, facing northwest

Two other non-original bathrooms are located in the central area of the park. Restroom B (MR 16; Figure 18), is prefabricated structure installed in approximately 2003. One-story and rectangular in plan, it features a low-pitched front-gabled roof that is punctuated by domed skylights. The building features small, rectangular, fixed windows as well as square vents. Privacy walls on the southwest elevation screen the entries to the restrooms, which are single, metal entry doors. One additional, similar door is located on the northeast elevation. Restroom C (MR 17; Figure 19) is located to the south and is a one-story with an L-shaped plan that is the result of an addition to an originally rectangular building. The original portion of the building was constructed with adobe blocks in the late 1960s. The addition, which is reportedly prefabricated construction and clad in stucco, was built in 1988. The building features a hipped roof with overhanging eaves and exposed rafter tails, and is clad with wooden shingles. There are domed skylights on the northwest side of the roof. Fenestration includes rectangular wood-framed windows with wire mesh covering, and wooden doors with iron braces and hardware topped by wooden lintels. The restroom entrances are screened by wooden privacy fences. A small, wooden storage shed with double doors is attached to the east elevation.

Figure 18 Restroom B, facing northeast

Figure 19 Restroom C, facing northeast

Groupings of picnic areas are located at the central and southeastern portions of the park, each of which features various types of tables and barbeque grills. Although the park has had picnic and barbeque sites since its initial development in the 1930s, these facilities have been continually altered, adapted, and relocated over the years. The oldest picnic tables most likely date to the 1950s and are constructed of some of these have more modern wood and metal grill types, two areas exhibit what appear to be original clusters of original masonry barbeques, commonly known as “diablo stoves” (MR 18). These are located in between Restroom B and Restroom C, as well as at the far southeastern corner of the park (Figure 20). The rockwork grills are set directly atop the ground and are built of masonry construction of various sized and shaped stones. They are rectangular in design and have a raised section to the back and an open, narrow firebox to the front, which is partially capped by a metal grate.

Figure 20 Picnic area at southeast end of park, facing northeast

Other features of the park include horseshoe pits, volley, ball courts, mature trees, landscaping, large expanses of lawn, and paved pathways. Off of Bay Road, southwest of the Park Office buildings, are ruins of an adobe entrance wall (MR 18; Figure 21). It consists of two individual sections of wall that run parallel to the road before arcing into the park. Both sections of wall are in various states of disrepair and are missing entire sections in some areas.

Figure 21 Section of adobe entrance wall, facing west

Largely encircled by a chain link fence, Flood County Park is consistent with a municipal park that has been continually upgraded to meet the needs of its community. Many of its original features have been removed or replaced; however, it is in good overall condition and continues to function as it was originally intended.

6.2.2 Flood County Park History

The following sections present the developmental history of Flood County Park and the focused relevant historic contexts of San Mateo County Parks and the Works Progress Administration (WPA) that informed the evaluation of Flood County Park and its individual elements.

6.2.2.1 Developmental History

The land that would eventually be developed into Flood County Park (or Flood Park) was initially part of the massive estate of silver magnate, James C. Flood. Born to Irish immigrants in New York in 1826, Flood was one of thousands who moved to California in 1849 with hopes of striking it rich in the gold mines (*New York Times* 1889). After achieving modest success in a variety of business ventures, he eventually opened a brokerage office with partners in San Francisco. The new firm proceeded to make a number of opportune investments in mines on the Comstock Lode in Nevada and by the 1870s Flood amassed an estimated fortune of $18,000,000 (Cady 1948). Flood soon purchased a 600-acre tract of land in the area known known as Menlo Park and set to developing an elaborate country estate. Completed in 1878 after three years of construction, Flood's mansion, which he named Linden Towers, contained over forty rooms and featured ornate detailing, furnishings, and artwork (Cady 1948).

The mansion and the hundreds of acres surrounding it were left to Flood's daughter Jennie Flood after his death in 1889. Finding the property too large for her needs, she gifted the property to the University of California, which for similar reasons soon sold the property to Flood's son James L. Flood (Cady 1948). Following the death of the younger Flood in 1926, his descendants formed the Flood Estate Company and subsequently began to subdivide and sell the family's land holdings. The population of Menlo Park rapidly grew in the following years, resulting in the further subdivision of the former estate and the demolition of the mansion in 1934.

Two years later, San Mateo County began discussions with the Flood Estate Company to acquire an approximately 21 acre portion of the former Flood estate along Bay Road. The land, which was previously an undeveloped grain field, was envisioned and championed by San Mateo County Planning Director Ronald Campbell as an urban recreational park for the south San Mateo County residents (Svanevik and Burgett 2001:17). In 1937, the County used funds from a $3,500 bond to successfully purchase the land with the understanding that the future project would be named in honor of James L. Flood (*The Times* 1937).

Development of Flood County Park began the following year in 1938 and was the second WPA project to be sponsored by Campbell and the County of San Mateo (the first being Memorial Park, begun in 1936). While labor costs for WPA projects were paid for by the federal government, the sponsoring agency was required to supply the materials and transportation. Campbell maximized what resources he had by combing abundant WPA labor with the natural materials of the County's parkland. Using a bread mixer purchased from a nearby bakery, workers took tons of hand-excavated earth from the project site to make adobe bricks for the construction of the park's buildings. Redwood timber from Memorial Park, also fabricated by hand, was transported to the park and used for the building's timber framing and wood-shingle roofs (Svanevik and Burgett 2001:19-20).

Adobe buildings constructed in 1938 as part of the initial development of the park included an administration building, caretaker's cottage, and restrooms. Inspired by the contemporaneous California ranch homes of famed Ranch-style architect Cliff May, the buildings were all single-story and featured low profiles, hipped roofs, and overhanging eaves with exposed redwood rafters (Svanevik and Burgett 2001:17). This design and materials at Flood County Park were also consistent with the rustic style architecture which was widely used for New Deal agency sponsored park buildings and called for the use of native materials and indigenous construction methods (Jones 2012). In addition to the buildings, initial development of the park included construction of 7,400 feet of trails, picnic tables, barbeque pits, and basketball and volleyball courts (*The Times* 1938). Similar to the adobe buildings, the barbeque pits were also designed in a rustic style, featuring stone construction and other features that were consistent with the guidance of New Deal agencies for camp stove design (Taylor 1937).

This first phase of the park was completed in 1939 and officially dedicated on July 4 that year (*The Times* 1939). The park was an immediate success and by 1940 plans were underway for the development of additional facilities, most notably a pool and adjacent bathhouse. Dedicated in 1942, the pool added to the park's popularity and through the 1940s and 1950s hosted as many as 60,000 visitors annually (Svanevik and Burgett 2001:20). Other facilities constructed in phases through the 1940s included tennis courts, baseball fields, and other athletic fields.

While the park remained one of the most popular recreation spots in south San Mateo County in the decades after World War II, by the 1970s some of its facilities were in poor condition and outdated. In 1974, the pool was closed due to the high cost of maintenance and in its inability to compete with other more modern public pools nearby (*The Times* 1974). The pool and bathhouse were demolished and the area was subsequently replaced with a petánque court.

More notable changes to Flood County Park would occur in the late 1980s. Completed at a cost of $800,000, the modernization was largely the work of Phyllis Cangemi, a disabled woman and activist living in Menlo Park (Svanevik and Burgett 2001:18). In a time prior to the passage of the American with Disabilities Act of 1990, Cangemi was successful in advocating in changes that made Flood County Park more accessible to persons with disabilities. The resulting improvements included new restrooms, water fountains, benches, and paths that could safely accommodate wheelchairs. Other improvements during the 1980s included the construction of new picnic areas and the play area, and the relocation of the petánque court. Flood County Park has remained operational since this time and has been minimally altered through the construction of two new restroom buildings.

6.2.2.2 San Mateo County Parks

The beginnings of the San Mateo County Parks and Recreation Department can be traced to Roy W. Cloud, the San Mateo County Superintendent of Schools during the 1920s. After a visit to a one-room schoolhouse between La Honda and Pescadero in 1923, Cloud became enamored with the old-growth redwood trees that dominated the surrounding canyon (Svanevik and Burgett 2001:9). Alarmed upon hearing the forest was recently acquired by a lumber company, Cloud approached the San Mateo County Board of Supervisors to persuade them to purchase the 314-acre glen and convert into a park for its lasting protection. Cloud's efforts were successful and in August 1923 the County acquired the land, quickly developing nearly 300 campsites over the following year and dedicating the site as Memorial Park on July 4, 1924 (Svanevik and Burgett 2001:13).

Although a success in conserving the area's natural setting, utilization of the park was slow during its early years, and little infrastructure was developed outside of the initial, minimal campsite facilities. Ironically, the stock market crash of 1929 and the Great Depression that followed provided the greatest impetus for the further development of Memorial Park and the San Mateo County Parks system. A County Charter in 1933 formally created the San Mateo County Recreation Commission and entrusted the new agency with the administrative supervision of Memorial Park and any new parks developed by the County (The Historical Records Survey Division of Women's and Professional Projects 1938). Three years later in 1935, Congress authorized the Works Progress Administration (WPA), a relief agency that provided nearly $11 billion nationally over the course of its existence for public works projects. The combination of these efforts resulted in notable period of park development in San Mateo County.

Heading WPA projects sponsored by San Mateo County, was Ronald "Ro" Campbell. A native of Los Angeles, California, Campbell graduated from the University of California, Berkeley with a master's degree in architecture in 1929. Two years after graduating from the university, Campbell established an architecture and urban planning office in San Mateo. He was however soon hired by the County of San Mateo as their second full-time staff planner where he came to direct and supervise all of the WPA projects in the County (Svanevik and Burgett 2001).

For his first WPA-funded project, Campbell's set to making substantial improvements at Memorial Park. He oversaw construction of a camp for workers in the western end of Memorial Park, which included military-type barracks for 300 men, a mess hall, hospital, and maintenance shops (Svanevik and Burgett 2001:15). Using methods not utilized since before the Gold Rush, the WPA workers fell selective trees in the park, fabricating them into planks for use in the construction of benches, trails, bridges, and park buildings. Other notable efforts completed as part of the project included the installation of water and sewer lines, designation of picnic areas, and improvements to the campgrounds.

Campbell and County leaders also recognized that the WPA provided a unique opportunity for the future residents of San Mateo County. They correctly anticipated that the County's population would rapidly grow in the following decades, increasing not only the demand for parks, but also the costs of purchasing and developing new facilities (Svanevik and Burgett 2001:16). By combining the federal monies with a special tax levied by the County of San Mateo in the early 1930s, they were able to purchase and develop the land for Flood County Park in the late 1930s and early 1940s, as well as acquire 727 acres for a park at Coyote Point in 1940.

The San Mateo County Parks and Recreation Department continued its mission during and after World War II. New parks offered the residents of San Mateo County a variety of recreational and educational opportunities. These included historic properties, natural and marine reserves, and additional new parks offering swimming, hiking, boating, and other facilities. As of 2016, the San Mateo County Parks and Recreation Department oversees 22 parks spread across the County.

6.2.2.3 Works Progress Administration/Rustic Architecture

The WPA was a relief agency created by executive order of President Franklin Roosevelt in 1935. It was one of dozens of programs and agencies established by the Roosevelt administration as part of the New Deal, which sought to counter the effects of the Great Depression. Essentially formed in response to criticism of the New Deal, the WPA attempted to replace relief programs with work programs and provide work for large numbers of unemployed professional and technical workers (Anderson 1988). This goal was accomplished through a variety of construction projects aimed at benefitting the public, such as new schools, hospitals, community halls, parks, roads, highways and bridges.

Projects under the WPA were administered through the Division of Engineering and Construction and the Division of Professional and Service Projects and typically sponsored by states, counties, or cities. As discussed by WPA historian Rolf T. Anderson:

> *The sponsor supervised the project, paid for materials and equipment, while the W.P.A. paid for the majority of the labor costs. The [state or local agency] acted as the sponsor for … projects with the ratio of federal to state funds for a particular project at about 11 to 1. However, in 1937 this ratio changed to 4 to 1, making it more difficult for the state to provide the sponsor's share of the cost. This was considerably more expensive than a C.C.C. project where the ratio was generally about 20 to 1. (Anderson 1988:E-26-E27)*

Through the 1930s and early 1940s, the WPA worked closely with the National Park Service (NPS) completing emergency conservation and public works projects. In late 1935, the NPS assumed responsibility for the technical supervision of WPA projects in various state, county and municipal parks. The NPS reviewed and approved project plans for work of the WPA and the Civilian Conservation Corps (CCC) (another New Deal Program), hiring architects, landscape architects, engineers and inspectors to design and supervise WPA and CCC projects (McClelland 1993,1998). The WPA came to adopt an architectural style that had been promoted by the NPS, known as the “rustic” style (Tweed et al. 1977).

The NPS had assumed administrative control of the national parks in 1917, and subsequently developed design policies for park development. The Rustic Style was officially put into practice by the NPS after the issuance of an agency policy statement in 1918, and in the following years the NPS played an important role in promoting the design method (History Colorado n.d.; Tweed et al. 1977). The style was rooted in British gardening traditions from the 19th century, and popularized by the writings of Andrew Jackson Downing. Landscape architect Frederick Law Olmsted, who promoted the same principles in the design of urban parks, collaborated with architect Henry Hobson Richardson in the 1880s to create a style of architecture for park buildings and structures. Drawing from the Shingle and Richardsonian Romanesque styles, this rustic style was widely adopted – with variations – by the late 19th century in the design of structures for early state parks as well as urban parks. Its influence extended into the 20th century to the design of the inns and hotels in Glacier, Grand Canyon, and Yellowstone national parks (McClelland 1998). The rustic style was popular through the late 1930s when the NPS’s use of it began declining (Tweed et al. 1977).

The term “rustic” was used in reference to various aspects of park architecture, which included appearance, the use of indigenous or pioneer construction techniques and materials, the use of building materials and techniques according to conservationist principles, and the integrated adaptation of building forms to the landscape problems of topography, vistas, available materials, local plant life, and local building traditions (Conan 2000). Specific to architectural design, the Rustic Style called for the use of native materials, in California, “depending on location, materials such as logs, shake siding, unpeeled half-logs, and rough-hewn stone predominate, with a lesser number of adobe stucco building in the southern part of [California]” (Roland 2009:F-30). Buildings designed in an appropriate scale while avoiding severely straight lines and over-sophistication, giving the feeling that they had been executed by pioneer craftsmen with limited hand tools (Good 1938). The Rustic Style was also easily applied to other types of structures and objects, such as bridges, observation towers, and picnic tables and stoves at campgrounds (Roland 2009).

Despite a movement advocating modernist architecture, Rustic Style architecture was embraced by architects, planners, and builders of the New Deal, as President Roosevelt’s Depression-era projects and programs were referred to. The Rustic Style architecture movement correlated with the American public’s romanticizing of nature and of the country’s western frontiers. It hearkened to the past to impart a feeling of continuity and permanence. Builders employed early pioneer and regional building techniques because it was thought that structures made with native materials were most successfully incorporated into the environment (Tweed et al. 1977). The Rustic Style architecture style was also easily applied to small town and park buildings, and meshed with WPA goals and policies, such as requiring that buildings be constructed with locally available materials to decrease the project cost and to foster more involvement from the local community (Gray 2006). The WPA’s goal was to put as many capable, unemployed people back to work as possible, which meant that hand labor and hand tools were more readily available than power tools or equipment. Thus, the WPA's use of native materials and indigenous construction methods may oftentimes have been due to necessity and not choice, but was consistent with the principles of the rustic architecture movement. The primary difference in Rustic Style architecture as practiced by the NPS versus the WPA is in the demarcation between the buildings and the landscape. The smaller-scale parks created by the WPA did not allow for the full integration and screening of buildings in their surrounding landscape as was possible in the larger national parks (History Colorado n.d.).

Transferred to the Federal Works Agency and renamed the Works Projects Administration in 1939, the WPA was eventually liquidated in 1943 as a result of the employment shortages of World War II. Although not comprehensive, The Living New Deal, a research group documenting the art and architecture of the New Deal, has identified over 5,000 projects that were completed across the United States between 1935 and 1943 (The Living New Deal 2016). Of these, nearly 1,000 were located in the state of California with approximately 265 of the projects involving the development of parks and recreation-related facilities. A total of 11 WPA funded projects were completed in San Mateo County, five of which included parks and recreation-related facilities, including Memorial Park and Flood County Park.

6.2.3 Flood County Park Historic Evaluation

Flood County Park appears eligible for listing in the CRHR under Criteria 1 and 3, with its extant adobe buildings representing a direct association with the WPA program in San Mateo County and embodying a significant architectural type and method of construction. The WPA was one of the largest and most ambitious programs of the New Deal and was responsible for over 1,000 public works projects across California between 1935 and 1943 (The Living New Deal 2016). Initially constructed in 1938, Flood County Park was the second WPA parks project in San Mateo County and was the result of resourceful County leaders who recognized the future need for parkland in a rapidly developing area. Unlike Memorial Park (the County's first WPA park project) and many other WPA park projects, Flood County Park was unique in that it was developed as a smaller urban recreational facility. An examination of other extant WPA projects in San Mateo County and the surrounding San Francisco Bay area indicates that WPA parks of this size in fact a rare variation of the property type (The Living New Deal 2016). Although the project was small in size compared to other park projects, it was developed using the same the design principles and construction methods utilized by its larger counterparts. The use of adobe blocks, which were handmade on site for the park's buildings, is not only unique for northern California, but also consistent with the larger principles of Rustic Style of architecture that was promoted and adopted by the WPA and other New Deal programs. The period of significance for these associations begins in 1938 with the initial development of the park and the construction of the adobe buildings, and ends in 1943 following the dissolution of the WPA.

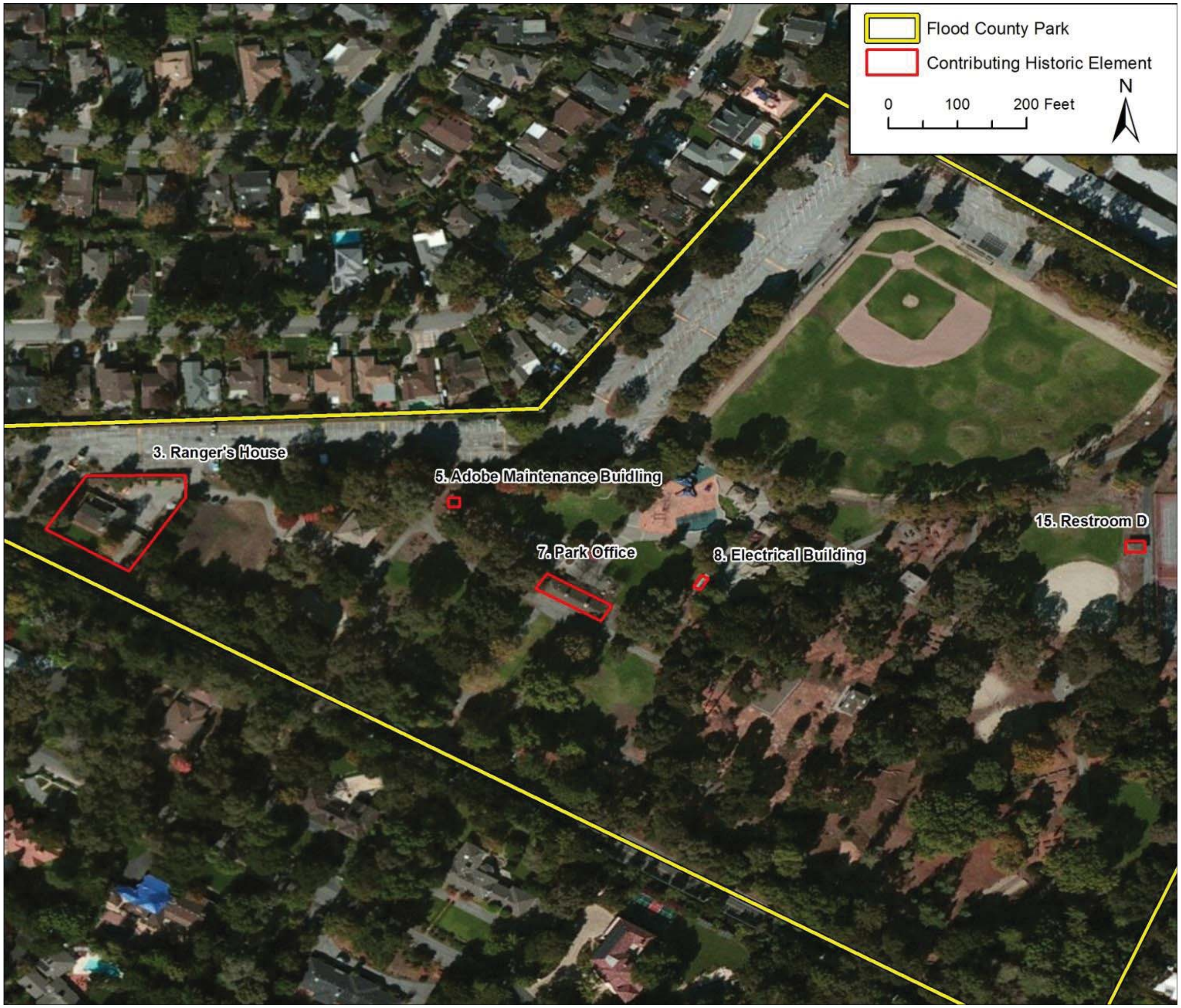
Although Ronald Campbell was instrumental in the development of Flood County Park and Memorial Park during his time.as the San Mateo County Planner, he was one of numerous individuals who oversaw WPA projects in California and the rest of the country. Research does not suggest that he or any other individuals associated with Flood County Park are notable within the context of WPA parks projects at the state or national level to warrant consideration for listing in the CRHR Criterion 2. Further, research does not suggest the property has the potential to yield important information and it does not appear eligible for listing under Criterion 4.

In considering the integrity of the overall resource, the park has continually undergone alterations that have resulted in the construction, demolition, and relocation of buildings, structures, recreational facilities, and landscape features. These alterations have negatively affected aspects of the park's original design, materials, workmanship, and setting and as a result, it does not appear to retain sufficient integrity to be eligible for listing in the NRHP. The California Office of Historic Preservation, however, recognizes that while a historical resource may not retain sufficient integrity to meet the threshold for listing in the NRHP, it may still be eligible for listing in the CRHR (California Office of Historic Preservation 2001:2). Although noted alterations have slightly changed the overall setting, the property still remains a park facility and appears largely as it has since its dedication in 1938. Further, the extant adobe buildings from the WPA era remain in their original location and have not been substantially altered. For these reasons, the property retains sufficient integrity of location, design, materials, workmanship, feeling, and association to meet the threshold for CRHR listing.

Many of the park's extant features are not associated with the WPA and were constructed after the period of significance, which ends in 1943 with the dissolution of the New Deal program. For this reason they do not contribute to the significance of the property and are considered non-character defining. Although the former adobe entrance wall exhibits the same materials and design principles as many of the extant adobe buildings, it is in a state of substantial disrepair and no longer retains sufficient integrity of materials, design, and workmanship to convey the reasons for Flood County Park's significance. In addition, the tennis courts, baseball field, and softball field, were possibly developed using WPA labor, they are ubiquitous property types that do not represent the design principles and design principles of the WPA and its workers, and are not considered contributing elements to Flood County Park. With boundaries that correspond with those of the park, the CRHR-eligible Flood County Park has the following contributing elements (Figure 22):

- Ranger's House (MR 3)
- Adobe Maintenance Building (MR 5)
- Electrical Building (MR 8)
- Park Office (MR 7)
- Restroom D (MR 15)

Figure 22 Contributing Historic Elements of Flood County Park



7 Conclusions

7.1 Project Impacts Assessment

CEQA (Section 21084.1) requires that a lead agency determine whether a project may have a significant effect on cultural resources. Impacts to significant cultural resources that affect the characteristics of the resource that qualify it for the CRHR or adversely alter the significance of a resource listed on or eligible for the CRHR are considered a significant effect on the environment.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2[a], [b], and [c]).

In terms of historical resources, these impacts could result from “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines, Section 15064.5 [b][1], 2000). Material impairment is defined as demolition or alteration “in an adverse manner [of] those characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register.” (CEQA Guidelines Section 15064.5[b][2][A]).

The potential for the proposed project to result in impacts to cultural resources is based on the CEQA thresholds of significance outlined in Appendix G of the State CEQA Guidelines. They are as follows:

- Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?
- Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?
- Would the project disturb any human remains, including those interred outside of formal cemeteries?
- Does the project site contain known historic structures or sites?
- Is the project site in or near an area containing known archaeological resources or containing features (drainage course, spring, knoll, rock outcroppings, or oak trees) that indicate potential archaeological sensitivity?

Significance thresholds for impacts to tribal cultural resources are also included in Appendix G of the State CEQA Guidelines and are as follows:

- Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

7.1.1 Archaeological and Tribal Cultural Resources

The 24.5-acre project area has been previously developed, and the site contains buildings and infrastructure such as parking lots, pavement, and landscaping. It is likely that surface soils have been scattered across the surface of the site during initial construction, grading, and landscaping of the area, and that the proposed project improvements are unlikely to occur at soil depths below those which have been previously disturbed, negating the usefulness of subsurface archaeological testing. No archaeological resources of Native American origin or tribal cultural resources have been identified as a result of the cultural resources records search, Native American scoping, local historic group consultation, or cultural resources survey.

7.1.2 Built Environment/Historical Resources

Flood County Park is recommended eligible for listing in the CRHR under Criteria 1 and 3, with its extant adobe buildings representing a direct association with the WPA program in San Mateo County and embodying a significant architectural type and method of construction. It is therefore considered a historical resource for the purposes of CEQA. As currently proposed, the Project would result in the demolition or substantial alteration of one of the park’s five contributing adobe architectural elements, specifically Restroom D (MR 15). As defined in CEQA Guidelines Section 15064.5, a project would result in a significant adverse impact on the environment if it materially impaired a historical resource; that is alter in adverse manner those characteristics that convey its historical significance. Restroom D is one of five extant buildings that contribute to Flood County Park’s significance. Although demolition of this building would result in the partial loss of these characteristics, the remaining four adobe buildings would be still be able to convey the park’s significant associations with the WPA program and for its embodiment of an architectural type and method of construction.

The Project also proposes to seismically retrofit the Park Office (MR 7), which is also a physical element that characterizes the significance of Flood County Park. Although this action will ensure that the building is seismically safe and will withstand damage from earthquakes, if insensitively completed it has the potential to negatively affect significant characteristics of the building, which could result in its material impairment.

7.2 Recommendations

7.2.1 Archaeological Resources

No archaeological or tribal cultural resources were identified within the project site, and thus the Project would result in no impact to archaeological and tribal cultural resources. Rincon recommends no further archaeological resources work for the proposed Project at this time. Rincon recommends implementation of the following measures to reduce potential impacts to unanticipated archaeological and tribal cultural resources, including human remains. Impacts to archaeological and tribal cultural resources would be less than significant with adherence to these mitigation measures.

7.2.1.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area should be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) (hereafter qualified archaeologist) should be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the Project, additional work such as data recovery excavation may be warranted to mitigate any significant impacts to historical resources.

7.2.1.2 Unanticipated Discovery of Tribal Cultural Resources

In the event that a previously unidentified cultural resource is determined to be of Native American origin, the qualified archaeologist will consult with San Mateo County Parks to begin or continue Native American consultation procedures. If a discovery is determined to be a tribal cultural resource and thus significant under CEQA (after consultation with San Mateo County Parks), the resource should be avoided, if feasible. If avoidance is not feasible, a mitigation plan should be prepared and implemented in accordance with state guidelines and in consultation with Native American groups.

7.2.1.3 Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground disturbing activities; if human remains are found, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

7.2.2 Built Environment/Historical Resources

As discussed above, Flood County Park is a historical resource for the purposes of CEQA. Many of the elements of the proposed multi-phased Project would result in no direct or indirect impacts to the characteristics of Flood County Park that convey the reasons for the historical significance, specifically the five extant adobe buildings. Development of new playing fields, recreational facilities, and ancillary buildings are consistent with the continued historic use of the resource and therefore would have limited potential to substantially change the overall setting of the park.

As currently proposed, the Project would involve demolition of one of the extant adobe buildings, Restroom D (MR 15). Although this adobe building contributes to the significance of Flood County Park, it is one of five such buildings that do so and its loss would not materially impair the resource such that it would be unable to convey the reasons for its significance. To mitigate the loss of the single adobe building, the measures detailed in the following sections are recommended.

The seismic retrofit of the Park Office building (MR 7) could have the potential to negatively impact those characteristics of the building that convey the reasons for its significance. To ensure that the retrofit the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Standards) (Weeks and Grimmer 1995). A project that follows the Standards generally shall be considered as mitigated to a level of less than a significant impact on the historical resource (CEQA Guidelines Section 15064.5[b][3]).While the Standards present guidelines for four treatments (Preservation, Rehabilitation, Restoration, and Reconstruction), Rehabilitation is perhaps most frequently used as it provides the greatest flexibility for making alterations to a historic property in accommodating a compatible and contemporary use. Incorporation of the mitigation measures detailed below would reduce impacts to historical resources to less than significant.

7.2.2.1 Historic Documentation Package

Impacts resulting from the demolition of the Restroom D (MR 15) can be mitigated through archival documentation of the building and the other extant adobe buildings in their as-built and as-found condition. Prior to issuance of demolition permits, the County of San Mateo should ensure that documentation of the buildings proposed for demolition is completed in the form of a Historic American Building Survey (HABS)-Like documentation that shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation (NPS 1990). The documentation should generally follow the HABS Level III requirements and include digital photographic recordation, detailed historic narrative report, and compilation of historic research. The documentation should be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History (NPS 1983). The original archival-quality documentation shall be offered as donated material to the County of San Mateo Parks Department where it would be available for current and future generations. Archival copies of the documentation also would be submitted to the City of San Mateo Library and the San Mateo County History Museum where it would be available to local researchers. Completion of this mitigation measure shall be monitored and enforced by the lead agency.

7.2.2.2 Standards Review

Potential impacts from the seismic retrofit of the Park Office (MR 7) shall be mitigated by ensuring related work is consistent with the Standards, thereby avoiding significant adverse direct or indirect impacts to historical resources. An architectural historian or historic architect meeting the Secretary of the Interior's Professional Qualifications Standards shall be retained to prior to the start of the seismic retrofit to review proposed plans and provide input to the project team to avoid any direct/indirect physical changes to the building. The findings and recommendations of the architectural historian or historic architect shall be documented in a Standards Project Review Memorandum, at the schematic design phase. This memorandum shall analyze all project components for compliance with the Standards. Should design modifications be necessary to bring projects into compliance with the Standards the memorandum will document those recommendations. The document shall be subsequently submitted to County of San Mateo Parks Department for review and comment.

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Appendix A

Records Search Results Summary

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLATA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
http://www.sonoma.edu/nwic

11/14/2016 NWIC File No.: 16-0605

Kyle Brudvik
Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, CA 94606

Re: Menlo Park, along borders of unincorporated Redwood City

The Northwest Information Center received your record search request for the project area referenced above, located on the Palo Alto USGS 7.5’ quad(s). The following reflects the results of the records search for the project area and a .5 mi. radius:

Resources within project area:	P-41-001515
Resources within .5 mi. radius: Informal Resources:	P-41-000270, P-41-000282, P-41-000438, P-41-002351, P-41-002415, P-41-002450 C-359, C-436 (C-436 appears on our Base Maps in two different locations with no reason given)
Reports within project area:	S-22178, 40929
Reports within .5 mi. radius:	S-3021, 3163, 3165, 6498, 6508, 7346, 29305, 30281, 32106, 35461, 36439, 36481,38063, 39469, 39604, 47187
Other Reports within records search radius:	Included is a list of the 15 “Other Reports” within or encompassing your project area. These reports are classified as Other Reports; reports with little or no field work or missing maps. The electronic maps do not depict study areas for these reports, however a list of these reports has been provided. In addition, you have not been charged any fees associated with these studies.

Resource Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed

Resource Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed

Resource Digital Database Records: ☐ enclosed ☒ not requested ☐ nothing listed

Report Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed

Report Digital Database Records: ☐ enclosed ☒ not requested ☐ nothing listed

Resource Record Copies: ☒ enclosed ☐ not requested ☐ nothing listed

Report Copies: ☒ enclosed ☐ not requested ☐ nothing listed

OHP Historic Properties Directory: ☒ enclosed ☐ not requested ☐ nothing listed

Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☒ enclosed	☐ not requested	☐ nothing listed
Caltrans Bridge Survey: **	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☐ not requested	☒ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☒ enclosed	☐ not requested	☐ nothing listed
Local Inventories:	☐ enclosed	☐ not requested	☒ nothing listed
GLO and/or Rancho Plat Maps:	☐ enclosed	☐ not requested	☒ nothing listed
Shipwreck Inventory: **	☐ enclosed	☒ not requested	☐ nothing listed

*Notes:

** Current versions of these resources are available on-line:

Caltrans Bridge Survey: http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Soil Survey: http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=CA

Shipwreck Inventory: http://www.slc.ca.gov/Info/Shipwrecks.html

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additionally, information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Annette Neal

Researcher

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-003021	Voided - E-19 SMA	1976	Stephen A. Dietz	An Archaeological Reconnaissance of the 100.6 Acre Raychem Corporation Properties in Menlo Park, California (letter report)	Archaeological Consulting and Research Services	
S-003163	Voided - E-171 SMA	1973	Stephen A. Dietz	An Archaeological Reconnaissance of the Proposed Dumbarton Bridge Replacement Project (letter report)	Adan E. Treganza Anthropology Museum, San Francisco State College	
S-003165	Voided - E-173 SMA	1981		Cultural Resource Evaluation of the Menlo Place Project in the City of Menlo Park, County of San Mateo	Archaeological Resource Management	
S-006498		1983	Matthew R. Clark, Miley Paul Holman, and Randy S. Wiberg	Archaeological Investigations at CA-SMA-242, the Johnson & Johnson "Bandaid Site", Menlo Park, San Mateo County, California.	Holman & Associates	41-000282
S-006508		1984	Miley Paul Holman	A Report of Further Auguring at the Johnson & Johnson Project Area, Menlo Park, California.	Holman & Associates	41-000282
S-007346	Caltrans - EA 04253-033231	1985	Janis K. Offermann	Negative Archaeological Survey Report, Landscaping Project Along Routes 84 and 101 in San Mateo and Alameda Counties, 04-SM/Ala-101, 84, 04253-033231	California Department of Transportation	
S-022178		1999	Robert Cartier	Cultural Resource Evaluation for 1.5 Acres of Land at 260 Van Buren Avenue in the City of Menlo Park, County of San Mateo	Archaeological Resource Management	
S-029305		2004	Miley Paul Holman	Cultural Resources Study of the Clarum Homes/Hamilton Park Project, Menlo Park, San Mateo County, California (letter report)	Holman & Associates	
S-030281		2004		Cultural Resources Study of the Ringwood Avenue Project, AT&T Wireless Services, Site No. SNFCCA1778, Right of Way at 800 Ringwood Avenue, Ringwood Avenue at Fredrick Court, Menlo Park, San Mateo County, California 94025	Historic Resource Asssociates	
S-032106		2006	Scott Billat	New Tower ("NT") Submission Packet, FCC Form 620, Flood Park Flagpole, SF-15880A	EarthTouch, Inc.	
S-035461		1998	Gary S. Breschini	An examination of a burial discovered in Los Altos (letter report)	Archaeological Consulting	41-000438
S-036439		2009	Lorna Billat	New Tower ("NT") Submission Packet, FCC Form 620, PGE Cap 523 Bay Road, SF-53936A	EarthTouch, Inc.	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-036481		2009	Adrian Whitaker, Phil Kaijankowski, Jack Meyer, and Brian Byrd	Archaeological Survey Report for the Dumbarton Rail Corridor Project, San Mateo and Alameda Counties, California	Far Western Anthropological Research Group, Inc.	41-000086, 41-000160, 41-000244, 41-000282, 41-000303
S-038063		2009	Neal Kaptain	Smart Corridors Geoarchaeological Sensitivity Research (letter report)	LSA Associates, Inc.	
S-039469	Caltrans - EA #4A9201; Caltrans - EFIS #0400001169	2012	Neal Kaptain	Historical Resources Compliance Report for the San Mateo County SMART Corridors Project, Segment III, Redwood City, Atherton, Menlo Park, East Palo Alto, and Palo Alto, San Mateo County & Santa Clara County, California; EA #4A9201; EFIS #0400001169, Caltrans District 4; SR 82 PM SM 0/4.8, SCL 24.1/26.4; SR 84 PM 24.6/28.7; US 101 PM 0.7/5.5; SR 109 PM 1.10/1.87; SR 114 PM 5.0/5.93	LSA Associates, Inc.	41-000299, 41-002291, 41-002292, 43-002626, 44-000457
S-039469a		2012	Neal Kaptain	Archaeological Survey Report for the San Mateo County SMART Corridors Project, Segment III, Redwood City, Atherton, Menlo Park, East Palo Alto, and Palo Alto, San Mateo County and Santa Clara County, California; EA #4A9201; EFIS #0400001169; Caltrans District 4; SR 82 PM SM 0/4.8; SCL 24.1/26.4; SR 84 PM 24.6/28.7; US 101 PM 0.7/5.5; SR 109 PM 1.10/1.87; SR 114 PM 5.0/5.93	LSA Associates, Inc.	
S-039469b		2012	Neal Kaptain	Post-Review Discovery and Monitoring Plan for the San Mateo County SMART Corridors Project, Segment III, Redwood City, Atherton, Menlo Park, East Palo Alto, and Palo Alto, San Mateo County and Santa Clara County, California; EA #4A9201; EFIS #0400001169, Caltrans District 4; SR 82 PM SM 0/4.8; SCL 24.1/26.4; SR 84 PM 24.6/28.7; US 101 PM 0.7/5.5; SR 109 PM 1.10/1.87; SR 114 PM 5.0/5.93	LSA Associates, Inc.	
S-039604		2012	Adrian Whitaker, Phillip Kaijankoski, Jack Meyer, Brian Byrd, and Sharon Waechter	Archaeological Survey Report for the Dumbarton Rail Corridor Project, San Mateo and Alameda Counties, California	Far Western Anthropological Research Group, Inc.	41-000086, 41-000160, 41-000244, 41-000282, 41-000303

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-040929		2013		Archaeological Data Recovery Report (SMA-83) (ADRR) and Final Archaeological Resources Report (FARR), San Francisco Public Utilities Commission, Water System Improvement Program, Bay Division Pipeline Reliability Upgrade Project, East Bay and Peninsula Bay Division Pipeline No. 5, Alameda and San Mateo Counties, California	Basin Research Associates, Inc.	41-000086, 41-000233, 41-000262, 41-000270, 41-000299, 41-000303, 41-002242, 41-002319
S-047187	Submitter - Menlo Gateway	2015	Daniel Shoup	Cultural Resources Survey Report, SR-84 (Bayfront Expressway) Intersection Improvements Project, Chilco Street/Bayfront Expressway and Chrysler Drive/Bayfront Expressway, Menlo Park, San Mateo County	Archaeological/Historical Consultants	41-002419

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-41-000270	CA-SMA-000275	Resource Name - Flood Park	Site	Prehistoric	AP02 (Lithic scatter); AP15 (Habitation debris)	1987 (BOCEK, Stanford University); 2013 (Christopher Canzonieri, Basin)	S-040929
P-41-000282	CA-SMA-000242	Resource Name - Bandaid Site	Site	Prehistoric	AP15 (Habitation debris)	1983 (R.S. Wiberg, M.R. Clark, Holman & Associates); 2008 (Adrian Whitaker, Far Western)	S-006498, S-006508, S-036481, S-039604
P-41-000438	CA-SMA-000351	Resource Name - 330 Greenoaks, Atherton; Other - AC Project 2575	Site	Prehistoric	AP09 (Burials); AP15 (Habitation debris)	1998 (Gary S. Breschini, Archaeological Consulting)	S-035461
P-41-001515		Resource Name - FLOOD PARK; OHP PRN - 4025-0108-0000; PHI - SPHI-SMA-032; OHP Property Number - 091175	Building, Structure	Historic	HP25 (Amusement park); HP35 (New Deal Public Works Project)	1986 (Anna G. Eshoo, San Mateo County Board of Supervisors); 1990 (L.Wickert, San Mateo Co. Hist. Assoc.)	S-048233
P-41-002351		Other - Alviso or Schilling Arden Salt Company; Other - Ravenswood Salt Works; OHP PRN - FWS 040721A; Resource Name - Ravenswood Salt Works District	District	Historic	AH16 (Other) - cultural landscape	2007 (Lou Ann Speulda-Drews, Nick Valentine, Ellen Joslin Johnck, US Fish & Wildlife Service)	S-042003, S-048096
P-41-002415	CA-SMA-000425	Resource Name - [none]	Site	Prehistoric	AP02 (Lithic scatter); AP11 (Hearths/pits); AP15 (Habitation debris)	2015 (T. Garlinghouse, Albion Environmental, Inc.)	
P-41-002450		Resource Name - JHS001H	Building	Historic	HP06 (1-3 story commercial building)	2016 (JulieAnn Murphy, MIG, Inc.)	

Appendix B

Native American Scoping Documentation

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 Fax

October 31, 2016

Kyle Brudvik
Rincon Consulting

Sent by: kbrudvik@rinconconsultants.com

RE: Flood County Park Landscape Plan, San Mateo County

Dear Mr. Brudvik,

Attached is a list of tribes that have cultural and traditional affiliation to the area of potential project effect (APE) referenced above. I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult, as may be required under particular state statutes. If a response has not been received within two weeks of notification, the Native American Heritage Commission (NAHC) requests that you follow-up with a telephone call to ensure that the project information has been received.

The NAHC also recommends that project proponents conduct a record search of the NAHC Sacred Lands File (SLF) at the appropriate regional archaeological Information Center of the California Historic Resources Information System (CHRIS) (http://ohp.parks.ca.gov/?page_id=1068) to determine if any tribal cultural resources are located within the area(s) affected by the proposed action. The SFL, established under Public Resources Code section 5094, are sites submitted for listing to the NAHC by California Native American tribes. The SFL, established under Public Resources Code section 5094, are sites submitted for listing to the NAHC by California Native American tribes. A record search of the SLF was completed for the APE referenced above with negative results. Please note records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of tribal cultural resources. A tribe may be the only source of information regarding the existence of tribal cultural resources.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: frank.lienert@nahc.ca.gov

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contact List
San Mateo County
10/31/2016

Amah MutsunTribal Band of Mission San Juan Bautista Irenne Zwierlein, Chairperson 789 Canada Road Woodside, CA, 94062 Phone: (650)400-4806 Fax: (650)332-1526 amahmutsuntribal@gmail.com	Costanoan
Costanoan Rumsen Carmel Tribe Tony Cerda, Chairperson 244 E. 1st Street Pomona, CA, 91766 Phone: (909)629-6081 Fax: (909)524-8041 rumsen@aol.com	Costanoan
Indian Canyon Mutsun Band of Costanoan Ann Marie Sayers, Chairperson P.O. Box 28 Hollister, CA, 95024 Phone: (831)637-4238 ams@indiancanyon.org	Costanoan
Muwekma Ohlone Indian Tribe of the SF Bay Area Rosemary Cambra, Chairperson P.O. Box 360791 Milpitas, CA, 95036 Phone: (408)314-1898 muwekma@muwekma.org	Costanoan
The Ohlone Indian Tribe Andrew Galvan, P.O. Box 3152 Fremont, CA, 94539 Phone: (510) 882 - 0527 Fax: (510)687-9393 chochenyo@AOL.com	Bay Miwok Costanoan Patwin Plains Miwok

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Flood County Park Landscape Plan, San Mateo County.

Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, California 94612

510 834 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

December 13, 2016

Amah Mutsun Tribal Band of
Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road
Woodside, CA 94602

Sent via email to: amahmutsuntribal@gmail.com

RE: Cultural Resources Study for the Flood County Park Landscape Plan Project, San Mateo County, California

Dear Chairperson Zwierlein:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the proposed Flood County Park Landscape Plan Project in San Mateo County, California. The landscape plan has been designed with extensive community input and is intended to optimize preservation of large oak and bay trees, increase offerings of sports, and provide a variety of active and passive uses for a range of user groups. The plan is for long-term development of park facilities. The proposed project is subject to the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission and requested a Sacred Lands File (SLF) search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project site. The results stated that a search of the SLF was completed with "negative results" and recommended that we consult with you directly regarding your knowledge of the presence of cultural resources that may be impacted by this project.

If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or kbrudvik@rinconconsultants.com or at 510-671-0176. Thank you for your assistance.

Sincerely,

Kyle Brudvik, MA, RPA
Paleontologist/Geoarchaeologist/Archaeologist

Enclosure: Project Location Map

Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, California 94612

510 834 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

December 13, 2016

Costanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street
Pomona, CA 91766

Sent via email to: rumsen@aol.com

RE: Cultural Resources Study for the Flood County Park Landscape Plan Project, San Mateo County, California

Dear Chairperson Cerda:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the proposed Flood County Park Landscape Plan Project in San Mateo County, California. The landscape plan has been designed with extensive community input and is intended to optimize preservation of large oak and bay trees, increase offerings of sports, and provide a variety of active and passive uses for a range of user groups. The plan is for long-term development of park facilities. The proposed project is subject to the California Environmental Quality Act (CEQA).

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If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or kbrudvik@rinconconsultants.com or at 510-671-0176. Thank you for your assistance.

Sincerely,

Kyle Brudvik, MA, RPA
Paleontologist/Geoarchaeologist/Archaeologist

Enclosure: Project Location Map

Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, California 94612
510 834 4455 OFFICE AND FAX
info@rinconconsultants.com
www.rinconconsultants.com

December 12, 2016

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
PO Box 28
Hollister, CA 95024
ams@indiancanyon.org

RE: Cultural Resources Study for the Flood County Park Landscape Plan Project, San Mateo County, California

Dear Chairperson Sayers:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the proposed Flood County Park Landscape Plan Project in San Mateo County, California. The landscape plan has been designed with extensive community input and is intended to optimize preservation of large oak and bay trees, increase offerings of sports, and provide a variety of active and passive uses for a range of user groups. The plan is for long-term development of park facilities. The proposed project is subject to the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission and requested a Sacred Lands File (SLF) search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project site. The results stated that a search of the SLF was completed with "negative results" and recommended that we consult with you directly regarding your knowledge of the presence of cultural resources that may be impacted by this project.

If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or kbrudvik@rinconconsultants.com or at 510-671-0176. Thank you for your assistance.

Sincerely,

Kyle Brudvik, MA, RPA
Paleontologist/Geoarchaeologist/Archaeologist

Enclosure: Project Location Map

Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, California 94612

510 834 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

December 13, 2016

Muwekma Ohlone Indian Tribe of the
San Francisco Bay Area
Rosemary Cambra, Chairperson
PO Box 360791
Milpitas, CA 95036

Sent via email to: muwekma@muwekma.org

RE: Cultural Resources Study for the Flood County Park Landscape Plan Project, San Mateo County, California

Dear Chairperson Cambra:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the proposed Flood County Park Landscape Plan Project in San Mateo County, California. The landscape plan has been designed with extensive community input and is intended to optimize preservation of large oak and bay trees, increase offerings of sports, and provide a variety of active and passive uses for a range of user groups. The plan is for long-term development of park facilities. The proposed project is subject to the California Environmental Quality Act (CEQA).

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If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or kbrudvik@rinconconsultants.com or at 510-671-0176. Thank you for your assistance.

Sincerely,

Kyle Brudvik, MA, RPA
Paleontologist/Geoarchaeologist/Archaeologist

Enclosure: Project Location Map

Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, California 94612

510 834 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

December 13, 2016

The Ohlone Indian Tribe
Andrew Galvan
PO Box 3152
Fremont, CA 94539

Sent via email to: chochenyo@aol.com

RE: Cultural Resources Study for the Flood County Park Landscape Plan Project, San Mateo County, California

Dear Mr. Galvan:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the proposed Flood County Park Landscape Plan Project in San Mateo County, California. The landscape plan has been designed with extensive community input and is intended to optimize preservation of large oak and bay trees, increase offerings of sports, and provide a variety of active and passive uses for a range of user groups. The plan is for long-term development of park facilities. The proposed project is subject to the California Environmental Quality Act (CEQA).

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If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or kbrudvik@rinconconsultants.com or at 510-671-0176. Thank you for your assistance.

Sincerely,

Kyle Brudvik, MA, RPA
Paleontologist/Geoarchaeologist/Archaeologist

Enclosure: Project Location Map

Appendix C

Records Resources: DPR Forms

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 *Resource Name or #: Flood County Park

P1. Other Identifier: Flood Park
***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** San Mateo
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Palo Alto **Date:** 1997 **T** 5S ; **R** 3W ; **¼ of** **¼ of Sec** ; M.D. **B.M.**
c. Address: 215 Bay Road City: Menlo Park Zip: 94025
d. UTM: Zone: ; mE/ mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:
APN 055-312-010, 055-311-010, 093-551-030, 093-551-020

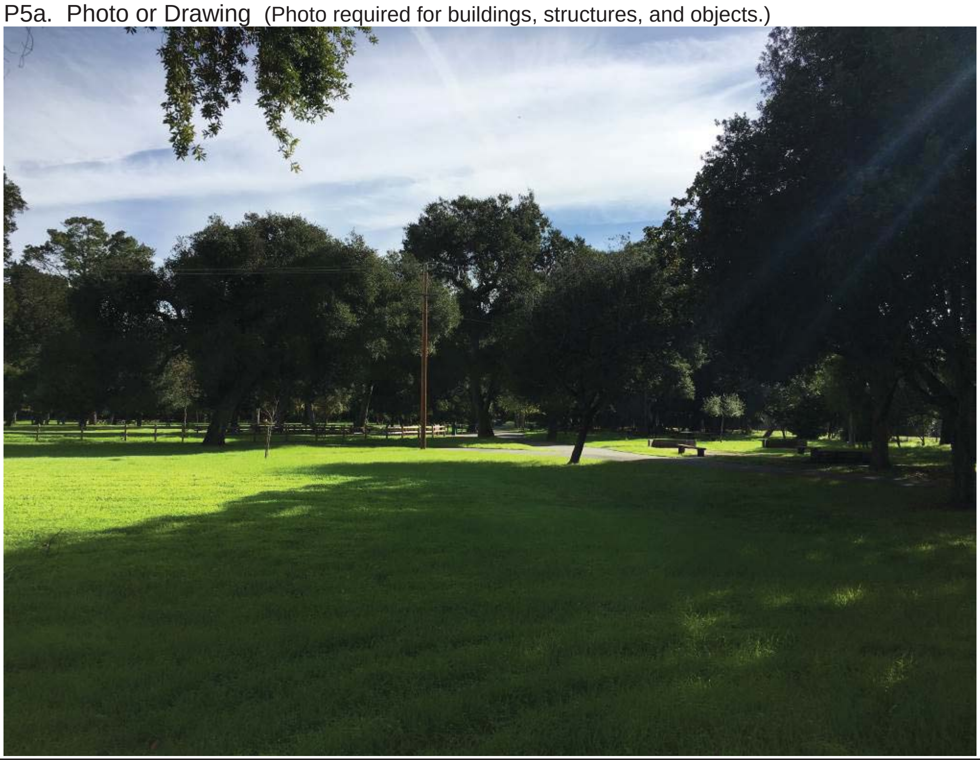
***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
Flood Park is located in the east-central portion of San Mateo County, within the city limits of Menlo Park. Generally, the park is situated between Bay Road to the south and the Bayshore Freeway to the north, Del Norte Avenue to the east and Hedge Road to the west. The park is surrounded by residential neighborhoods on all four sides, as well as an elementary school campus on the north. The park has an irregular configuration, and features paved surface parking lots along the majority of its western and northern edges.

Constructed in phases from the mid-1930s through the early 2000s, Flood Park currently contains a variety of support buildings and structures, in addition to baseball and softball fields, tennis and volleyball courts, a pétanque court, horseshoe pits, playground equipment, paved paths, large expanses of lawn, barbecues, and picnic benches.

See continuation sheet, page 4.

***P3b. Resource Attributes:** (List attributes and codes) HP31. Urban Open Space; HP35. New Deal Public Works Project
***P4. Resources Present:** ☒Building ☒Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #)
Flood County Park, view to the east, 11/22/2016, 5557.jpg.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1938-2000s (Svanevik and Burgett 2000; City of Menlo Park 2011).

***P7. Owner and Address:**
County of San Mateo
455 County Center, 4th Floor
Redwood City, CA 94063-1646

***P8. Recorded by:** (Name, affiliation, and address)
S. Treffers and S. Zamudio-Gurrola
Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, CA 94612
***P9. Date Recorded:** 12/1/2016

***P10. Survey Type:** Intensive

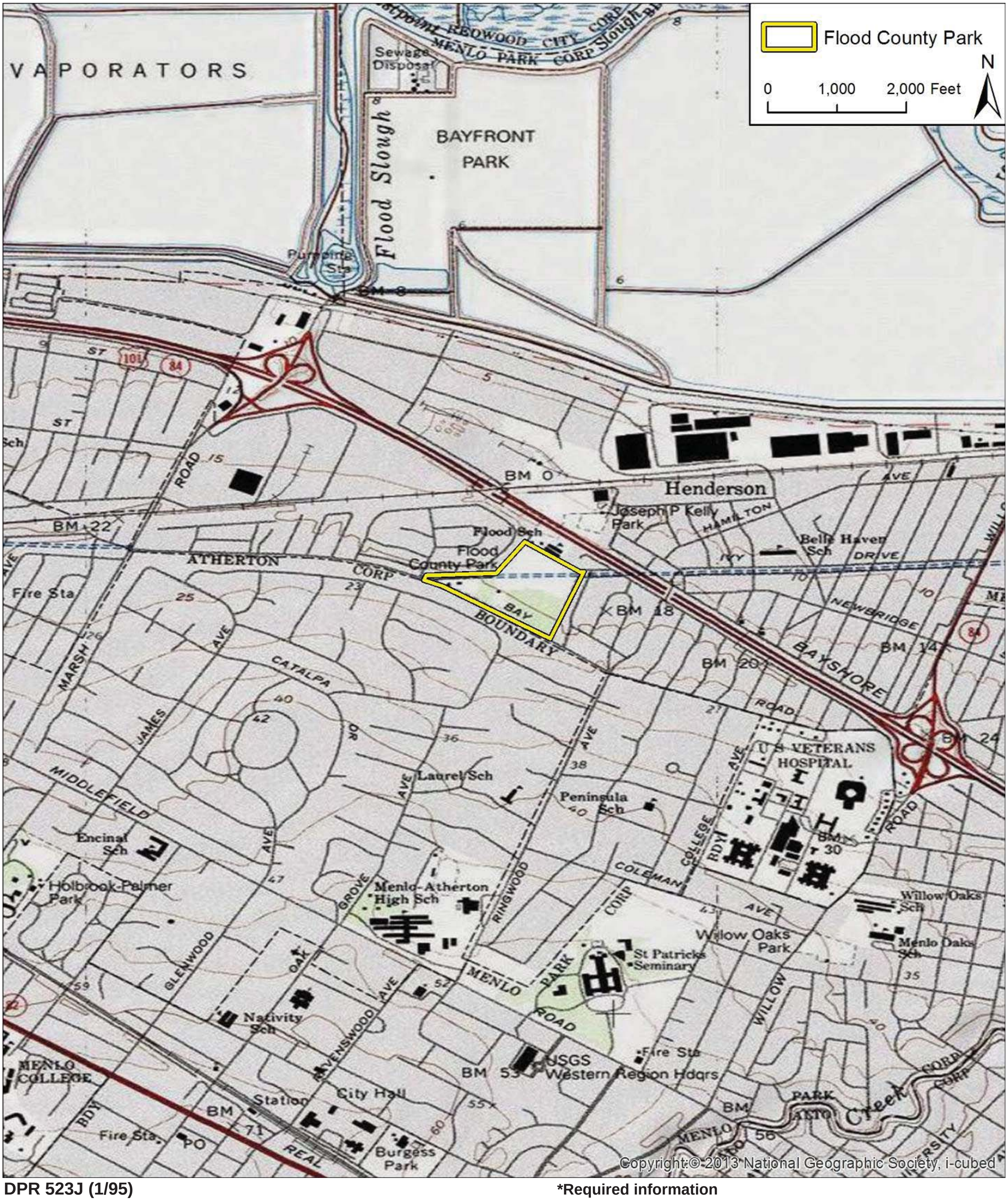
***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *County of San Mateo, Flood County Park Landscape Plan: Cultural Resources Technical Report* (Rincon Consultants 2016).

***Attachments:** ☐NONE ☒Location Map ☒Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency **DEPARTMENT OF PARKS AND RECREATION**	**Primary #** **HRI#**
LOCATION MAP	**Trinomial**

***Resource Name or #:** Flood County Park

***Map Name:** USGS Palo Alto Quadrangle ***Scale:** 1:24,000 ***Date of Map:** 1997



DPR 523J (1/95) ***Required information**

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 3CS

***Resource Name or #** (Assigned by recorder) Flood County Park

B1. Historic Name: Flood Park
B2. Common Name: Flood County Park
B3. Original Use: county park B4. Present Use: county park
***B5. Architectural Style:** Influenced by California Ranch and WPA rustic architecture style
***B6. Construction History:** (Construction date, alterations, and date of alterations)
*See table on continuation sheet, page 4.

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Ronald Campbell, engineer/designer b. Builder: Works Progress Administration (WPA)
***B10. Significance: Theme:** The WPA in San Mateo County **Area:** Menlo Park
Period of Significance: 1938-1943 **Property Type:** County Park **Applicable Criteria:** 1 and 3
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Developmental History

The land that would eventually be developed into Flood County Park (or Flood Park) was initially part of the massive estate of silver magnate, James C. Flood. Born to Irish immigrants in New York in 1826, Flood was one of thousands who moved to California in 1849 with hopes of striking it rich in the gold mines (*New York Times* 1889). After achieving modest success in a variety of business ventures, he eventually opened a brokerage office with partners in San Francisco. The new firm proceeded to make a number of opportune investments in mines on the Comstock Lode in Nevada and by the 1870s Flood amassed an estimated fortune of $18,000,000 (Cady 1948). Flood soon purchased a 600-acre tract of land in the area known known as Menlo Park and set to developing an elaborate country estate. Completed in 1878 after three years of construction, Flood's mansion, which he named Linden Towers, contained over forty rooms and featured ornate detailing, furnishings, and artwork (Cady 1948).

The mansion and the hundreds of acres surrounding it were left to Flood's daughter Jennie Flood after his death in 1889. Finding the property too large for her needs, she gifted the property to the University of California, which for similar reasons soon sold the property to Flood's son James L. Flood (Cady 1948). Following the death of the younger Flood in 1926, his descendants formed the Flood Estate Company and subsequently began to subdivide and sell the family's land holdings. The population of Menlo Park rapidly grew in the following years, resulting in the further subdivision of the former estate and the demolition of the mansion in 1934.

Two years later, San Mateo County began discussions with the Flood Estate Company to acquire an approximately 21 acre portion of the former Flood estate along Bay Road. The land, which was previously an undeveloped grain field, was envisioned and championed by San Mateo County Planning Director Ronald Campbell as an urban recreational park for the south San Mateo County residents (Svanevik and Burgett 2001:17). In 1937, the County used funds from a $3,500 bond to successfully purchase the land with the understanding that the future project would be named in honor of James L. Flood (*The Times* 1937).

See continuation sheet, page 9.

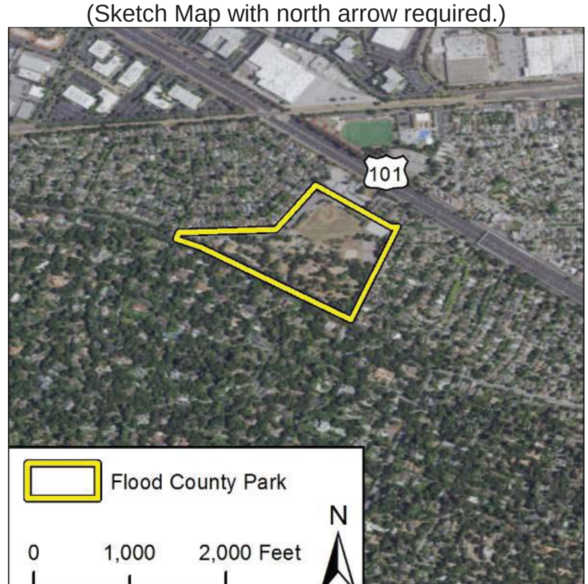
B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**
See continuation sheet, page 12.

B13. Remarks:
***B14. Evaluator:** Steven Treffers, Rincon Consultants.
***Date of Evaluation:** December 16, 2016.

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



 ***Resource Name or #** Flood County Park

***Recorded by:** Susan Zamudio-Gurrola ***Date:** December 16, 2016 ☒ Continuation ☐ Update

***P3a. Description (continued):**
The identified built environment resources within Flood Park are as follows:

Map Reference (MR)	Architectural Element	Construction Date
1	Ticket Office	ca. 1960s
2	Maintenance Building	unknown; moved ca. 1990s
3	Ranger's House	ca. 1938
4	Oak Shelter Picnic Area	ca. 1988
5	Adobe Maintenance Building	ca. 1938
6	Restroom A	1988
7	Park Office	ca. 1938
8	Electrical Building	ca. 1938
9	Play Area	ca. 1988
10	Baseball Field	ca. 1945
11	Baseball Field Restroom	ca. 2003
12	Petánque Court	ca. 1980s
13	Tennis Courts	ca. 1940
14	Softball Field	ca. 1940
15	Restroom D	ca. 1938
16	Restroom B	ca. 2003
17	Restroom C	ca. 1960s/1988
18	Adobe Entrance Wall	ca. 1938

Located at the entrance at the southwestern corner of the property off Bay Road is the ticket booth (Map Reference [MR] 1). Constructed in the 1960s, it is a small, one-story, rectangular structure clad with vertical wood siding. It features a medium-pitched gable roof with overhanging eaves and exposed rafter tails, clad with composite shingles. The structure has openings on all four elevations that have been covered over and secured with padlocks. A solid, single entry door exists on the east elevation.

Also constructed circa 1960s, the maintenance building (MR 2) is one-story, roughly rectangular in plan, and is clad with horizontal wood siding that is located immediately to the west of the entrance. It has an overhanging slanted roof – on approximately half of the building it slants down to the south and on the other half it slants down towards the north. Rafter ends are covered with a fascia board. Fenestration includes ribbon windows on the north and south elevations, which appear to be awning or hopper windows. A single small window exists on the east elevation. The north elevation contains two entries: one is a single entry door featuring a large rectangular pane in the center; the other is a double-door entry. The windows in each door have been covered over. A small rectangular plan, corrugated metal storage shed is also located on the opposite side of a small parking lot immediately to the north of the maintenance building.

To the east of the entrance is the Ranger's House (MR 3). The one-story residential building was constructed in the late 1930s of adobe blocks and is rectangular in plan, with a low-pitched gabled roof that is clad in wooden shingles. It has slightly overhanging eaves and exposed rafter tails, some of which are decoratively carved. The primary entry on the south elevation consists of a single entry door made of vertical wooden boards, iron braces and hardware. It is covered by a small shed roof that is supported by curved brackets and covered with wooden shingles. Adjacent to the entry is a chimney also clad with adobe blocks. The building features recessed windows of various sizes, surrounded by wooden framing and lintels above. Some of the window sills are covered with red tile. Attached at the northeast corner of the residence is a small one-story garage, also constructed of adobe blocks. Itis one-story, rectangular in plan with a flat roof and parapets and contains two non-original, roll-up, paneled garage doors. The residence features a driveway off of Bay Road and a paved parking lot to the rear (north), and is largely enclosed by an adobe masonry wall that has had some sections removed and replaced with wood.

The Oak Shelter picnic area (MR 4) is located to the east of the Ranger's House. Constructed in 1988, consists of a large paved area with various picnic benches and two modern roof shelters. Each roof shelter is roughly square in shape, with a hipped roof, slightly overhanging eaves and exposed rafter tails. The corner supports are square concrete pillars and the roof is composed of glued laminated timber beams and wooden slats. Throughout are typical metal and wood picnic tables with benches, as well as concrete tables. The picnic area also contains barbecues and old growth trees surrounded by low wood rail fences.

See continuation sheet, page 5.

***Resource Name or #** Flood County Park

***Recorded by:** Susan Zamudio-Gurrola ***Date:** December 16, 2016 ☒ Continuation ☐ Update

***P3a. Description (continued):**

North of the Oak Shelter picnic area is an adobe maintenance building, which was originally constructed in the late 1930s as a restroom (MR 5). A one-story, building that is rectangular in plan; it is constructed of adobe blocks and capped by a hipped roof with overhanging eaves and exposed rafter tails that is clad in wooden shingles. Wood doors appear to be original and are made of wide vertical wooden boards and iron hardware, with wooden lintels above. The rectangular window openings contain metal screens.

Constructed in 1988, Restroom A (MR 6) is located to the southeast of the adobe maintenance building. The one-story building is rectangular in plan and is clad in stucco with wooden posts at the corners of the building and wooden base boards. The building has a hipped roof with overhanging eaves and exposed rafter tails. The roof is clad with wooden shingles and punctuated by flat skylights on the southeast side of the building. The building does not contain any windows but contains a single entry door on the northwest elevation. The southeast elevation contains the entries to the two restrooms, which are screened by wooden privacy walls; the entry doors are styled as barn doors.

Adjacent to the east of Restroom A is the park office (MR 7), which was originally constructed in the late 1930s as entrance building to a no longer extant swimming pool to the north. The one-story, rectangular in plan building is constructed of adobe block. It features a hipped roof with overhanging eaves and exposed rafter tails, which is clad in wooden shingles. The ridgeline is punctuated by two chimneys that are currently covered by painted plywood. Originally the building featured open breezeways on the northeast and southwest elevations; however, these openings were infilled with wood windows and doors in the 1960s or 1970s. A centered entry is flanked by windows on each side and a ribbon of transom windows above. On the southwest elevation the wood cladding consists of vertical board and batten, and the windows are wood-framed with four panes each. On the northeast elevation the cladding is horizontal siding and the windows are all single pane with wooden framing. The single entry doors on both elevations feature one large vertical pane. While the planters under the windows on the southwest elevation appear to be original, the planters on the northeast elevation appear to be of more recent construction. The northwest elevation contains an original entry comprised of a single door made of wood with metal bracing, and a wooden lintel above. The door has contemporary hardware and a protective rubber strip across the bottom. A sign hung from the rafter tails above announces the San Mateo County Parks and Recreation Foundation Office. The building features various recessed, wood-framed windows, including a horizontal tripartite window, and vertical casement windows which have ornamental concrete surrounds. A window on the southeast elevation is covered by wooden shutters. Many of the window sills are covered with red tile.

A small rectangular building to the northeast of the Park Office, the electrical building (MR 8) is constructed of adobe block and has a flat concrete roof. There are punctured concrete blocks below the roofline, likely for ventilation. The building contains a single door which appears to be made of wood with iron hardware. Repairs to the structure are visible at places, such as concrete patching at one of the corners.

North of the electrical building and Park Office is the play area (MR 9), which is in the location of the no longer extant pool, which was removed in the 1970s. The play area replaced a subsequent petánque court and was installed in the 1980s. The play area features a playground area with play equipment, sand boxes constructed of concrete, and a shade structure built of concrete columns and a wood canopy.

The primary baseball field (MR 10) is situated to the north of the play area. It features major league dimensions with a chain link home run fence with a range of 350 feet. A wood and chain link fence backstop is behind (northwest of) the diamond, which is currently overgrown with grass. Wood bleachers are located on either side of the infield. Immediately to the northwest of the backstop is the baseball field restroom (MR 11). Constructed circa 2003, the restroom is a prefabricated one-story building with a rectangular plan. Its low-pitched gabled roof is clad with composite shingles and is punctured by domed skylights. The building has small, rectangular windows and solid, single entry doors.

East of the baseball field is the petánque court (MR 12), which appears to have been built in the late 1980s when it was moved from its previous location of the current play area. The flat, rectangular court is approximately 125 by 175 feet and is covered in crushed granite. South of the petánque court is the tennis courts (MR 13), which were constructed as part of the original development of the park and were, were completed by 1943. There are four individual concrete courts within a rectangular area that is approximately 115 by 240 feet and surrounded by a chain link fence. West of the tennis courts is a small softball field (MR 14) that was also installed as part of the original development of the park in the late 1930s/early 1940s. It contains a small backstop, dirt diamond, and wood bleachers.

See continuation sheet, page 6.

***Recorded by:** Susan Zamudio-Gurrola ***Date:** December 16, 2016 ☒ Continuation ☐ Update

***P3a. Description (continued):**

Situated in between the tennis courts and softball field is Restroom D (MR 15). One of the original buildings constructed in the late 1930s, the Restroom D building is one-story, rectangular in plan, and built with adobe blocks. It features a hipped roof with overhanging eaves and exposed rafter tails, and is clad with wooden shingles. Doors and windows appear to be original. The rectangular window openings contain metal screens. The entry doors are made of wide vertical wooden boards and iron hardware, with wooden lintels above. Wooden privacy fences screen the entries to the restrooms.

Two other non-original bathrooms are located in the central area of the park. Restroom B (MR 16), is prefabricated structure installed in approximately 2003. One-story and rectangular in plan, it features a low-pitched front-gabled roof that is punctuated by domed skylights. The building features small, rectangular, fixed windows as well as square vents. Privacy walls on the southwest elevation screen the entries to the restrooms, which are single, metal entry doors. One additional, similar door is located on the northeast elevation. Restroom C (MR 17) is located to the south and is a one-story with an L-shaped plan that is the result of an addition to an originally rectangular building. The original portion of the building was constructed with adobe blocks in the late 1960s. The addition, which is reportedly prefabricated construction and clad in stucco, was built in 1988. The building features a hipped roof with overhanging eaves and exposed rafter tails, and is clad with wooden shingles. There are domed skylights on the northwest side of the roof. Fenestration includes rectangular wood-framed windows with wire mesh covering, and wooden doors with iron braces and hardware topped by wooden lintels. The restroom entrances are screened by wooden privacy fences. A small, wooden storage shed with double doors is attached to the east elevation.

Groupings of picnic areas are located at the central and southeastern portions of the park, each of which features various types of tables and barbeque grills. Although the park has had picnic and barbeque sites since its initial development in the 1930s, these facilities have been continually altered, adapted, and relocated over the years. The oldest picnic tables most likely date to the 1950s and are constructed of some of these have more modern wood and metal grill types, two areas exhibit what appear to be original clusters of original masonry barbeques, commonly known as “diablo stoves” (MR 18). These are located in between Restroom B and Restroom C, as well as at the far southeastern corner of the park. The rockwork grills are set directly atop the ground and are built of masonry construction of various sized and shaped stones. They are rectangular in design and have a raised section to the back and an open, narrow firebox to the front, which is partially capped by a metal grate.

Other features of the park include horseshoe pits, volley, ball courts, mature trees, landscaping, large expanses of lawn, and paved pathways. Off of Bay Road, southwest of the Park Office buildings, are ruins of an adobe entrance wall (MR 18). It consists of two individual sections of wall that run parallel to the road before arcing into the park. Both sections of wall are in various states of disrepair and are missing entire sections in some areas.

Largely encircled by a chain link fence, Flood Park is consistent with a municipal park that has been continually upgraded to meet the needs of its community. Many of its original features have been removed or replaced; however, it is in good overall condition and continues to function as it was originally intended.

Ranger’s House, facing north

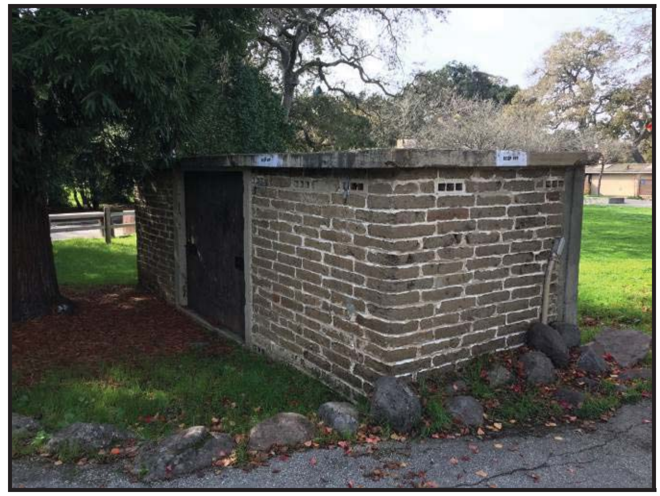
See continuation sheet, page 7.

***Resource Name or #** Flood County Park

***Recorded by:** Susan Zamudio-Gurrola ***Date:** December 16, 2016 ☒ Continuation ☐ Update

***P3a. Description (continued):**

Park office, facing northwest



Electrical building, facing west

Restroom D, facing northwest

Picnic area at southeast end of park, facing northeast

Section of adobe entrance wall, facing west

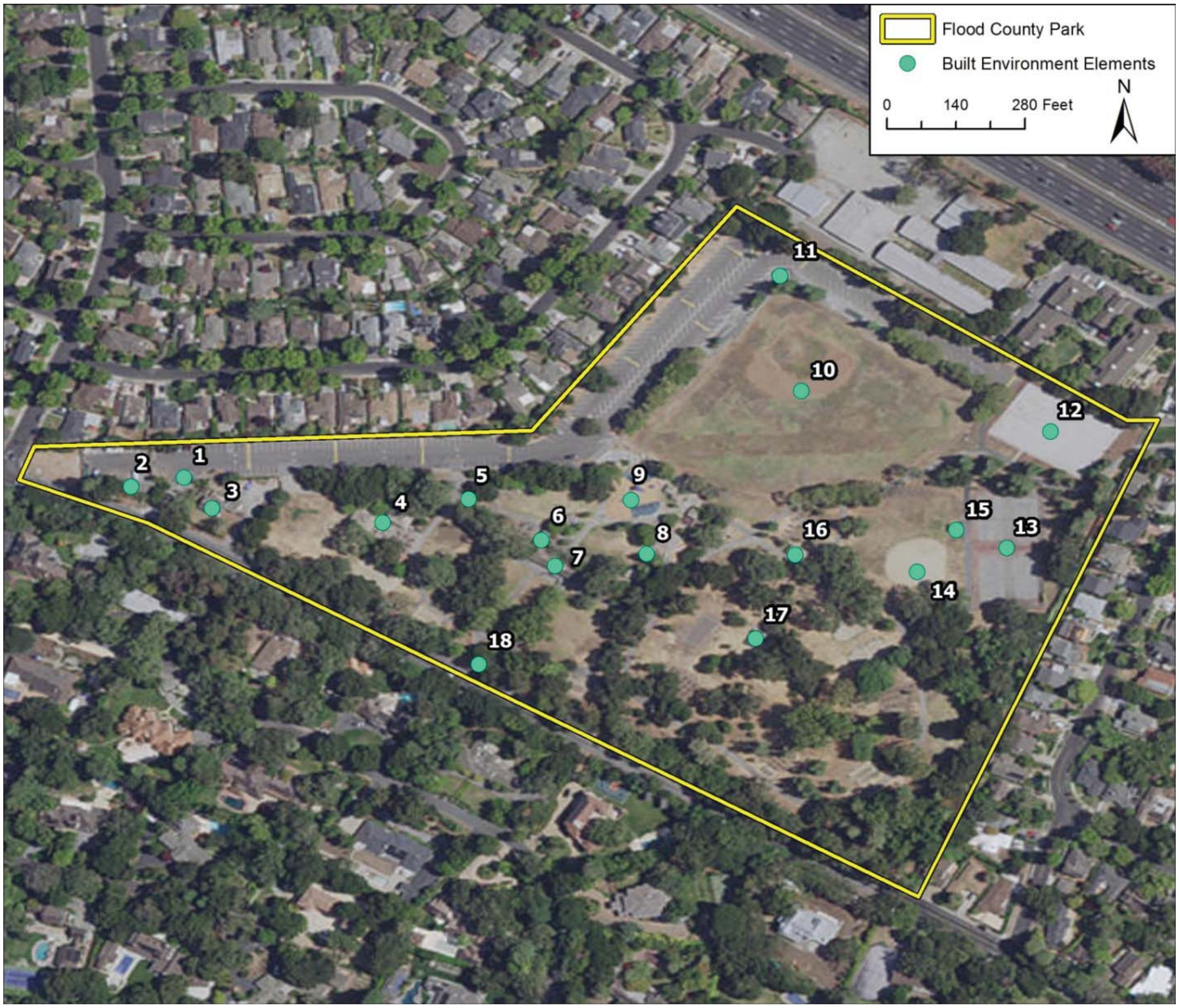
Softball field, facing west

State of California ♁ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary #
HRI#
Trinomial

Page 8 of 13 *Resource Name or # (Assigned by recorder) Flood County Park

*Drawn by: Allysen Valencia *Date of map: December 16, 2016



***Resource Name or #** Flood County Park

***Recorded by:** Susan Zamudio-Gurrola ***Date:** December 16, 2016 ☒ Continuation ☐ Update

*** B10. Significance: (continued):**

Development of Flood Park began the following year in 1938 and was the second WPA project to be sponsored by Campbell and the County of San Mateo (the first being Memorial Park, begun in 1936). While labor costs for WPA projects were paid for by the federal government, the sponsoring agency was required to supply the materials and transportation. Campbell maximized what resources he had by combing abundant WPA labor with the natural materials of the County's parkland. Using a bread mixer purchased from a nearby bakery, workers took tons of hand-excavated earth from the project site to make adobe bricks for the construction of the park's buildings. Redwood timber from Memorial Park, also fabricated by hand, was transported to the park and used for the building's timber framing and wood-shingle roofs (Svanevik and Burgett 2001:19-20).

Adobe buildings constructed in 1938 as part of the initial development of the park included an administration building, caretaker's cottage, and restrooms. Inspired by the contemporaneous California ranch homes of famed Ranch-style architect Cliff May, the buildings were all single-story and featured low profiles, hipped roofs, and overhanging eaves with exposed redwood rafters (Svanevik and Burgett 2001:17). This design and materials at Flood Park were also consistent with the rustic style architecture which was widely used for New Deal agency sponsored park buildings and called for the use of native materials and indigenous construction methods (Jones 2012). In addition to the buildings, initial development of the park included construction of 7,400 feet of trails, picnic tables, barbeque pits, and basketball and volleyball courts (*The Times* 1938). Similar to the adobe buildings, the barbeque pits were also designed in a rustic style, featuring stone construction and other features that were consistent with the guidance of New Deal agencies for camp stove design (Taylor 1937).

This first phase of the park was completed in 1939 and officially dedicated on July 4 that year (*The Times* 1939). The park was an immediate success and by 1940 plans were underway for the development of additional facilities, most notably a pool and adjacent bathhouse. Dedicated in 1942, the pool added to the park's popularity and through the 1940s and 1950s hosted as many as 60,000 visitors annually (Svanevik and Burgett 2001:20). Other facilities constructed in phases through the 1940s included tennis courts, baseball fields, and other athletic fields.

While the park remained one of the most popular recreation spots in south San Mateo County in the decades after World War II, by the 1970s some of its facilities were in poor condition and outdated. In 1974, the pool was closed due to the high cost of maintenance and in its inability to compete with other more modern public pools nearby (*The Times* 1974). The pool and bathhouse were demolished and the area was subsequently replaced with a petánque court.

More notable changes to Flood Park would occur in the late 1980s. Completed at a cost of $800,000, the modernization was largely the work of Phyllis Cangemi, a disabled woman and activist living in Menlo Park (Svanevik and Burgett 2001:18). In a time prior to the passage of the American with Disabilities Act of 1990, Cangemi was successful in advocating in changes that made Flood Park more accessible to persons with disabilities. The resulting improvements included new restrooms, water fountains, benches, and paths that could safely accommodate wheelchairs. Other improvements during the 1980s included the construction of new picnic areas and the play area, and the relocation of the petánque court. Flood Park has remained operational since this time and has been minimally altered through the construction of two new restroom buildings.

San Mateo County Parks

The beginnings of the San Mateo County Parks and Recreation Department can be traced to Roy W. Cloud, the San Mateo County Superintendent of Schools during the 1920s. After a visit to a one-room schoolhouse between La Honda and Pescadero in 1923, Cloud became enamored with the old-growth redwood trees that dominated the surrounding canyon (Svanevik and Burgett 2001:9). Alarmed upon hearing the forest was recently acquired by a lumber company, Cloud approached the San Mateo County Board of Supervisors to persuade them to purchase the 314-acre glen and convert into a park for its lasting protection. Cloud's efforts were successful and in August 1923 the County acquired the land, quickly developing nearly 300 campsites over the following year and dedicating the site as Memorial Park on July 4, 1924 (Svanevik and Burgett 2001:13).

Although a success in conserving the area's natural setting, utilization of the park was slow during its early years, and little infrastructure was developed outside of the initial, minimal campsite facilities. Ironically, the stock market crash of 1929 and the Great Depression that followed provided the greatest impetus for the further development of Memorial Park and the San Mateo County Parks system. A County Charter in 1933 formally created the San Mateo County Recreation Commission and entrusted the new agency with the administrative supervision of Memorial Park and any new parks developed by the County (The Historical Records Survey Division of Women's and Professional Projects 1938). Three years later in 1935, Congress authorized the Works Progress Administration (WPA), a relief agency that provided nearly $11 billion nationally over the course of its existence for public works projects. The combination of these efforts resulted in notable period of park development in San Mateo County.

See continuation sheet, page 10.

*** B10. Significance: (continued):**
Heading WPA projects sponsored by San Mateo County, was Ronald "Ro" Campbell. A native of Los Angeles, California, Campbell graduated from the University of California, Berkeley with a master's degree in architecture in 1929. Two years after graduating from the university, Campbell established an architecture and urban planning office in San Mateo. He was however soon hired by the County of San Mateo as their second full-time staff planner where he came to direct and supervise all of the WPA projects in the County (Svanevik and Burgett 2001).

For his first WPA-funded project, Campbell's set to making substantial improvements at Memorial Park. He oversaw construction of a camp for workers in the western end of Memorial Park, which included military-type barracks for 300 men, a mess hall, hospital, and maintenance shops (Svanevik and Burgett 2001:15). Using methods not utilized since before the Gold Rush, the WPA workers fell selective trees in the park, fabricating them into planks for use in the construction of benches, trails, bridges, and park buildings. Other notable efforts completed as part of the project included the installation of water and sewer lines, designation of picnic areas, and improvements to the campgrounds.

Campbell and County leaders also recognized that the WPA provided a unique opportunity for the future residents of San Mateo County. They correctly anticipated that the County's population would rapidly grow in the following decades, increasing not only the demand for parks, but also the costs of purchasing and developing new facilities (Svanevik and Burgett 2001:16). By combining the federal monies with a special tax levied by the County of San Mateo in the early 1930s, they were able to purchase and develop the land for Flood Park in the late 1930s and early 1940s, as well as acquire 727 acres for a park at Coyote Point in 1940.

The San Mateo County Parks and Recreation Department continued its mission during and after World War II. New parks offered the residents of San Mateo County a variety of recreational and educational opportunities. These included historic properties, natural and marine reserves, and additional new parks offering swimming, hiking, boating, and other facilities. As of 2016, the San Mateo County Parks and Recreation Department oversees 22 parks spread across the County.

Works Progress Administration/Rustic Architecture
The WPA was a relief agency created by executive order of President Franklin Roosevelt in 1935. It was one of dozens of programs and agencies established by the Roosevelt administration as part of the New Deal, which sought to counter the effects of the Great Depression. Essentially formed in response to criticism of the New Deal, the WPA attempted to replace relief programs with work programs and provide work for large numbers of unemployed professional and technical workers (Anderson 1988). This goal was accomplished through a variety of construction projects aimed at benefitting the public, such as new schools, hospitals, community halls, parks, roads, highways and bridges.

Projects under the WPA were administered through the Division of Engineering and Construction and the Division of Professional and Service Projects and typically sponsored by states, counties, or cities. As discussed by WPA historian Rolf T. Anderson:

> *The sponsor supervised the project, paid for materials and equipment, while the W.P.A. paid for the majority of the labor costs. The [state or local agency] acted as the sponsor for … projects with the ratio of federal to state funds for a particular project at about 11 to 1. However, in 1937 this ratio changed to 4 to 1, making it more difficult for the state to provide the sponsor's share of the cost. This was considerably more expensive than a C.C.C. project where the ratio was generally about 20 to 1. (Anderson 1988:E-26-E27)*

Through the 1930s and early 1940s, the WPA worked closely with the National Park Service (NPS) completing emergency conservation and public works projects. In late 1935, the NPS assumed responsibility for the technical supervision of WPA projects in various state, county and municipal parks. The NPS reviewed and approved project plans for work of the WPA and the Civilian Conservation Corps (CCC) (another New Deal Program), hiring architects, landscape architects, engineers and inspectors to design and supervise WPA and CCC projects (McClelland 1993,1998). The WPA came to adopt an architectural style that had been promoted by the NPS, known as the "rustic" style (Tweed et al. 1977).

The NPS had assumed administrative control of the national parks in 1917, and subsequently developed design policies for park development. The Rustic Style was officially put into practice by the NPS after the issuance of an agency policy statement in 1918, and in the following years the NPS played an important role in promoting the design method (History Colorado n.d.; Tweed et al. 1977). The style was rooted in British gardening traditions from the 19th century, and popularized by the writings of Andrew Jackson Downing. Landscape architect Frederick Law Olmsted, who promoted the same principles in the design of urban parks, collaborated with architect Henry Hobson Richardson in the 1880s to create a style of architecture for park buildings and structures. Drawing from the Shingle and Richardsonian Romanesque styles, this rustic style was widely adopted – with variations – by the late 19th century in the design of structures for early state parks as well as urban parks. Its influence extended into the 20th century to the design of the inns and hotels in Glacier, Grand Canyon, and Yellowstone national parks (McClelland 1998). The rustic style was popular through the late 1930s when the NPS's use of it began declining (Tweed et al. 1977).
See continuation sheet, page 11.

***Recorded by:** Susan Zamudio-Gurrola ***Date:** December 16, 2016 ☒ Continuation ☐ Update

*** B10. Significance: (continued):**
The term "rustic" was used in reference to various aspects of park architecture, which included appearance, the use of indigenous or pioneer construction techniques and materials, the use of building materials and techniques according to conservationist principles, and the integrated adaptation of building forms to the landscape problems of topography, vistas, available materials, local plant life, and local building traditions (Conan 2000). Specific to architectural design, the Rustic Style called for the use of native materials, in California, "depending on location, materials such as logs, shake siding, unpeeled half-logs, and rough-hewn stone predominate, with a lesser number of adobe stucco building in the southern part of [California]" (Roland 2009:F-30). Buildings designed in an appropriate scale while avoiding severely straight lines and over-sophistication, giving the feeling that they had been executed by pioneer craftsmen with limited hand tools (Good 1938). The Rustic Style was also easily applied to other types of structures and objects, such as bridges, observation towers, and picnic tables and stoves at campgrounds (Roland 2009).

Despite a movement advocating modernist architecture, Rustic Style architecture was embraced by architects, planners, and builders of the New Deal, as President Roosevelt's Depression-era projects and programs were referred to. The Rustic Style architecture movement correlated with the American public's romanticizing of nature and of the country's western frontiers. It hearkened to the past to impart a feeling of continuity and permanence. Builders employed early pioneer and regional building techniques because it was thought that structures made with native materials were most successfully incorporated into the environment (Tweed et al. 1977). The Rustic Style architecture style was also easily applied to small town and park buildings, and meshed with WPA goals and policies, such as requiring that buildings be constructed with locally available materials to decrease the project cost and to foster more involvement from the local community (Gray 2006). The WPA's goal was to put as many capable, unemployed people back to work as possible, which meant that hand labor and hand tools were more readily available than power tools or equipment. Thus the WPA's use of native materials and indigenous construction methods may oftentimes have been due to necessity and not choice, but was consistent with the principles of the rustic architecture movement. The primary difference in Rustic Style architecture as practiced by the NPS versus the WPA is in the demarcation between the buildings and the landscape. The smaller-scale parks created by the WPA did not allow for the full integration and screening of buildings in their surrounding landscape as was possible in the larger national parks (History Colorado n.d.).

Transferred to the Federal Works Agency and renamed the Works Projects Administration in 1939, the WPA was eventually liquidated in 1943 as a result of the employment shortages of World War II. Although not comprehensive, The Living New Deal, a research group documenting the art and architecture of the New Deal, has identified over 5,000 projects that were completed across the United States between 1935 and 1943 (The Living New Deal 2016). Of these, nearly 1,000 were located in the state of California with approximately 265 of the projects involving the development of parks and recreation-related facilities. A total of 11 WPA funded projects were completed in San Mateo County, five of which included parks and recreation-related facilities, including Memorial Park and Flood County Park.

Flood County Park Historic Evaluation
Flood County Park appears eligible for listing in the CRHR under Criteria 1 and 3, with its extant adobe buildings representing a direct association with the WPA program in San Mateo County and embodying a significant architectural type and method of construction. The WPA was one of the largest and most ambitious programs of the New Deal and was responsible for over 1,000 public works projects across California between 1935 and 1943 (The Living New Deal 2016). Initially constructed in 1938, Flood County Park was the second WPA parks project in San Mateo County and was the result of resourceful County leaders who recognized the future need for parkland in a rapidly developing area. Unlike Memorial Park (the County's first WPA park project) and many other WPA park projects, Flood County Park was unique in that it was developed as a smaller urban recreational facility. An examination of other extant WPA projects in San Mateo County and the surrounding San Francisco Bay area indicates that WPA parks of this size in fact a rare variation of the property type (The Living New Deal 2016). Although the project was small in size compared to other park projects, it was developed using the same the design principles and construction methods utilized by its larger counterparts. The use of adobe blocks, which were handmade on site for the park's buildings, is not only unique for northern California, but also consistent with the larger principles of Rustic Style of architecture that was promoted and adopted by the WPA and other New Deal programs. The period of significance for these associations begins in 1938 with the initial development of the park and the construction of the adobe buildings, and ends in 1943 following the dissolution of the WPA.

Although the Ronald Campbell was instrumental in the development of Flood County Park and Memorial Park during his time.as the San Mateo County Planner, he was one of numerous individuals who oversaw WPA projects in California and the rest of the country. Research does not suggest that he or any other individuals associated with Flood County Park are notable within the context of WPA parks projects at the state or national level to warrant consideration for listing in the CRHR Criterion 2. Further, research does not suggest the property has the potential to yield important information and it does not appear eligible for listing under Criterion 4.
See continuation sheet, page 12.

***Resource Name or #** Flood County Park

***Recorded by:** Susan Zamudio-Gurrola ***Date:** December 16, 2016 ☒ Continuation ☐ Update

*** B10. Significance: (continued):**

In considering the integrity of the overall resource, the park has continually undergone alterations that have resulted in the construction, demolition, and relocation of buildings, structures, recreational facilities, and landscape features. These alterations have negatively affected aspects of the park's original design, materials, workmanship, and setting and as a result, it does not appear to retain sufficient integrity to be eligible for listing in the NRHP. The California Office of Historic Preservation however recognizes that while a historical resource may not retain sufficient integrity to meet the threshold for listing in the NRHP, it may still be eligible for listing in the CRHR (California Office of Historic Preservation 2001:2). While noted alterations have slightly changed the overall setting, the property still remains a park facility and appears largely as it has since its dedication in 1938. Further, the extant adobe buildings from the WPA era remain in their original location and have not been substantially altered. For these reasons, the property retains sufficient integrity of location, design, materials, workmanship, feeling, and association to meet the threshold for CRHR listing.

Many of the park's extant features are not associated with the WPA and were constructed after the period of significance, which ends in 1943 with the dissolution of the New Deal program. For this reason they do not contribute to the significance of the property and are considered non-character defining. Although the former adobe entrance wall exhibits the same materials and design principles as many of the extant adobe buildings, it is in a state of substantial disrepair and no longer retains sufficient integrity of materials, design, and workmanship to convey the reasons for Flood County Park's significance. In addition, the tennis courts, baseball field, and softball field, were possibly developed using WPA labor, they are ubiquitous property types that do not represent the design principles and design principles of the WPA and its workers, and are not considered contributing elements to Flood County Park. With boundaries that correspond with those of the park, the CRHR-eligible Flood County Park has the following contributing elements:

- Ranger's House (MR 3)
-Adobe Maintenance Building (MR 5)
-Electrical Building (MR 8)
-Park Office (MR 7)
-Restroom D (MR 15)

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Appendix F

Preliminary Seismic Assessment Report

Preliminary Seismic Assessment Report

of the

Flood Park Adobe Structures

Prepared for

San Mateo County Parks Department

April 2016

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3868 Carson Street, Suite 300 Torrance, CA 90503 310/792-9252
Structural Engineers - Historic Preservation

Scope and Intent

Introduction

A series of adobe buildings in San Mateo County's Flood Park in Menlo Park were constructed in 1938 under the WPA program.

The buildings are considered unreinforced masonry structures as there is no reinforcing steel in the walls. The County desires to better understand the seismic safety issues on the structures. The County did not, at this time need, a complete seismic evaluation of the buildings, but an overview of issues. To provide this, Melvyn Green and Associates, Structural Engineers, was retained to prepare a brief report on the buildings. This intent of this report is to provide a quick evaluation of the structures and not a full evaluation based on *ASCE 41, Seismic Evaluation and Retrofit of Existing Buildings*.

Four buildings are included in this study. They are the Office building, restroom building D, the maintenance building (old restroom), and the electrical equipment building.

Seismic Issues and Criteria

Building Code Provisions – Adobe construction has been in the building codes used in California for many years. Even the current California Building Code (CBC) contains adobe design and construction provisions. After the 1933 Long Beach earthquake, building codes were tightened to require masonry (typically brick and block) walls to be reinforced. Adobe, a form of masonry, was still permitted in the UBC into the 1960's included in these regulations.

The actual adobe design requirements, included in the Uniform Building Code (UBC), commonly used in California, permitted adobe structures to be constructed without reinforcing steel. The wall height to thickness (h/t) ratio was 10 and the minimum wall thickness was 16 inches (1961 UBC).There was no mention of a bond beam but it might be implied with the anchorage requirements.

The 2016 California Historic Building Code (CHBC) (Title 24, Part 8) notes an h/t ratio of 6 for adobe walls. Walls exceeding this ratio are permitted when there is a bond beam to tie the building together and for the roof and ceiling connection to the building.

To add one more item to the mix, the 2016 California Existing Building Code (CEBC) contains seismic provisions for adobe structures and allows a maximum h/t of 8 in the highest seismic zone.

As may be noted there is no specific agreement on wall h/t (stability) numbers. For this study an h/t of approximately 8 with a bond beam will be considered acceptable. There is no minimum wall thickness in the CHBC. (The allowable height to thickness ratio for an unreinforced brick building is 13 in this region of seismicity.)

Seismic Evaluation Approach

Inspection - Each building was inspected in the field. The inspection included a visual inspection of all adobe walls. Included in this inspection was the general condition of the adobe at the base for coving (washing out of the adobe), and the verification that a concrete bond beam was present. Observation of the anchorage, physical attachment with bolts of the roof to the bond beam, was made where accessible. Other visual condition factors were noted as observed.

Site Seismicity – Using the U.S.G.S. maps, the site specific seismicity was determined. This was to verify the code limits for selected factors such as wall stability. Menlo Park, and Flood Park, are in a high seismic zone. See site specific data information attached.

Seismic Analysis – Wall height to thickness (h/t) ratios were computed for each building. Each building was verified to have a bond beam and that the roof was attached to the bond beam.

General Recommendations and Findings

As will be noted in the following pages, the buildings are in generally good condition.

The buildings comply with the minimum safety provisions of the CHBC. Each has a concrete bond beam at the top of the wall, the height to thickness ratios are within reason (either CHBC or CEBC), the roofs are anchored to the bond beam, and each has a reasonable amount of wall length for shear.

There are no potential hazards created by the building except as noted in the individual building summary.

Photo 1 . Office building with enclosed breezeway. One chimney can be seen. The hip shaped roof can be seen.

Building: Office Building
Year of Construction: 1938
Number of Stories: 1

The Office Building consists of two single story structures connected by a roofed over breezeway. Each building is rectangular in shape. The buildings served the park needs and provided access and control to the swimming pool (now removed).

Access into the buildings is from the breezeway. The breezeway has been enclosed with the construction of exterior window walls. Interior walls are wood frame construction. Photo 1 provides a general view of the building.

Foundation: The building has a concrete foundation. Stem walls extend from the floor to about 24 inches above grade. The stem walls support the exterior adobe walls. The floor is concrete slab on grade.

Walls: The walls are single wythe 16 inch thick adobe blocks at the base extending about 24 inches above grade. At that point the walls are reduced to 12 inches in width. Walls of the building are approximately 8 feet in height. At the top of the wall there is a 12 inch high bond beam. It could not be determined whether the bond beam is the full width of the wall. There is a wood top plate on the walls. Based on the observations in the other building, it is assumed that there are anchor bolts from the plate to the bond beam.

Roof: The roof is hip shaped at the exterior walls and a gable at the breezeways. The roof has 4 x rafters spaced at 24 inches on center supported on a ridge beam. The ridge beam spans to rafters that create a truss where a bottom chord is placed. Roof sheathing is 1 x 8 straight boards. The roof covering is wood shake.

Building Condition

The general condition of the building is good. Minor base coving was observed. The concrete planter boxes under windows and along some walls may bring water into the adobe. This results in deterioration of the adobe where it is in contact with dirt.

Site water drainage needs to be improved.

Seismic Evaluation

Wall height to thickness (h/t) ratio = 8.3

~ 8.0 CEBC. This should be considered acceptable.

Bond Beam – Complies with SHBC

Connection from roof to wall – Existing

Gables – Not apparently anchored to roof. The gables may act as parapets in an earthquake. A potential hazard of collape.

Chimneys – Chimneys behave like parapets. If they exceed a height to minimum width exceeding a 1/5 they could topple in an earthquake.

Recommendations

Gables – The gables are unbraced and exceed the allowable h/t for parapets. They should be braced. This may be accomplished from within the building with a steel tube from the bond beam to the roof sheathing.

Whether there is a connection between the roof and the gable should be verified. This may require some removal of finish/paint as well as access.

Chimneys – Chimneys should be braced, or reduced in height, to be within the allowable h/t of 1.5/1.

If the recommendations noted above are undertaken, this building will meet the life life safety intent of the code.

Photo 2. Interior adobe wall showing the gable above the bond beam. Gables act as parapets, which topple in earthquakes. They need to be attached to the roof structure. Roof framing and trusses chords can be seen.

Photo 3. West side of Office Building. The photo shows a planter against the adobe wall. This permits water to enter the adobe blocks and cause erosion.

Photo 4. The trim around the windows are the only architectural details on the building.

Photos 3 and 4. In each photo there is a roof drain. The preferred approach would be to extend the drains to divert the water away from the base of the building.

Photo 5. Maintenance Building near north end of site. Hip roof with shakes is part of the rustic style used by the WPA.

Building: Maintenance Building (Old Toilet Building)
Year of Construction: 1938
Number of Stories: 1

The Maintenance Building is a one story rectangular structure that originally contained a men's and women's toilet. Currently it serves for park maintenance and houses equipment.

Each room had an access door and window on the opposite wall. There is a double wood wall between the rooms that supports the plumbing. The separation of the two wood walls provides for access to the plumbing supply and drain lines. An exterior door provides access to this space.

It consists of a concrete foundation supporting the exterior walls. The floor is concrete slab on grade.

The walls are single wythe 12 inch thick adobe blocks. Walls of this building are approximately 8 feet in height. At the top of the wall there is an 8 inch tall, 8 inch wide bond beam at the top of the wall. There is a wood top plate on the walls. Anchor bolts were observed from the plate to the bond beam.

The roof is hip shaped supported by 4 x rafters spaced at 24 inches on center. Roof sheathing is 1 x straight boards. The roof covering is wood shake.

Building Condition

The general condition of the building is good. No base coving of significance was observed.

There is one vertical crack adjacent to the door on the north side of the building. This does not appear to be settlement and might have resulted from the 1989 Loma Prieta earthquake.

Seismic Evaluation

Wall height to thickness (h/t) ration = 7.5 < 8.0 CEBC. Complies with the code.

Bond Beam – Complies with SHBC

Connection from roof to wall was field verified and meets the intent of the code.

Recommendations

At this time the building is only used for storage and not public use. Recommend continuing use. Minor adobe patching for crack over door.

Photo 6. Detail photo of the Maintenance Building showing the concrete bond beam at the top of the wall. There is a crack at the corner that could be previous earthquake damage.

Photo 7. Restroom D is located near the southern end of the park. It is similar in construction and details to the Maintenance Building. There is some erosion near the base that will need repairs in the future.

Building: Restroom D
Year of Construction: 1938
Number of Stories: 1

Restroom D is a one story rectangular structure. It serves as a restroom facility near the baseball diamond and tennis court area. It is constructed in a manner similar to the Maintenance Building and about the same size.

Each room has an access door and window on the opposite wall. There is a double wood wall between the rooms that supports the plumbing. The separation of the two wood walls provides for access to the plumbing supply and drain lines. An exterior door provides access to this space.

The building has a concrete foundation supporting the exterior walls. The floor is concrete slab on grade.

The exterior walls are single wythe 12 inch thick adobe blocks. Walls of the building are approximately 8 feet in height. At the top of the wall there is an 8 inch high bond beam. It could not be determined whether the bond beam is the full width of the wall. There is a wood top plate on the walls. Based on the observations in the maintenance building, it may be assumed that there are anchor bolts from the plate to the bond beam.

The roof is hip shaped supported by 4 x rafters spaced at 24 inches on center. Roof sheathing is 1 x 8 straight boards. The roof covering is wood shake.

Building Condition

The general condition of the building is good. Minor base coving of was observed but not considered significant at this time.

Seismic Evaluation

Wall height to thickness (h/t) ration = 7. 5 < 8.0 CEBC. Complies with the building code.

Bond Beam – Complies with SHBC

Connection from roof to wall

Recommendations

Recommend continued use with no significant work recommended.

It is recommended that the earth around the building be regraded to drain the water away from the base of the structure. This will reduce future maintenance.

Photo 8. Restroom D showing eroded adobe units at base of wall. Minor regrading to direct the water away from the building will reduce future maintenance.

Photo 9. Electrical Equipment building. A low structure now used for the park's electrical equipment. This is the only structure that has a concrete roof.

Building: Electrical Equipment Shelter
Year of Construction: 1938
Number of Stories: 1

The Electrical Building is a low one story rectangular structure on a sloping site. It serves to house the site electrical equipment. In the past it may have served the swimming pool equipment. It is relatively small in size.

We were unable to verify the wall thickness. The building height is estimated to be about 6 ft. 6 inches in height.

It consists of a concrete foundation supporting the exterior walls. The floor is concrete slab on grade (assumed).

The walls are single wythe 12 inch thick adobe blocks. Walls of the building are approximately 6 feet 6 inches in height.

There is a 4 inch thick reinforced concrete slab roof on this structure. There was no way to observe whether there is a physical attachment of the roof to the walls. The mass of the slab roof may work as a bond beam.

Building Condition

The general condition of the building is fair. Minor coving at the base was noted. There is some deterioration of the adobe units.

The repaired corner shown may be the result of previous earthquake damage. The patching of the corner, shown in the photo above will not effect the seismic performance of the building.

Seismic Evaluation

Wall height to thickness (h/t) ration = 6.5 < 8.0 CEBC. Complies with the building code.

Bond Beam – The roof slab may function as a bond beam. It is attached only by its weight bearing on the adobe walls.

Recommendations

The building is only used for equipment and not public use. Recommend continuing use with no work recommended.

At some time in the reasonable future, the grade should be adjusted around the base to bring the soil level down to below the adobe line. Patching of the eroded adobe units might be considered at that time.

USGS Design Maps Summary Report

User–Specified Input

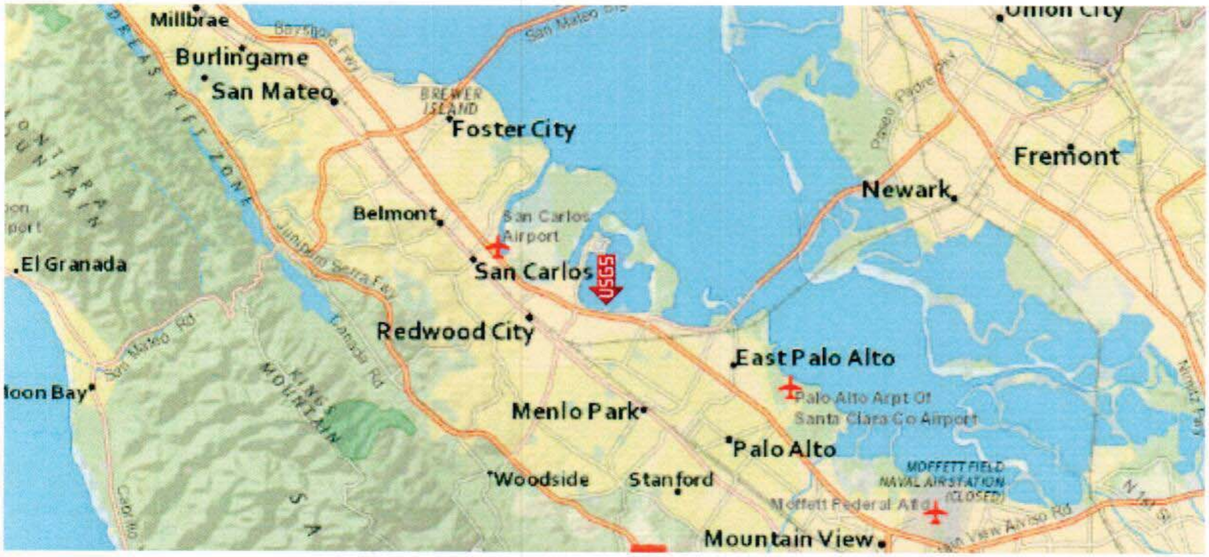
Report Title Flood Park Menlo Park
Fri March 31, 2017 22:34:00 UTC

Building Code Reference Document ASCE 7-10 Standard
(which utilizes USGS hazard data available in 2008)

Site Coordinates 37.5°N, 122.2°W

Site Soil Classification Site Class D – "Stiff Soil"

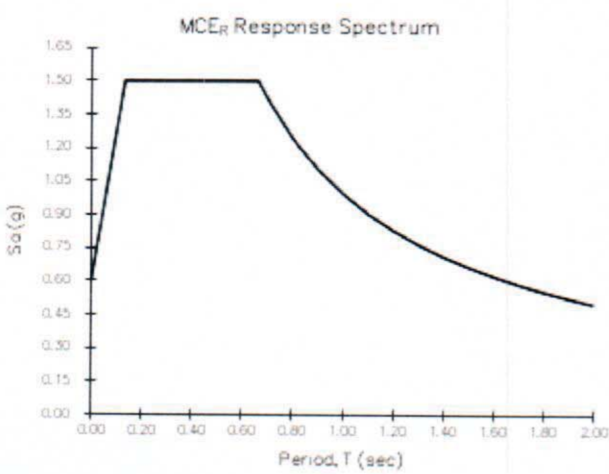
Risk Category I/II/III

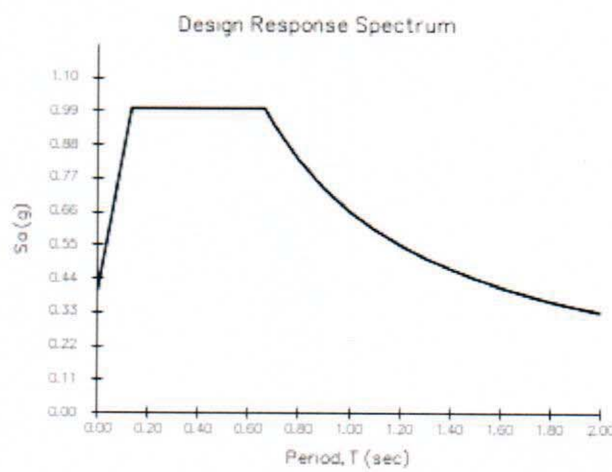


USGS–Provided Output

S_S =	1.500 g	S_{MS} =	1.500 g	S_{DS} =	1.000 g
S_1 =	0.663 g	S_{M1} =	0.995 g	S_{D1} =	0.663 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

MELVYN GREEN
& ASSOCIATES, INC.
~~21311 Hawthorne Blvd. · Suite 230~~
TORRANCE, CALIFORNIA 90503
1-310-792-9252

JOB 2017113

SHEET NO. ______ OF ______

CALCULATED BY ______ DATE ______

CHECKED BY ______ DATE ______

SCALE ______

BUILDING	Wall Ht	Wall Thickness	h/t	Bond Beam
Office	5 Blk @ Base 17 @ wall 22 x 4.5" = 99" ↑ Blocks	12"	8.25	Yes
Maintenance Room	90"	12"	7.5	Yes
Restroom D	90"	12"	7.5	Yes
Electrical Room	78"	12	6.5	4" Corner deck · Bond Beam cannot verify Thickness

Appendix G

Noise Results

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 80.5 - 2017/01/19 18:34:16
- Level Range : 40-100
- SEL : 99.5
- Leq : 70.0
-

No.s	Date Time	(dB)
1	2017/01/19 18:20:44	64.1
2	2017/01/19 18:20:45	67.1
3	2017/01/19 18:20:46	73.1
4	2017/01/19 18:20:47	73.3
5	2017/01/19 18:20:48	67.5
6	2017/01/19 18:20:49	65.7
7	2017/01/19 18:20:50	69.4
8	2017/01/19 18:20:51	73.2
9	2017/01/19 18:20:52	74.1
10	2017/01/19 18:20:53	71.3
11	2017/01/19 18:20:54	68.3
12	2017/01/19 18:20:55	68.5
13	2017/01/19 18:20:56	72.0
14	2017/01/19 18:20:57	69.8
15	2017/01/19 18:20:58	65.4
16	2017/01/19 18:20:59	63.4
17	2017/01/19 18:21:00	61.9
18	2017/01/19 18:21:01	60.8
19	2017/01/19 18:21:02	61.3
20	2017/01/19 18:21:03	62.3
21	2017/01/19 18:21:04	65.5
22	2017/01/19 18:21:05	66.6
23	2017/01/19 18:21:06	68.6
24	2017/01/19 18:21:07	67.1
25	2017/01/19 18:21:08	62.8
26	2017/01/19 18:21:09	61.2
27	2017/01/19 18:21:10	61.7
28	2017/01/19 18:21:11	61.7
29	2017/01/19 18:21:12	63.1
30	2017/01/19 18:21:13	65.3
31	2017/01/19 18:21:14	66.6
32	2017/01/19 18:21:15	64.1
33	2017/01/19 18:21:16	60.3
34	2017/01/19 18:21:17	56.9
35	2017/01/19 18:21:18	55.5
36	2017/01/19 18:21:19	54.3
37	2017/01/19 18:21:20	53.7
38	2017/01/19 18:21:21	53.9
39	2017/01/19 18:21:22	53.5
40	2017/01/19 18:21:23	53.7
41	2017/01/19 18:21:24	53.4
42	2017/01/19 18:21:25	53.2
43	2017/01/19 18:21:26	53.3
44	2017/01/19 18:21:27	52.9
45	2017/01/19 18:21:28	54.1
46	2017/01/19 18:21:29	55.2
47	2017/01/19 18:21:30	55.5
48	2017/01/19 18:21:31	57.3
49	2017/01/19 18:21:32	60.3
50	2017/01/19 18:21:33	63.4
51	2017/01/19 18:21:34	68.2
52	2017/01/19 18:21:35	71.9
53	2017/01/19 18:21:36	67.5
54	2017/01/19 18:21:37	65.5
55	2017/01/19 18:21:38	70.7
56	2017/01/19 18:21:39	75.9
57	2017/01/19 18:21:40	76.6
58	2017/01/19 18:21:41	71.3
59	2017/01/19 18:21:42	66.8
60	2017/01/19 18:21:43	62.1
61	2017/01/19 18:21:44	61.2
62	2017/01/19 18:21:45	60.5
63	2017/01/19 18:21:46	61.3
64	2017/01/19 18:21:47	65.0
65	2017/01/19 18:21:48	70.7
66	2017/01/19 18:21:49	71.7
67	2017/01/19 18:21:50	66.2
68	2017/01/19 18:21:51	63.2
69	2017/01/19 18:21:52	61.3
70	2017/01/19 18:21:53	61.7
71	2017/01/19 18:21:54	60.6
72	2017/01/19 18:21:55	60.8
73	2017/01/19 18:21:56	56.7
74	2017/01/19 18:21:57	53.7
75	2017/01/19 18:21:58	53.1
76	2017/01/19 18:21:59	53.7
77	2017/01/19 18:22:00	54.4
78	2017/01/19 18:22:01	53.9
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91	2017/01/19	18:22:14	67.6
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107	2017/01/19	18:22:30	75.4
108	2017/01/19	18:22:31	77.2
109	2017/01/19	18:22:32	70.1
110	2017/01/19	18:22:33	67.8
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649	2017/01/19	18:31:32	56.6
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651	2017/01/19	18:31:34	58.2
652	2017/01/19	18:31:35	58.1
653	2017/01/19	18:31:36	58.8
654	2017/01/19	18:31:37	61.1
655	2017/01/19	18:31:38	62.5
656	2017/01/19	18:31:39	66.0
657	2017/01/19	18:31:40	68.0
658	2017/01/19	18:31:41	68.5
659	2017/01/19	18:31:42	66.5
660	2017/01/19	18:31:43	62.5
661	2017/01/19	18:31:44	59.6
662	2017/01/19	18:31:45	58.1
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664	2017/01/19	18:31:47	58.3
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666	2017/01/19	18:31:49	58.3
667	2017/01/19	18:31:50	57.9
668	2017/01/19	18:31:51	60.4
669	2017/01/19	18:31:52	64.1
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671	2017/01/19	18:31:54	71.6
672	2017/01/19	18:31:55	65.6
673	2017/01/19	18:31:56	62.6
674	2017/01/19	18:31:57	61.1
675	2017/01/19	18:31:58	62.0
676	2017/01/19	18:31:59	61.9
677	2017/01/19	18:32:00	62.9
678	2017/01/19	18:32:01	61.7
679	2017/01/19	18:32:02	64.1

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685	2017/01/19	18:32:08	61.3
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687	2017/01/19	18:32:10	62.8
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694	2017/01/19	18:32:17	72.4
695	2017/01/19	18:32:18	68.4
696	2017/01/19	18:32:19	66.8
697	2017/01/19	18:32:20	68.5
698	2017/01/19	18:32:21	74.0
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700	2017/01/19	18:32:23	73.9
701	2017/01/19	18:32:24	73.7
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709	2017/01/19	18:32:32	67.9
710	2017/01/19	18:32:33	72.9
711	2017/01/19	18:32:34	77.3
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718	2017/01/19	18:32:41	68.4
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730	2017/01/19	18:32:53	67.0
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764	2017/01/19	18:33:27	64.0
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766	2017/01/19	18:33:29	73.3
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768	2017/01/19	18:33:31	64.0
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770	2017/01/19	18:33:33	60.2
771	2017/01/19	18:33:34	61.2
772	2017/01/19	18:33:35	64.0
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774	2017/01/19	18:33:37	73.1
775	2017/01/19	18:33:38	67.4
776	2017/01/19	18:33:39	65.3
777	2017/01/19	18:33:40	65.8
778	2017/01/19	18:33:41	69.9

779	2017/01/19	18:33:42	73.9
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783	2017/01/19	18:33:46	63.3
784	2017/01/19	18:33:47	64.5
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797	2017/01/19	18:34:00	63.6
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803	2017/01/19	18:34:06	64.0
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812	2017/01/19	18:34:15	75.9
813	2017/01/19	18:34:16	80.0
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817	2017/01/19	18:34:20	62.8
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823	2017/01/19	18:34:26	65.4
824	2017/01/19	18:34:27	71.8
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852	2017/01/19	18:34:55	60.0
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854	2017/01/19	18:34:57	59.2
855	2017/01/19	18:34:58	59.1
856	2017/01/19	18:34:59	58.8
857	2017/01/19	18:35:00	59.3
858	2017/01/19	18:35:01	59.1
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860	2017/01/19	18:35:03	60.7
861	2017/01/19	18:35:04	63.1
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865	2017/01/19	18:35:08	64.1
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871	2017/01/19	18:35:14	69.7
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887	2017/01/19	18:35:30	74.9
888	2017/01/19	18:35:31	75.4
889	2017/01/19	18:35:32	71.0
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892	2017/01/19	18:35:35	67.9
893	2017/01/19	18:35:36	69.3
894	2017/01/19	18:35:37	71.9
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896	2017/01/19	18:35:39	70.8
897	2017/01/19	18:35:40	67.6
898	2017/01/19	18:35:41	65.9
899	2017/01/19	18:35:42	64.7
900	2017/01/19	18:35:43	67.6
901	2017/01/19	18:35:44	71.9
902	2017/01/19	18:35:45	72.4
903	2017/01/19	18:35:46	66.4
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- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 69.5 - 2017/01/19 18:57:45
- Level Range : 40-100
- SEL : 85.6
- Leq : 56.1
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16	2017/01/19 18:43:14	52.2
17	2017/01/19 18:43:15	52.4
18	2017/01/19 18:43:16	52.4
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23	2017/01/19 18:43:21	52.6
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26	2017/01/19 18:43:24	51.9
27	2017/01/19 18:43:25	52.8
28	2017/01/19 18:43:26	52.5
29	2017/01/19 18:43:27	52.8
30	2017/01/19 18:43:28	53.2
31	2017/01/19 18:43:29	54.9
32	2017/01/19 18:43:30	53.4
33	2017/01/19 18:43:31	53.6
34	2017/01/19 18:43:32	53.7
35	2017/01/19 18:43:33	53.0
36	2017/01/19 18:43:34	52.6
37	2017/01/19 18:43:35	52.7
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43	2017/01/19 18:43:41	51.9
44	2017/01/19 18:43:42	52.4
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176	2017/01/19	18:45:54	57.6
177	2017/01/19	18:45:55	56.5
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602	2017/01/19	18:53:00	65.0
603	2017/01/19	18:53:01	61.4
604	2017/01/19	18:53:02	56.6
605	2017/01/19	18:53:03	54.1
606	2017/01/19	18:53:04	53.7
607	2017/01/19	18:53:05	53.1
608	2017/01/19	18:53:06	51.5
609	2017/01/19	18:53:07	51.9
610	2017/01/19	18:53:08	52.1
611	2017/01/19	18:53:09	52.4
612	2017/01/19	18:53:10	51.5
613	2017/01/19	18:53:11	51.1
614	2017/01/19	18:53:12	51.3
615	2017/01/19	18:53:13	51.7
616	2017/01/19	18:53:14	51.8
617	2017/01/19	18:53:15	51.2
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635	2017/01/19	18:53:33	61.0
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653	2017/01/19	18:53:51	50.8
654	2017/01/19	18:53:52	51.0
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724	2017/01/19	18:55:02	52.2
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726	2017/01/19	18:55:04	51.5
727	2017/01/19	18:55:05	50.9
728	2017/01/19	18:55:06	51.1
729	2017/01/19	18:55:07	50.9
730	2017/01/19	18:55:08	50.6
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771	2017/01/19	18:55:49	52.1
772	2017/01/19	18:55:50	53.1
773	2017/01/19	18:55:51	52.9
774	2017/01/19	18:55:52	53.5
775	2017/01/19	18:55:53	52.7
776	2017/01/19	18:55:54	54.9
777	2017/01/19	18:55:55	55.2
778	2017/01/19	18:55:56	52.6

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780	2017/01/19 18:55:58	51.7
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784	2017/01/19 18:56:02	51.2
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788	2017/01/19 18:56:06	52.4
789	2017/01/19 18:56:07	53.3
790	2017/01/19 18:56:08	52.1
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793	2017/01/19 18:56:11	51.4
794	2017/01/19 18:56:12	51.1
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805	2017/01/19 18:56:23	52.5
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808	2017/01/19 18:56:26	51.6
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810	2017/01/19 18:56:28	53.2
811	2017/01/19 18:56:29	52.9
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813	2017/01/19 18:56:31	53.7
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815	2017/01/19 18:56:33	52.5
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817	2017/01/19 18:56:35	54.1
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821	2017/01/19 18:56:39	55.7
822	2017/01/19 18:56:40	56.0
823	2017/01/19 18:56:41	54.8
824	2017/01/19 18:56:42	54.1
825	2017/01/19 18:56:43	54.5
826	2017/01/19 18:56:44	60.2
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828	2017/01/19 18:56:46	62.9
829	2017/01/19 18:56:47	61.1
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831	2017/01/19 18:56:49	62.9
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833	2017/01/19 18:56:51	65.0
834	2017/01/19 18:56:52	64.0
835	2017/01/19 18:56:53	59.4
836	2017/01/19 18:56:54	62.4
837	2017/01/19 18:56:55	61.3
838	2017/01/19 18:56:56	63.3
839	2017/01/19 18:56:57	63.0
840	2017/01/19 18:56:58	63.1
841	2017/01/19 18:56:59	60.2
842	2017/01/19 18:57:00	65.2
843	2017/01/19 18:57:01	63.2
844	2017/01/19 18:57:02	61.0
845	2017/01/19 18:57:03	60.3
846	2017/01/19 18:57:04	59.1
847	2017/01/19 18:57:05	59.5
848	2017/01/19 18:57:06	57.4
849	2017/01/19 18:57:07	56.8
850	2017/01/19 18:57:08	58.8
851	2017/01/19 18:57:09	55.8
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853	2017/01/19 18:57:11	58.3
854	2017/01/19 18:57:12	58.4
855	2017/01/19 18:57:13	57.5
856	2017/01/19 18:57:14	58.3
857	2017/01/19 18:57:15	59.1
858	2017/01/19 18:57:16	59.8
859	2017/01/19 18:57:17	59.1
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861	2017/01/19 18:57:19	54.7
862	2017/01/19 18:57:20	58.5
863	2017/01/19 18:57:21	59.8
864	2017/01/19 18:57:22	56.9
865	2017/01/19 18:57:23	57.2
866	2017/01/19 18:57:24	60.0
867	2017/01/19 18:57:25	60.8
868	2017/01/19 18:57:26	61.2
869	2017/01/19 18:57:27	63.1
870	2017/01/19 18:57:28	61.9
871	2017/01/19 18:57:29	66.6
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873	2017/01/19 18:57:31	64.0
874	2017/01/19 18:57:32	66.7
875	2017/01/19 18:57:33	66.4
876	2017/01/19 18:57:34	64.9
877	2017/01/19 18:57:35	68.4

878	2017/01/19	18:57:36	66.7
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880	2017/01/19	18:57:38	65.1
881	2017/01/19	18:57:39	67.4
882	2017/01/19	18:57:40	66.6
883	2017/01/19	18:57:41	66.1
884	2017/01/19	18:57:42	68.0
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886	2017/01/19	18:57:44	67.6
887	2017/01/19	18:57:45	67.2
888	2017/01/19	18:57:46	67.8
889	2017/01/19	18:57:47	65.4
890	2017/01/19	18:57:48	65.1
891	2017/01/19	18:57:49	67.1
892	2017/01/19	18:57:50	66.4
893	2017/01/19	18:57:51	65.5
894	2017/01/19	18:57:52	63.9
895	2017/01/19	18:57:53	65.8
896	2017/01/19	18:57:54	64.8
897	2017/01/19	18:57:55	63.1
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899	2017/01/19	18:57:57	65.1
900	2017/01/19	18:57:58	58.6

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 70.3 - 2017/04/09 14:20:35
- Level Range : 40-100
- SEL : 84.3
- Leq : 54.8
-

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3	2017/04/09 14:12:41	50.1
4	2017/04/09 14:12:42	50.3
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6	2017/04/09 14:12:44	50.4
7	2017/04/09 14:12:45	50.5
8	2017/04/09 14:12:46	50.5
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10	2017/04/09 14:12:48	50.4
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12	2017/04/09 14:12:50	50.9
13	2017/04/09 14:12:51	51.4
14	2017/04/09 14:12:52	51.9
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16	2017/04/09 14:12:54	50.7
17	2017/04/09 14:12:55	51.2
18	2017/04/09 14:12:56	49.7
19	2017/04/09 14:12:57	50.4
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21	2017/04/09 14:12:59	50.3
22	2017/04/09 14:13:00	50.2
23	2017/04/09 14:13:01	49.9
24	2017/04/09 14:13:02	49.4
25	2017/04/09 14:13:03	49.6
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31	2017/04/09 14:13:09	51.0
32	2017/04/09 14:13:10	50.6
33	2017/04/09 14:13:11	50.7
34	2017/04/09 14:13:12	50.8
35	2017/04/09 14:13:13	50.8
36	2017/04/09 14:13:14	50.2
37	2017/04/09 14:13:15	50.2
38	2017/04/09 14:13:16	49.3
39	2017/04/09 14:13:17	49.9
40	2017/04/09 14:13:18	50.0
41	2017/04/09 14:13:19	50.3
42	2017/04/09 14:13:20	52.9
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44	2017/04/09 14:13:22	52.9
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47	2017/04/09 14:13:25	50.7
48	2017/04/09 14:13:26	51.9
49	2017/04/09 14:13:27	50.4
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53	2017/04/09 14:13:31	50.6
54	2017/04/09 14:13:32	50.0
55	2017/04/09 14:13:33	49.1
56	2017/04/09 14:13:34	50.1
57	2017/04/09 14:13:35	49.2
58	2017/04/09 14:13:36	49.3
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75	2017/04/09 14:13:53	50.1
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83	2017/04/09 14:14:01	51.1
84	2017/04/09 14:14:02	50.7
85	2017/04/09 14:14:03	56.8

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96	2017/04/09	14:14:14	49.7
97	2017/04/09	14:14:15	50.8
98	2017/04/09	14:14:16	50.3
99	2017/04/09	14:14:17	50.0
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119	2017/04/09	14:14:37	49.9
120	2017/04/09	14:14:38	49.0
121	2017/04/09	14:14:39	49.7
122	2017/04/09	14:14:40	51.0
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126	2017/04/09	14:14:44	50.0
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128	2017/04/09	14:14:46	50.3
129	2017/04/09	14:14:47	49.9
130	2017/04/09	14:14:48	52.8
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133	2017/04/09	14:14:51	50.0
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135	2017/04/09	14:14:53	50.7
136	2017/04/09	14:14:54	52.3
137	2017/04/09	14:14:55	52.0
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139	2017/04/09	14:14:57	50.6
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141	2017/04/09	14:14:59	48.9
142	2017/04/09	14:15:00	49.7
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146	2017/04/09	14:15:04	49.6
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565	2017/04/09 14:22:03	52.6
566	2017/04/09 14:22:04	52.5
567	2017/04/09 14:22:05	52.8
568	2017/04/09 14:22:06	53.1
569	2017/04/09 14:22:07	53.2
570	2017/04/09 14:22:08	51.9
571	2017/04/09 14:22:09	51.3
572	2017/04/09 14:22:10	51.4
573	2017/04/09 14:22:11	51.5
574	2017/04/09 14:22:12	51.8
575	2017/04/09 14:22:13	51.7
576	2017/04/09 14:22:14	51.4
577	2017/04/09 14:22:15	50.5
578	2017/04/09 14:22:16	51.4
579	2017/04/09 14:22:17	50.4
580	2017/04/09 14:22:18	50.9

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582	2017/04/09	14:22:20	51.8
583	2017/04/09	14:22:21	52.7
584	2017/04/09	14:22:22	51.4
585	2017/04/09	14:22:23	51.4
586	2017/04/09	14:22:24	51.3
587	2017/04/09	14:22:25	50.9
588	2017/04/09	14:22:26	51.4
589	2017/04/09	14:22:27	52.1
590	2017/04/09	14:22:28	51.5
591	2017/04/09	14:22:29	51.6
592	2017/04/09	14:22:30	51.2
593	2017/04/09	14:22:31	51.3
594	2017/04/09	14:22:32	51.6
595	2017/04/09	14:22:33	51.1
596	2017/04/09	14:22:34	51.4
597	2017/04/09	14:22:35	51.8
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599	2017/04/09	14:22:37	51.4
600	2017/04/09	14:22:38	51.4
601	2017/04/09	14:22:39	51.4
602	2017/04/09	14:22:40	52.4
603	2017/04/09	14:22:41	52.1
604	2017/04/09	14:22:42	51.1
605	2017/04/09	14:22:43	51.3
606	2017/04/09	14:22:44	50.8
607	2017/04/09	14:22:45	51.1
608	2017/04/09	14:22:46	51.0
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610	2017/04/09	14:22:48	50.8
611	2017/04/09	14:22:49	51.1
612	2017/04/09	14:22:50	50.7
613	2017/04/09	14:22:51	50.5
614	2017/04/09	14:22:52	56.1
615	2017/04/09	14:22:53	50.7
616	2017/04/09	14:22:54	50.8
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622	2017/04/09	14:23:00	52.1
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624	2017/04/09	14:23:02	51.6
625	2017/04/09	14:23:03	51.8
626	2017/04/09	14:23:04	51.7
627	2017/04/09	14:23:05	52.5
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629	2017/04/09	14:23:07	51.7
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647	2017/04/09	14:23:25	52.1
648	2017/04/09	14:23:26	51.8
649	2017/04/09	14:23:27	52.1
650	2017/04/09	14:23:28	51.5
651	2017/04/09	14:23:29	51.2
652	2017/04/09	14:23:30	52.1
653	2017/04/09	14:23:31	52.2
654	2017/04/09	14:23:32	59.2
655	2017/04/09	14:23:33	54.0
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657	2017/04/09	14:23:35	53.4
658	2017/04/09	14:23:36	54.2
659	2017/04/09	14:23:37	56.2
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670	2017/04/09	14:23:48	52.6
671	2017/04/09	14:23:49	53.1
672	2017/04/09	14:23:50	52.0
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674	2017/04/09	14:23:52	52.4
675	2017/04/09	14:23:53	52.0
676	2017/04/09	14:23:54	52.1
677	2017/04/09	14:23:55	52.5
678	2017/04/09	14:23:56	52.2
679	2017/04/09	14:23:57	51.3

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681	2017/04/09 14:23:59	51.2
682	2017/04/09 14:24:00	52.5
683	2017/04/09 14:24:01	51.8
684	2017/04/09 14:24:02	53.5
685	2017/04/09 14:24:03	52.8
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687	2017/04/09 14:24:05	52.5
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690	2017/04/09 14:24:08	51.3
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705	2017/04/09 14:24:23	53.0
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707	2017/04/09 14:24:25	52.5
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709	2017/04/09 14:24:27	55.1
710	2017/04/09 14:24:28	57.4
711	2017/04/09 14:24:29	57.4
712	2017/04/09 14:24:30	57.2
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714	2017/04/09 14:24:32	57.0
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719	2017/04/09 14:24:37	59.2
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730	2017/04/09 14:24:48	54.3
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733	2017/04/09 14:24:51	57.4
734	2017/04/09 14:24:52	54.9
735	2017/04/09 14:24:53	52.8
736	2017/04/09 14:24:54	53.4
737	2017/04/09 14:24:55	52.4
738	2017/04/09 14:24:56	54.1
739	2017/04/09 14:24:57	55.7
740	2017/04/09 14:24:58	51.5
741	2017/04/09 14:24:59	54.4
742	2017/04/09 14:25:00	55.0
743	2017/04/09 14:25:01	52.0
744	2017/04/09 14:25:02	52.7
745	2017/04/09 14:25:03	54.5
746	2017/04/09 14:25:04	53.5
747	2017/04/09 14:25:05	51.8
748	2017/04/09 14:25:06	55.6
749	2017/04/09 14:25:07	52.0
750	2017/04/09 14:25:08	52.4
751	2017/04/09 14:25:09	51.9
752	2017/04/09 14:25:10	52.2
753	2017/04/09 14:25:11	51.9
754	2017/04/09 14:25:12	52.1
755	2017/04/09 14:25:13	52.5
756	2017/04/09 14:25:14	52.7
757	2017/04/09 14:25:15	52.4
758	2017/04/09 14:25:16	57.1
759	2017/04/09 14:25:17	52.3
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762	2017/04/09 14:25:20	52.6
763	2017/04/09 14:25:21	53.1
764	2017/04/09 14:25:22	53.1
765	2017/04/09 14:25:23	52.3
766	2017/04/09 14:25:24	53.6
767	2017/04/09 14:25:25	53.2
768	2017/04/09 14:25:26	52.9
769	2017/04/09 14:25:27	53.6
770	2017/04/09 14:25:28	52.9
771	2017/04/09 14:25:29	55.8
772	2017/04/09 14:25:30	54.8
773	2017/04/09 14:25:31	54.0
774	2017/04/09 14:25:32	53.4
775	2017/04/09 14:25:33	52.8
776	2017/04/09 14:25:34	52.9
777	2017/04/09 14:25:35	53.3
778	2017/04/09 14:25:36	53.0

779	2017/04/09	14:25:37	53.0
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781	2017/04/09	14:25:39	53.7
782	2017/04/09	14:25:40	53.2
783	2017/04/09	14:25:41	52.9
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785	2017/04/09	14:25:43	52.5
786	2017/04/09	14:25:44	51.7
787	2017/04/09	14:25:45	52.5
788	2017/04/09	14:25:46	52.4
789	2017/04/09	14:25:47	52.6
790	2017/04/09	14:25:48	51.9
791	2017/04/09	14:25:49	53.2
792	2017/04/09	14:25:50	52.0
793	2017/04/09	14:25:51	51.6
794	2017/04/09	14:25:52	51.0
795	2017/04/09	14:25:53	52.2
796	2017/04/09	14:25:54	51.0
797	2017/04/09	14:25:55	51.8
798	2017/04/09	14:25:56	50.3
799	2017/04/09	14:25:57	51.2
800	2017/04/09	14:25:58	52.7
801	2017/04/09	14:25:59	51.6
802	2017/04/09	14:26:00	51.3
803	2017/04/09	14:26:01	51.2
804	2017/04/09	14:26:02	51.0
805	2017/04/09	14:26:03	51.2
806	2017/04/09	14:26:04	50.5
807	2017/04/09	14:26:05	51.5
808	2017/04/09	14:26:06	52.7
809	2017/04/09	14:26:07	51.8
810	2017/04/09	14:26:08	51.5
811	2017/04/09	14:26:09	52.2
812	2017/04/09	14:26:10	51.6
813	2017/04/09	14:26:11	50.9
814	2017/04/09	14:26:12	50.6
815	2017/04/09	14:26:13	51.2
816	2017/04/09	14:26:14	52.7
817	2017/04/09	14:26:15	50.9
818	2017/04/09	14:26:16	51.4
819	2017/04/09	14:26:17	50.4
820	2017/04/09	14:26:18	52.3
821	2017/04/09	14:26:19	50.7
822	2017/04/09	14:26:20	49.9
823	2017/04/09	14:26:21	50.2
824	2017/04/09	14:26:22	51.6
825	2017/04/09	14:26:23	49.8
826	2017/04/09	14:26:24	50.6
827	2017/04/09	14:26:25	50.9
828	2017/04/09	14:26:26	50.9
829	2017/04/09	14:26:27	51.0
830	2017/04/09	14:26:28	50.6
831	2017/04/09	14:26:29	50.5
832	2017/04/09	14:26:30	49.9
833	2017/04/09	14:26:31	49.8
834	2017/04/09	14:26:32	51.0
835	2017/04/09	14:26:33	50.8
836	2017/04/09	14:26:34	50.7
837	2017/04/09	14:26:35	51.9
838	2017/04/09	14:26:36	51.4
839	2017/04/09	14:26:37	56.1
840	2017/04/09	14:26:38	50.7
841	2017/04/09	14:26:39	49.7
842	2017/04/09	14:26:40	50.8
843	2017/04/09	14:26:41	51.1
844	2017/04/09	14:26:42	51.2
845	2017/04/09	14:26:43	49.7
846	2017/04/09	14:26:44	50.9
847	2017/04/09	14:26:45	51.2
848	2017/04/09	14:26:46	51.5
849	2017/04/09	14:26:47	51.3
850	2017/04/09	14:26:48	51.1
851	2017/04/09	14:26:49	51.2
852	2017/04/09	14:26:50	50.6
853	2017/04/09	14:26:51	52.9
854	2017/04/09	14:26:52	53.0
855	2017/04/09	14:26:53	52.7
856	2017/04/09	14:26:54	53.3
857	2017/04/09	14:26:55	52.5
858	2017/04/09	14:26:56	52.7
859	2017/04/09	14:26:57	53.0
860	2017/04/09	14:26:58	51.7
861	2017/04/09	14:26:59	52.2
862	2017/04/09	14:27:00	52.4
863	2017/04/09	14:27:01	51.9
864	2017/04/09	14:27:02	51.6
865	2017/04/09	14:27:03	51.9
866	2017/04/09	14:27:04	52.1
867	2017/04/09	14:27:05	51.3
868	2017/04/09	14:27:06	51.4
869	2017/04/09	14:27:07	51.8
870	2017/04/09	14:27:08	52.0
871	2017/04/09	14:27:09	51.3
872	2017/04/09	14:27:10	51.4
873	2017/04/09	14:27:11	51.4
874	2017/04/09	14:27:12	51.9
875	2017/04/09	14:27:13	52.4
876	2017/04/09	14:27:14	51.7
877	2017/04/09	14:27:15	52.4

878	2017/04/09	14:27:16	52.1
879	2017/04/09	14:27:17	51.4
880	2017/04/09	14:27:18	52.5
881	2017/04/09	14:27:19	52.6
882	2017/04/09	14:27:20	52.3
883	2017/04/09	14:27:21	51.5
884	2017/04/09	14:27:22	52.3
885	2017/04/09	14:27:23	53.4
886	2017/04/09	14:27:24	54.7
887	2017/04/09	14:27:25	53.2
888	2017/04/09	14:27:26	52.9
889	2017/04/09	14:27:27	51.6
890	2017/04/09	14:27:28	51.8
891	2017/04/09	14:27:29	51.7
892	2017/04/09	14:27:30	52.4
893	2017/04/09	14:27:31	52.2
894	2017/04/09	14:27:32	51.6
895	2017/04/09	14:27:33	51.8
896	2017/04/09	14:27:34	51.8
897	2017/04/09	14:27:35	52.8
898	2017/04/09	14:27:36	52.7
899	2017/04/09	14:27:37	52.0
900	2017/04/09	14:27:38	50.7

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 66.1 - 2017/04/09 14:46:10
- Level Range : 40-100
- SEL : 85.8
- Leq : 56.3
-

No.s	Date Time	(dB)
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2	2017/04/09 14:31:34	55.9
3	2017/04/09 14:31:35	55.5
4	2017/04/09 14:31:36	55.1
5	2017/04/09 14:31:37	55.3
6	2017/04/09 14:31:38	55.3
7	2017/04/09 14:31:39	55.4
8	2017/04/09 14:31:40	55.6
9	2017/04/09 14:31:41	54.9
10	2017/04/09 14:31:42	54.9
11	2017/04/09 14:31:43	55.3
12	2017/04/09 14:31:44	55.4
13	2017/04/09 14:31:45	55.1
14	2017/04/09 14:31:46	55.3
15	2017/04/09 14:31:47	55.5
16	2017/04/09 14:31:48	55.5
17	2017/04/09 14:31:49	54.4
18	2017/04/09 14:31:50	54.4
19	2017/04/09 14:31:51	55.6
20	2017/04/09 14:31:52	55.9
21	2017/04/09 14:31:53	55.2
22	2017/04/09 14:31:54	55.9
23	2017/04/09 14:31:55	55.1
24	2017/04/09 14:31:56	55.8
25	2017/04/09 14:31:57	56.0
26	2017/04/09 14:31:58	56.5
27	2017/04/09 14:31:59	55.9
28	2017/04/09 14:32:00	56.3
29	2017/04/09 14:32:01	55.9
30	2017/04/09 14:32:02	55.3
31	2017/04/09 14:32:03	56.0
32	2017/04/09 14:32:04	56.2
33	2017/04/09 14:32:05	55.4
34	2017/04/09 14:32:06	55.8
35	2017/04/09 14:32:07	55.2
36	2017/04/09 14:32:08	57.0
37	2017/04/09 14:32:09	55.5
38	2017/04/09 14:32:10	55.3
39	2017/04/09 14:32:11	55.8
40	2017/04/09 14:32:12	55.5
41	2017/04/09 14:32:13	56.5
42	2017/04/09 14:32:14	56.5
43	2017/04/09 14:32:15	56.8
44	2017/04/09 14:32:16	55.4
45	2017/04/09 14:32:17	56.4
46	2017/04/09 14:32:18	57.1
47	2017/04/09 14:32:19	57.1
48	2017/04/09 14:32:20	57.0
49	2017/04/09 14:32:21	56.8
50	2017/04/09 14:32:22	56.6
51	2017/04/09 14:32:23	56.5
52	2017/04/09 14:32:24	56.4
53	2017/04/09 14:32:25	56.3
54	2017/04/09 14:32:26	56.1
55	2017/04/09 14:32:27	56.4
56	2017/04/09 14:32:28	56.4
57	2017/04/09 14:32:29	57.3
58	2017/04/09 14:32:30	56.6
59	2017/04/09 14:32:31	56.8
60	2017/04/09 14:32:32	56.8
61	2017/04/09 14:32:33	57.6
62	2017/04/09 14:32:34	57.2
63	2017/04/09 14:32:35	56.2
64	2017/04/09 14:32:36	57.1
65	2017/04/09 14:32:37	56.5
66	2017/04/09 14:32:38	56.3
67	2017/04/09 14:32:39	57.8
68	2017/04/09 14:32:40	56.7
69	2017/04/09 14:32:41	56.6
70	2017/04/09 14:32:42	57.3
71	2017/04/09 14:32:43	57.7
72	2017/04/09 14:32:44	57.9
73	2017/04/09 14:32:45	57.2
74	2017/04/09 14:32:46	57.2
75	2017/04/09 14:32:47	56.9
76	2017/04/09 14:32:48	57.9
77	2017/04/09 14:32:49	58.2
78	2017/04/09 14:32:50	58.0
79	2017/04/09 14:32:51	59.3
80	2017/04/09 14:32:52	57.7
81	2017/04/09 14:32:53	59.3
82	2017/04/09 14:32:54	59.0
83	2017/04/09 14:32:55	58.8
84	2017/04/09 14:32:56	57.5
85	2017/04/09 14:32:57	58.0

86	2017/04/09	14:32:58	57.5
87	2017/04/09	14:32:59	57.8
88	2017/04/09	14:33:00	57.3
89	2017/04/09	14:33:01	57.4
90	2017/04/09	14:33:02	56.9
91	2017/04/09	14:33:03	57.0
92	2017/04/09	14:33:04	56.2
93	2017/04/09	14:33:05	56.9
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565	2017/04/09 14:40:57	56.1
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591	2017/04/09	14:41:23	54.8
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625	2017/04/09	14:41:57	56.4
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627	2017/04/09	14:41:59	57.0
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687	2017/04/09 14:42:59	56.6
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747	2017/04/09 14:43:59	54.7
748	2017/04/09 14:44:00	54.3
749	2017/04/09 14:44:01	54.3
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752	2017/04/09 14:44:04	54.6
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754	2017/04/09 14:44:06	55.2
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757	2017/04/09 14:44:09	55.6
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763	2017/04/09 14:44:15	56.9
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766	2017/04/09 14:44:18	56.3
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769	2017/04/09 14:44:21	57.3
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772	2017/04/09 14:44:24	55.9
773	2017/04/09 14:44:25	56.4
774	2017/04/09 14:44:26	55.5
775	2017/04/09 14:44:27	57.1
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777	2017/04/09 14:44:29	57.6
778	2017/04/09 14:44:30	56.6

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782	2017/04/09	14:44:34	57.8
783	2017/04/09	14:44:35	57.4
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785	2017/04/09	14:44:37	57.5
786	2017/04/09	14:44:38	57.9
787	2017/04/09	14:44:39	57.9
788	2017/04/09	14:44:40	57.7
789	2017/04/09	14:44:41	58.1
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791	2017/04/09	14:44:43	59.0
792	2017/04/09	14:44:44	57.2
793	2017/04/09	14:44:45	58.9
794	2017/04/09	14:44:46	61.1
795	2017/04/09	14:44:47	59.6
796	2017/04/09	14:44:48	59.9
797	2017/04/09	14:44:49	59.1
798	2017/04/09	14:44:50	61.4
799	2017/04/09	14:44:51	59.1
800	2017/04/09	14:44:52	59.0
801	2017/04/09	14:44:53	58.1
802	2017/04/09	14:44:54	59.1
803	2017/04/09	14:44:55	58.5
804	2017/04/09	14:44:56	59.2
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806	2017/04/09	14:44:58	57.9
807	2017/04/09	14:44:59	57.1
808	2017/04/09	14:45:00	57.7
809	2017/04/09	14:45:01	56.1
810	2017/04/09	14:45:02	56.9
811	2017/04/09	14:45:03	57.2
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813	2017/04/09	14:45:05	55.9
814	2017/04/09	14:45:06	56.0
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817	2017/04/09	14:45:09	55.3
818	2017/04/09	14:45:10	56.0
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821	2017/04/09	14:45:13	55.8
822	2017/04/09	14:45:14	55.9
823	2017/04/09	14:45:15	56.1
824	2017/04/09	14:45:16	56.9
825	2017/04/09	14:45:17	56.9
826	2017/04/09	14:45:18	56.6
827	2017/04/09	14:45:19	56.5
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831	2017/04/09	14:45:23	56.9
832	2017/04/09	14:45:24	57.6
833	2017/04/09	14:45:25	57.1
834	2017/04/09	14:45:26	56.6
835	2017/04/09	14:45:27	56.0
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837	2017/04/09	14:45:29	57.3
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839	2017/04/09	14:45:31	56.9
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841	2017/04/09	14:45:33	56.8
842	2017/04/09	14:45:34	56.4
843	2017/04/09	14:45:35	56.0
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845	2017/04/09	14:45:37	55.9
846	2017/04/09	14:45:38	56.2
847	2017/04/09	14:45:39	56.6
848	2017/04/09	14:45:40	56.0
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850	2017/04/09	14:45:42	55.9
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852	2017/04/09	14:45:44	56.3
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856	2017/04/09	14:45:48	58.3
857	2017/04/09	14:45:49	57.2
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861	2017/04/09	14:45:53	56.6
862	2017/04/09	14:45:54	57.7
863	2017/04/09	14:45:55	57.1
864	2017/04/09	14:45:56	57.1
865	2017/04/09	14:45:57	57.5
866	2017/04/09	14:45:58	57.2
867	2017/04/09	14:45:59	58.1
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869	2017/04/09	14:46:01	58.8
870	2017/04/09	14:46:02	58.5
871	2017/04/09	14:46:03	58.6
872	2017/04/09	14:46:04	59.8
873	2017/04/09	14:46:05	60.6
874	2017/04/09	14:46:06	61.2
875	2017/04/09	14:46:07	61.4
876	2017/04/09	14:46:08	64.2
877	2017/04/09	14:46:09	62.9

878	2017/04/09	14:46:10	65.7
879	2017/04/09	14:46:11	61.6
880	2017/04/09	14:46:12	62.5
881	2017/04/09	14:46:13	59.6
882	2017/04/09	14:46:14	60.5
883	2017/04/09	14:46:15	61.9
884	2017/04/09	14:46:16	62.3
885	2017/04/09	14:46:17	63.0
886	2017/04/09	14:46:18	61.5
887	2017/04/09	14:46:19	59.1
888	2017/04/09	14:46:20	60.0
889	2017/04/09	14:46:21	60.3
890	2017/04/09	14:46:22	60.0
891	2017/04/09	14:46:23	58.5
892	2017/04/09	14:46:24	58.7
893	2017/04/09	14:46:25	61.3
894	2017/04/09	14:46:26	58.6
895	2017/04/09	14:46:27	59.5
896	2017/04/09	14:46:28	59.0
897	2017/04/09	14:46:29	57.2
898	2017/04/09	14:46:30	58.7
899	2017/04/09	14:46:31	57.3
900	2017/04/09	14:46:32	57.3

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 80.9 - 2017/04/09 14:04:19
- Level Range : 40-100
- SEL : 88.1
- Leq : 58.6
-

No.s	Date Time	(dB)
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4	2017/04/09 13:49:33	53.3
5	2017/04/09 13:49:34	50.6
6	2017/04/09 13:49:35	53.7
7	2017/04/09 13:49:36	52.6
8	2017/04/09 13:49:37	57.3
9	2017/04/09 13:49:38	54.7
10	2017/04/09 13:49:39	51.5
11	2017/04/09 13:49:40	61.2
12	2017/04/09 13:49:41	56.4
13	2017/04/09 13:49:42	51.1
14	2017/04/09 13:49:43	53.6
15	2017/04/09 13:49:44	59.5
16	2017/04/09 13:49:45	51.6
17	2017/04/09 13:49:46	51.2
18	2017/04/09 13:49:47	50.0
19	2017/04/09 13:49:48	53.6
20	2017/04/09 13:49:49	55.8
21	2017/04/09 13:49:50	56.4
22	2017/04/09 13:49:51	54.1
23	2017/04/09 13:49:52	55.7
24	2017/04/09 13:49:53	56.9
25	2017/04/09 13:49:54	59.2
26	2017/04/09 13:49:55	55.6
27	2017/04/09 13:49:56	51.4
28	2017/04/09 13:49:57	56.1
29	2017/04/09 13:49:58	69.1
30	2017/04/09 13:49:59	76.2
31	2017/04/09 13:50:00	54.7
32	2017/04/09 13:50:01	59.1
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36	2017/04/09 13:50:05	55.3
37	2017/04/09 13:50:06	60.3
38	2017/04/09 13:50:07	53.5
39	2017/04/09 13:50:08	54.9
40	2017/04/09 13:50:09	51.4
41	2017/04/09 13:50:10	58.3
42	2017/04/09 13:50:11	52.8
43	2017/04/09 13:50:12	62.0
44	2017/04/09 13:50:13	55.3
45	2017/04/09 13:50:14	52.7
46	2017/04/09 13:50:15	56.3
47	2017/04/09 13:50:16	53.9
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51	2017/04/09 13:50:20	53.4
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500	2017/04/09 13:57:49	55.3
501	2017/04/09 13:57:50	53.1
502	2017/04/09 13:57:51	55.9
503	2017/04/09 13:57:52	56.7
504	2017/04/09 13:57:53	53.8
505	2017/04/09 13:57:54	59.8
506	2017/04/09 13:57:55	53.0
507	2017/04/09 13:57:56	56.7
508	2017/04/09 13:57:57	60.2
509	2017/04/09 13:57:58	59.0
510	2017/04/09 13:57:59	59.2
511	2017/04/09 13:58:00	52.8
512	2017/04/09 13:58:01	53.8
513	2017/04/09 13:58:02	53.6
514	2017/04/09 13:58:03	58.0
515	2017/04/09 13:58:04	63.7
516	2017/04/09 13:58:05	56.6
517	2017/04/09 13:58:06	79.0
518	2017/04/09 13:58:07	65.1
519	2017/04/09 13:58:08	63.8
520	2017/04/09 13:58:09	53.1
521	2017/04/09 13:58:10	54.1
522	2017/04/09 13:58:11	66.0
523	2017/04/09 13:58:12	57.1
524	2017/04/09 13:58:13	53.9
525	2017/04/09 13:58:14	55.3
526	2017/04/09 13:58:15	67.0
527	2017/04/09 13:58:16	63.7
528	2017/04/09 13:58:17	67.0
529	2017/04/09 13:58:18	64.7
530	2017/04/09 13:58:19	73.0
531	2017/04/09 13:58:20	60.3
532	2017/04/09 13:58:21	66.8
533	2017/04/09 13:58:22	63.5
534	2017/04/09 13:58:23	64.7
535	2017/04/09 13:58:24	54.0
536	2017/04/09 13:58:25	52.2
537	2017/04/09 13:58:26	60.9
538	2017/04/09 13:58:27	52.5
539	2017/04/09 13:58:28	54.7
540	2017/04/09 13:58:29	60.7
541	2017/04/09 13:58:30	62.0
542	2017/04/09 13:58:31	64.9
543	2017/04/09 13:58:32	54.3
544	2017/04/09 13:58:33	52.6
545	2017/04/09 13:58:34	61.2
546	2017/04/09 13:58:35	54.5
547	2017/04/09 13:58:36	61.7
548	2017/04/09 13:58:37	53.7
549	2017/04/09 13:58:38	55.0
550	2017/04/09 13:58:39	58.7
551	2017/04/09 13:58:40	53.0
552	2017/04/09 13:58:41	56.8
553	2017/04/09 13:58:42	53.0
554	2017/04/09 13:58:43	60.5
555	2017/04/09 13:58:44	52.8
556	2017/04/09 13:58:45	58.0
557	2017/04/09 13:58:46	58.8
558	2017/04/09 13:58:47	53.5
559	2017/04/09 13:58:48	52.2
560	2017/04/09 13:58:49	53.3
561	2017/04/09 13:58:50	52.6
562	2017/04/09 13:58:51	52.6
563	2017/04/09 13:58:52	55.5
564	2017/04/09 13:58:53	59.1
565	2017/04/09 13:58:54	54.3
566	2017/04/09 13:58:55	59.5
567	2017/04/09 13:58:56	61.4
568	2017/04/09 13:58:57	55.1
569	2017/04/09 13:58:58	53.9
570	2017/04/09 13:58:59	52.7
571	2017/04/09 13:59:00	52.4
572	2017/04/09 13:59:01	63.9
573	2017/04/09 13:59:02	58.9
574	2017/04/09 13:59:03	58.7
575	2017/04/09 13:59:04	52.9
576	2017/04/09 13:59:05	53.0
577	2017/04/09 13:59:06	56.6
578	2017/04/09 13:59:07	58.6
579	2017/04/09 13:59:08	53.5
580	2017/04/09 13:59:09	57.6

581	2017/04/09 13:59:10	60.6
582	2017/04/09 13:59:11	51.1
583	2017/04/09 13:59:12	51.4
584	2017/04/09 13:59:13	51.6
585	2017/04/09 13:59:14	54.3
586	2017/04/09 13:59:15	55.3
587	2017/04/09 13:59:16	55.4
588	2017/04/09 13:59:17	51.5
589	2017/04/09 13:59:18	53.5
590	2017/04/09 13:59:19	54.7
591	2017/04/09 13:59:20	56.6
592	2017/04/09 13:59:21	56.8
593	2017/04/09 13:59:22	56.9
594	2017/04/09 13:59:23	54.9
595	2017/04/09 13:59:24	60.5
596	2017/04/09 13:59:25	55.9
597	2017/04/09 13:59:26	58.9
598	2017/04/09 13:59:27	53.6
599	2017/04/09 13:59:28	53.5
600	2017/04/09 13:59:29	53.6
601	2017/04/09 13:59:30	56.9
602	2017/04/09 13:59:31	56.7
603	2017/04/09 13:59:32	63.3
604	2017/04/09 13:59:33	52.2
605	2017/04/09 13:59:34	53.0
606	2017/04/09 13:59:35	55.3
607	2017/04/09 13:59:36	53.2
608	2017/04/09 13:59:37	59.1
609	2017/04/09 13:59:38	58.7
610	2017/04/09 13:59:39	59.7
611	2017/04/09 13:59:40	55.2
612	2017/04/09 13:59:41	52.9
613	2017/04/09 13:59:42	53.0
614	2017/04/09 13:59:43	57.4
615	2017/04/09 13:59:44	53.7
616	2017/04/09 13:59:45	57.2
617	2017/04/09 13:59:46	52.3
618	2017/04/09 13:59:47	60.9
619	2017/04/09 13:59:48	54.7
620	2017/04/09 13:59:49	52.8
621	2017/04/09 13:59:50	59.3
622	2017/04/09 13:59:51	51.7
623	2017/04/09 13:59:52	51.7
624	2017/04/09 13:59:53	51.3
625	2017/04/09 13:59:54	55.0
626	2017/04/09 13:59:55	51.8
627	2017/04/09 13:59:56	51.4
628	2017/04/09 13:59:57	52.4
629	2017/04/09 13:59:58	55.2
630	2017/04/09 13:59:59	53.0
631	2017/04/09 14:00:00	54.4
632	2017/04/09 14:00:01	51.9
633	2017/04/09 14:00:02	53.4
634	2017/04/09 14:00:03	53.4
635	2017/04/09 14:00:04	57.3
636	2017/04/09 14:00:05	54.5
637	2017/04/09 14:00:06	54.7
638	2017/04/09 14:00:07	52.6
639	2017/04/09 14:00:08	58.0
640	2017/04/09 14:00:09	55.8
641	2017/04/09 14:00:10	54.2
642	2017/04/09 14:00:11	55.1
643	2017/04/09 14:00:12	57.6
644	2017/04/09 14:00:13	56.8
645	2017/04/09 14:00:14	54.2
646	2017/04/09 14:00:15	63.7
647	2017/04/09 14:00:16	55.2
648	2017/04/09 14:00:17	57.5
649	2017/04/09 14:00:18	63.0
650	2017/04/09 14:00:19	58.6
651	2017/04/09 14:00:20	56.2
652	2017/04/09 14:00:21	53.1
653	2017/04/09 14:00:22	56.6
654	2017/04/09 14:00:23	56.0
655	2017/04/09 14:00:24	55.8
656	2017/04/09 14:00:25	56.3
657	2017/04/09 14:00:26	58.4
658	2017/04/09 14:00:27	56.1
659	2017/04/09 14:00:28	59.1
660	2017/04/09 14:00:29	54.3
661	2017/04/09 14:00:30	58.2
662	2017/04/09 14:00:31	61.0
663	2017/04/09 14:00:32	61.4
664	2017/04/09 14:00:33	55.3
665	2017/04/09 14:00:34	53.4
666	2017/04/09 14:00:35	56.5
667	2017/04/09 14:00:36	57.1
668	2017/04/09 14:00:37	62.8
669	2017/04/09 14:00:38	52.5
670	2017/04/09 14:00:39	56.6
671	2017/04/09 14:00:40	53.8
672	2017/04/09 14:00:41	57.7
673	2017/04/09 14:00:42	53.8
674	2017/04/09 14:00:43	52.4
675	2017/04/09 14:00:44	53.4
676	2017/04/09 14:00:45	54.4
677	2017/04/09 14:00:46	54.5
678	2017/04/09 14:00:47	54.2
679	2017/04/09 14:00:48	54.5

680	2017/04/09 14:00:49	52.3
681	2017/04/09 14:00:50	57.3
682	2017/04/09 14:00:51	59.2
683	2017/04/09 14:00:52	53.1
684	2017/04/09 14:00:53	57.7
685	2017/04/09 14:00:54	58.8
686	2017/04/09 14:00:55	56.9
687	2017/04/09 14:00:56	53.0
688	2017/04/09 14:00:57	53.3
689	2017/04/09 14:00:58	52.9
690	2017/04/09 14:00:59	62.2
691	2017/04/09 14:01:00	52.9
692	2017/04/09 14:01:01	53.9
693	2017/04/09 14:01:02	54.8
694	2017/04/09 14:01:03	55.7
695	2017/04/09 14:01:04	53.1
696	2017/04/09 14:01:05	51.8
697	2017/04/09 14:01:06	59.4
698	2017/04/09 14:01:07	56.4
699	2017/04/09 14:01:08	63.0
700	2017/04/09 14:01:09	58.1
701	2017/04/09 14:01:10	55.9
702	2017/04/09 14:01:11	53.8
703	2017/04/09 14:01:12	52.9
704	2017/04/09 14:01:13	57.3
705	2017/04/09 14:01:14	58.5
706	2017/04/09 14:01:15	58.5
707	2017/04/09 14:01:16	61.9
708	2017/04/09 14:01:17	54.9
709	2017/04/09 14:01:18	52.2
710	2017/04/09 14:01:19	55.5
711	2017/04/09 14:01:20	57.6
712	2017/04/09 14:01:21	59.3
713	2017/04/09 14:01:22	55.2
714	2017/04/09 14:01:23	54.8
715	2017/04/09 14:01:24	56.3
716	2017/04/09 14:01:25	53.3
717	2017/04/09 14:01:26	56.4
718	2017/04/09 14:01:27	63.8
719	2017/04/09 14:01:28	53.4
720	2017/04/09 14:01:29	53.8
721	2017/04/09 14:01:30	54.4
722	2017/04/09 14:01:31	57.5
723	2017/04/09 14:01:32	55.0
724	2017/04/09 14:01:33	53.7
725	2017/04/09 14:01:34	54.4
726	2017/04/09 14:01:35	54.4
727	2017/04/09 14:01:36	55.8
728	2017/04/09 14:01:37	60.1
729	2017/04/09 14:01:38	56.1
730	2017/04/09 14:01:39	55.6
731	2017/04/09 14:01:40	53.2
732	2017/04/09 14:01:41	52.7
733	2017/04/09 14:01:42	58.4
734	2017/04/09 14:01:43	54.3
735	2017/04/09 14:01:44	65.4
736	2017/04/09 14:01:45	60.8
737	2017/04/09 14:01:46	52.9
738	2017/04/09 14:01:47	54.7
739	2017/04/09 14:01:48	51.1
740	2017/04/09 14:01:49	54.7
741	2017/04/09 14:01:50	52.2
742	2017/04/09 14:01:51	51.2
743	2017/04/09 14:01:52	52.8
744	2017/04/09 14:01:53	50.2
745	2017/04/09 14:01:54	54.5
746	2017/04/09 14:01:55	60.0
747	2017/04/09 14:01:56	54.5
748	2017/04/09 14:01:57	56.4
749	2017/04/09 14:01:58	57.4
750	2017/04/09 14:01:59	58.8
751	2017/04/09 14:02:00	54.1
752	2017/04/09 14:02:01	59.8
753	2017/04/09 14:02:02	60.0
754	2017/04/09 14:02:03	54.4
755	2017/04/09 14:02:04	57.1
756	2017/04/09 14:02:05	53.6
757	2017/04/09 14:02:06	53.3
758	2017/04/09 14:02:07	50.9
759	2017/04/09 14:02:08	51.1
760	2017/04/09 14:02:09	53.1
761	2017/04/09 14:02:10	59.1
762	2017/04/09 14:02:11	58.3
763	2017/04/09 14:02:12	60.2
764	2017/04/09 14:02:13	55.5
765	2017/04/09 14:02:14	55.4
766	2017/04/09 14:02:15	63.3
767	2017/04/09 14:02:16	59.5
768	2017/04/09 14:02:17	62.2
769	2017/04/09 14:02:18	54.2
770	2017/04/09 14:02:19	60.4
771	2017/04/09 14:02:20	55.0
772	2017/04/09 14:02:21	53.7
773	2017/04/09 14:02:22	56.8
774	2017/04/09 14:02:23	58.4
775	2017/04/09 14:02:24	54.6
776	2017/04/09 14:02:25	53.0
777	2017/04/09 14:02:26	54.7
778	2017/04/09 14:02:27	60.7

779	2017/04/09	14:02:28	54.3
780	2017/04/09	14:02:29	54.5
781	2017/04/09	14:02:30	56.8
782	2017/04/09	14:02:31	56.1
783	2017/04/09	14:02:32	55.6
784	2017/04/09	14:02:33	56.1
785	2017/04/09	14:02:34	60.1
786	2017/04/09	14:02:35	58.3
787	2017/04/09	14:02:36	56.0
788	2017/04/09	14:02:37	58.9
789	2017/04/09	14:02:38	61.2
790	2017/04/09	14:02:39	60.9
791	2017/04/09	14:02:40	55.7
792	2017/04/09	14:02:41	57.4
793	2017/04/09	14:02:42	53.7
794	2017/04/09	14:02:43	55.7
795	2017/04/09	14:02:44	54.6
796	2017/04/09	14:02:45	56.6
797	2017/04/09	14:02:46	57.1
798	2017/04/09	14:02:47	53.9
799	2017/04/09	14:02:48	59.1
800	2017/04/09	14:02:49	54.5
801	2017/04/09	14:02:50	55.7
802	2017/04/09	14:02:51	56.0
803	2017/04/09	14:02:52	52.8
804	2017/04/09	14:02:53	56.8
805	2017/04/09	14:02:54	54.8
806	2017/04/09	14:02:55	54.4
807	2017/04/09	14:02:56	53.4
808	2017/04/09	14:02:57	51.1
809	2017/04/09	14:02:58	51.6
810	2017/04/09	14:02:59	52.3
811	2017/04/09	14:03:00	55.5
812	2017/04/09	14:03:01	53.6
813	2017/04/09	14:03:02	55.1
814	2017/04/09	14:03:03	52.7
815	2017/04/09	14:03:04	54.1
816	2017/04/09	14:03:05	55.4
817	2017/04/09	14:03:06	53.3
818	2017/04/09	14:03:07	53.7
819	2017/04/09	14:03:08	55.2
820	2017/04/09	14:03:09	51.9
821	2017/04/09	14:03:10	61.2
822	2017/04/09	14:03:11	51.5
823	2017/04/09	14:03:12	53.1
824	2017/04/09	14:03:13	58.6
825	2017/04/09	14:03:14	51.5
826	2017/04/09	14:03:15	50.9
827	2017/04/09	14:03:16	51.4
828	2017/04/09	14:03:17	52.7
829	2017/04/09	14:03:18	57.5
830	2017/04/09	14:03:19	52.4
831	2017/04/09	14:03:20	55.1
832	2017/04/09	14:03:21	51.3
833	2017/04/09	14:03:22	53.5
834	2017/04/09	14:03:23	49.3
835	2017/04/09	14:03:24	50.3
836	2017/04/09	14:03:25	62.9
837	2017/04/09	14:03:26	52.2
838	2017/04/09	14:03:27	52.3
839	2017/04/09	14:03:28	50.1
840	2017/04/09	14:03:29	52.5
841	2017/04/09	14:03:30	51.3
842	2017/04/09	14:03:31	52.5
843	2017/04/09	14:03:32	50.1
844	2017/04/09	14:03:33	53.6
845	2017/04/09	14:03:34	52.4
846	2017/04/09	14:03:35	59.8
847	2017/04/09	14:03:36	53.5
848	2017/04/09	14:03:37	52.0
849	2017/04/09	14:03:38	49.8
850	2017/04/09	14:03:39	51.0
851	2017/04/09	14:03:40	51.0
852	2017/04/09	14:03:41	55.0
853	2017/04/09	14:03:42	59.5
854	2017/04/09	14:03:43	50.9
855	2017/04/09	14:03:44	54.7
856	2017/04/09	14:03:45	53.8
857	2017/04/09	14:03:46	54.9
858	2017/04/09	14:03:47	49.6
859	2017/04/09	14:03:48	51.7
860	2017/04/09	14:03:49	52.8
861	2017/04/09	14:03:50	51.8
862	2017/04/09	14:03:51	51.2
863	2017/04/09	14:03:52	51.1
864	2017/04/09	14:03:53	58.5
865	2017/04/09	14:03:54	58.3
866	2017/04/09	14:03:55	58.0
867	2017/04/09	14:03:56	54.1
868	2017/04/09	14:03:57	57.8
869	2017/04/09	14:03:58	57.2
870	2017/04/09	14:03:59	55.2
871	2017/04/09	14:04:00	56.1
872	2017/04/09	14:04:01	54.6
873	2017/04/09	14:04:02	53.1
874	2017/04/09	14:04:03	52.6
875	2017/04/09	14:04:04	52.8
876	2017/04/09	14:04:05	52.9
877	2017/04/09	14:04:06	56.4

878	2017/04/09	14:04:07	50.4
879	2017/04/09	14:04:08	55.9
880	2017/04/09	14:04:09	51.4
881	2017/04/09	14:04:10	52.7
882	2017/04/09	14:04:11	52.1
883	2017/04/09	14:04:12	50.2
884	2017/04/09	14:04:13	51.2
885	2017/04/09	14:04:14	49.6
886	2017/04/09	14:04:15	60.0
887	2017/04/09	14:04:16	61.3
888	2017/04/09	14:04:17	51.9
889	2017/04/09	14:04:18	53.0
890	2017/04/09	14:04:19	66.2
891	2017/04/09	14:04:20	57.4
892	2017/04/09	14:04:21	64.4
893	2017/04/09	14:04:22	62.3
894	2017/04/09	14:04:23	58.0
895	2017/04/09	14:04:24	53.7
896	2017/04/09	14:04:25	62.9
897	2017/04/09	14:04:26	69.6
898	2017/04/09	14:04:27	57.8
899	2017/04/09	14:04:28	60.0
900	2017/04/09	14:04:29	53.5

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Demolition
Receptor Location: Del Norte residences at 40 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	40	#N/A
Aerial Lift [1]	80	0	0.5	0.5	40	#N/A
Backhoe [1]	80	0	0.5	0.5	40	#N/A
Cement Mixer [2]	85	0	0.5	0.5	40	#N/A
Crane [2]	88	0	0.5	0.5	40	#N/A
Dozer [2]	85	1	0.5	0.5	40	81
Excavator [3]	85	0	0.5	0.5	40	#N/A
Forklift [2]	83	0	0.5	0.5	40	#N/A
Grader [2]	85	0	0.5	0.5	40	#N/A
Generator [2]	81	0	0.5	0.5	40	#N/A
Jackhammer [2]	88	1	0.5	0.5	40	84
Paver [1]	85	0	0.5	0.5	40	#N/A
Roller [2]	80	0	0.5	0.5	40	#N/A
Saw [2]	70	0	0.5	0.5	40	#N/A
Welder [2]	74	0	0.5	0.5	40	#N/A

TOTAL Leq DURING NORMAL OPERATIOI	**86**	**dBA**
Daytime Ambient without Equipment Operatic	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	86	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***81***	***dBA***
ESTIMATED CNEL:	***81***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Site Preparation
Receptor Location: Del Norte residences at 40 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	40	#N/A
Aerial Lift [1]	80	0	0.5	0.5	40	#N/A
Backhoe [1]	80	1	0.5	0.5	40	76
Cement Mixer [2]	85	0	0.5	0.5	40	#N/A
Crane [2]	88	0	0.5	0.5	40	#N/A
Dozer [2]	85	1	0.5	0.5	40	81
Excavator [3]	85	1	0.5	0.5	40	81
Forklift [2]	83	0	0.5	0.5	40	#N/A
Grader [2]	85	0	0.5	0.5	40	#N/A
Generator [2]	81	0	0.5	0.5	40	#N/A
Paver [1]	85	0	0.5	0.5	40	#N/A
Roller [2]	80	0	0.5	0.5	40	#N/A
Saw [2]	70	0	0.5	0.5	40	#N/A
Welder [2]	74	0	0.5	0.5	40	#N/A

TOTAL Leq DURING NORMAL OPERATIOI	**85**	**dBA**
Daytime Ambient without Equipment Operatio	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	85	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***80***	***dBA***
ESTIMATED CNEL:	***80***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Grading/Excavation and Trenching
Receptor Location: Del Norte residences at 40 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	40	#N/A
Aerial Lift [1]	80	0	0.5	0.5	40	#N/A
Backhoe [1]	80	1	0.5	0.5	40	76
Cement Mixer [2]	85	0	0.5	0.5	40	#N/A
Crane [2]	88	0	0.5	0.5	40	#N/A
Dozer [2]	85	1	0.5	0.5	40	81
Excavator [3]	85	1	0.5	0.5	40	81
Forklift [2]	83	0	0.5	0.5	40	#N/A
Grader [2]	85	1	0.5	0.5	40	81
Generator [2]	81	0	0.5	0.5	40	#N/A
Paver [1]	85	0	0.5	0.5	40	#N/A
Roller [2]	80	0	0.5	0.5	40	#N/A
Saw [2]	70	0	0.5	0.5	40	#N/A
Welder [2]	74	0	0.5	0.5	40	#N/A

TOTAL Leq DURING NORMAL OPERATIO	**86**	**dBA**
Daytime Ambient without Equipment Operatio	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	86	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***81***	***dBA***
ESTIMATED CNEL:	***81***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Building Construction (Interior and Exterior) and Architectural Coating
Receptor Location: Del Norte residences at 40 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	40	#N/A
Aerial Lift [1]	80	0	0.5	0.5	40	#N/A
Backhoe [1]	80	1	0.5	0.5	40	76
Cement Mixer [2]	85	0	0.5	0.5	40	#N/A
Crane [2]	88	0	0.5	0.5	40	#N/A
Dozer [2]	85	0	0.5	0.5	40	#N/A
Excavator [3]	85	0	0.5	0.5	40	#N/A
Forklift [2]	83	1	0.5	0.5	40	79
Grader [2]	85	0	0.5	0.5	40	#N/A
Generator [2]	81	1	0.5	0.5	40	77
Paver [1]	85	0	0.5	0.5	40	#N/A
Roller [2]	80	0	0.5	0.5	40	#N/A
Saw [2]	70	0	0.5	0.5	40	#N/A
Welder [2]	74	1	0.5	0.5	40	70

TOTAL Leq DURING NORMAL OPERATIOI	**82**	**dBA**
Daytime Ambient without Equipment Operatio	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	82	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***78***	***dBA***
ESTIMATED CNEL:	***78***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Paving
Receptor Location: Del Norte residences at 40 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	40	#N/A
Aerial Lift [1]	80	0	0.5	0.5	40	#N/A
Backhoe [1]	80	0	0.5	0.5	40	#N/A
Cement Mixer [2]	85	1	0.5	0.5	40	81
Crane [2]	88	0	0.5	0.5	40	#N/A
Dozer [2]	85	0	0.5	0.5	40	#N/A
Excavator [3]	85	0	0.5	0.5	40	#N/A
Forklift [2]	83	0	0.5	0.5	40	#N/A
Grader [2]	85	0	0.5	0.5	40	#N/A
Generator [2]	81	0	0.5	0.5	40	#N/A
Paver [1]	85	1	0.5	0.5	40	81
Roller [2]	80	1	0.5	0.5	40	76
Saw [2]	70	0	0.5	0.5	40	#N/A
Welder [2]	74	0	0.5	0.5	40	#N/A

TOTAL Leq DURING NORMAL OPERATIOI	**85**	**dBA**
Daytime Ambient without Equipment Operatic	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	85	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***80***	***dBA***
ESTIMATED CNEL:	***80***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Demolition
Receptor Location: Bay Road residences at 50 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	50	#N/A
Aerial Lift [1]	80	0	0.5	0.5	50	#N/A
Backhoe [1]	80	0	0.5	0.5	50	#N/A
Cement Mixer [2]	85	0	0.5	0.5	50	#N/A
Crane [2]	88	0	0.5	0.5	50	#N/A
Dozer [2]	85	1	0.5	0.5	50	79
Excavator [3]	85	0	0.5	0.5	50	#N/A
Forklift [2]	83	0	0.5	0.5	50	#N/A
Grader [2]	85	0	0.5	0.5	50	#N/A
Generator [2]	81	0	0.5	0.5	50	#N/A
Jackhammer [2]	88	1	0.5	0.5	50	82
Paver [1]	85	0	0.5	0.5	50	#N/A
Roller [2]	80	0	0.5	0.5	50	#N/A
Saw [2]	70	1	0.5	0.5	50	64
Welder [2]	74	0	0.5	0.5	50	#N/A

TOTAL Leq DURING NORMAL OPERATIONS:	**84**	**dBA**
Daytime Ambient without Equipment Operation:	70	dBA
Nighttime Ambient without Equipment Operation	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	84	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***79***	***dBA***
ESTIMATED CNEL:	***79***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level,
nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Site Preparation
Receptor Location: Bay Road residences at 50 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	50	#N/A
Aerial Lift [1]	80	0	0.5	0.5	50	#N/A
Backhoe [1]	80	1	0.5	0.5	50	74
Cement Mixer [2]	85	0	0.5	0.5	50	#N/A
Crane [2]	88	0	0.5	0.5	50	#N/A
Dozer [2]	85	1	0.5	0.5	50	79
Excavator [3]	85	0	0.5	0.5	50	#N/A
Forklift [2]	83	0	0.5	0.5	50	#N/A
Grader [2]	85	0	0.5	0.5	50	#N/A
Generator [2]	81	0	0.5	0.5	50	#N/A
Paver [1]	85	0	0.5	0.5	50	#N/A
Roller [2]	80	0	0.5	0.5	50	#N/A
Saw [2]	70	0	0.5	0.5	50	#N/A
Welder [2]	74	0	0.5	0.5	50	#N/A

TOTAL Leq DURING NORMAL OPERATIONS:	**80**	**dBA**
Daytime Ambient without Equipment Operation:	70	dBA
Nighttime Ambient without Equipment Operation	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	81	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***76***	***dBA***
ESTIMATED CNEL:	***76***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Grading/Excavation and Trenching
Receptor Location: Bay Road residences at 50 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	50	#N/A
Aerial Lift [1]	80	0	0.5	0.5	50	#N/A
Backhoe [1]	80	1	0.5	0.5	50	74
Cement Mixer [2]	85	0	0.5	0.5	50	#N/A
Crane [2]	88	0	0.5	0.5	50	#N/A
Dozer [2]	85	1	0.5	0.5	50	79
Excavator [3]	85	1	0.5	0.5	50	79
Forklift [2]	83	0	0.5	0.5	50	#N/A
Grader [2]	85	1	0.5	0.5	50	79
Generator [2]	81	0	0.5	0.5	50	#N/A
Paver [1]	85	0	0.5	0.5	50	#N/A
Roller [2]	80	0	0.5	0.5	50	#N/A
Saw [2]	70	0	0.5	0.5	50	#N/A
Welder [2]	74	0	0.5	0.5	50	#N/A

TOTAL Leq DURING NORMAL OPERATIONS:	**84**	**dBA**
Daytime Ambient without Equipment Operation:	70	dBA
Nighttime Ambient without Equipment Operation	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	84	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***80***	***dBA***
ESTIMATED CNEL:	***80***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Building Construction (Interior and Exterior) and Architectural Coating
Receptor Location: Bay Road residences at 50 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	50	#N/A
Aerial Lift [1]	80	0	0.5	0.5	50	#N/A
Backhoe [1]	80	1	0.5	0.5	50	74
Cement Mixer [2]	85	0	0.5	0.5	50	#N/A
Crane [2]	88	0	0.5	0.5	50	#N/A
Dozer [2]	85	0	0.5	0.5	50	#N/A
Excavator [3]	85	0	0.5	0.5	50	#N/A
Forklift [2]	83	1	0.5	0.5	50	77
Grader [2]	85	0	0.5	0.5	50	#N/A
Generator [2]	81	1	0.5	0.5	50	75
Paver [1]	85	0	0.5	0.5	50	#N/A
Roller [2]	80	0	0.5	0.5	50	#N/A
Saw [2]	70	0	0.5	0.5	50	#N/A
Welder [2]	74	1	0.5	0.5	50	68

TOTAL Leq DURING NORMAL OPERATIONS:	**81**	**dBA**
Daytime Ambient without Equipment Operation:	70	dBA
Nighttime Ambient without Equipment Operation	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	81	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***76***	***dBA***
ESTIMATED CNEL:	***76***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Paving
Receptor Location: Bay Road residences at 50 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	50	#N/A
Aerial Lift [1]	80	0	0.5	0.5	50	#N/A
Backhoe [1]	80	0	0.5	0.5	50	#N/A
Cement Mixer [2]	85	1	0.5	0.5	50	79
Crane [2]	88	0	0.5	0.5	50	#N/A
Dozer [2]	85	0	0.5	0.5	50	#N/A
Excavator [3]	85	0	0.5	0.5	50	#N/A
Forklift [2]	83	0	0.5	0.5	50	#N/A
Grader [2]	85	0	0.5	0.5	50	#N/A
Generator [2]	81	0	0.5	0.5	50	#N/A
Paver [1]	85	1	0.5	0.5	50	79
Roller [2]	80	1	0.5	0.5	50	74
Saw [2]	70	0	0.5	0.5	50	#N/A
Welder [2]	74	0	0.5	0.5	50	#N/A

TOTAL Leq DURING NORMAL OPERATIONS:	**83**	**dBA**
Daytime Ambient without Equipment Operation:	70	dBA
Nighttime Ambient without Equipment Operation	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	83	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***78***	***dBA***
ESTIMATED CNEL:	***78***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Demolition
Receptor Location: Del Norte residences at 80 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	80	#N/A
Aerial Lift [1]	80	0	0.5	0.5	80	#N/A
Backhoe [1]	80	0	0.5	0.5	80	#N/A
Cement Mixer [2]	85	0	0.5	0.5	80	#N/A
Crane [2]	88	0	0.5	0.5	80	#N/A
Dozer [2]	85	1	0.5	0.5	80	75
Excavator [3]	85	0	0.5	0.5	80	#N/A
Forklift [2]	83	0	0.5	0.5	80	#N/A
Grader [2]	85	0	0.5	0.5	80	#N/A
Generator [2]	81	0	0.5	0.5	80	#N/A
Jackhammer [2]	88	1	0.5	0.5	80	78
Paver [1]	85	0	0.5	0.5	80	#N/A
Roller [2]	80	0	0.5	0.5	80	#N/A
Saw [2]	70	1	0.5	0.5	80	60
Welder [2]	74	0	0.5	0.5	80	#N/A

TOTAL Leq DURING NORMAL OPERATIOI	**80**	**dBA**
Daytime Ambient without Equipment Operatic	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	80	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***75***	***dBA***
ESTIMATED CNEL:	***75***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Site Preparation
Receptor Location: Del Norte residences at 80 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	80	#N/A
Aerial Lift [1]	80	0	0.5	0.5	80	#N/A
Backhoe [1]	80	3	0.5	0.5	80	75
Cement Mixer [2]	85	0	0.5	0.5	80	#N/A
Crane [2]	88	0	0.5	0.5	80	#N/A
Dozer [2]	85	3	0.5	0.5	80	80
Excavator [3]	85	0	0.5	0.5	80	#N/A
Forklift [2]	83	0	0.5	0.5	80	#N/A
Grader [2]	85	0	0.5	0.5	80	#N/A
Generator [2]	81	0	0.5	0.5	80	#N/A
Paver [1]	85	0	0.5	0.5	80	#N/A
Roller [2]	80	0	0.5	0.5	80	#N/A
Saw [2]	70	0	0.5	0.5	80	#N/A
Welder [2]	74	0	0.5	0.5	80	#N/A
					80	

TOTAL Leq DURING NORMAL OPERATIOI	**81**	**dBA**
Daytime Ambient without Equipment Operatic	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	81	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***76***	***dBA***
ESTIMATED CNEL:	***76***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Grading/Excavation and Trenching
Receptor Location: Del Norte residences at 80 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	80	#N/A
Aerial Lift [1]	80	0	0.5	0.5	80	#N/A
Backhoe [1]	80	3	0.5	0.5	80	75
Cement Mixer [2]	85	0	0.5	0.5	80	#N/A
Crane [2]	88	0	0.5	0.5	80	#N/A
Dozer [2]	85	3	0.5	0.5	80	80
Excavator [3]	85	3	0.5	0.5	80	80
Forklift [2]	83	0	0.5	0.5	80	#N/A
Grader [2]	85	3	0.5	0.5	80	80
Generator [2]	81	0	0.5	0.5	80	#N/A
Paver [1]	85	0	0.5	0.5	80	#N/A
Roller [2]	80	0	0.5	0.5	80	#N/A
Saw [2]	70	0	0.5	0.5	80	#N/A
Welder [2]	74	0	0.5	0.5	80	#N/A
					80	

TOTAL Leq DURING NORMAL OPERATIOI	**85**	**dBA**
Daytime Ambient without Equipment Operatio	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	85	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***80***	***dBA***
ESTIMATED CNEL:	***80***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Building Construction (Interior and Exterior) and Architectural Coating
Receptor Location: Del Norte residences at 80 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	80	#N/A
Aerial Lift [1]	80	0	0.5	0.5	80	#N/A
Backhoe [1]	80	3	0.5	0.5	80	75
Cement Mixer [2]	85	0	0.5	0.5	80	#N/A
Crane [2]	88	0	0.5	0.5	80	#N/A
Dozer [2]	85	0	0.5	0.5	80	#N/A
Excavator [3]	85	0	0.5	0.5	80	#N/A
Forklift [2]	83	3	0.5	0.5	80	78
Grader [2]	85	0	0.5	0.5	80	#N/A
Generator [2]	81	3	0.5	0.5	80	76
Paver [1]	85	0	0.5	0.5	80	#N/A
Roller [2]	80	0	0.5	0.5	80	#N/A
Saw [2]	70	0	0.5	0.5	80	#N/A
Welder [2]	74	3	0.5	0.5	80	69
					80	

TOTAL Leq DURING NORMAL OPERATIOI	**81**	**dBA**
Daytime Ambient without Equipment Operatio	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	81	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***76***	***dBA***
ESTIMATED CNEL:	***76***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Paving
Receptor Location: Del Norte residences at 80 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	80	#N/A
Aerial Lift [1]	80	0	0.5	0.5	80	#N/A
Backhoe [1]	80	0	0.5	0.5	80	#N/A
Cement Mixer [2]	85	1	0.5	0.5	80	75
Crane [2]	88	0	0.5	0.5	80	#N/A
Dozer [2]	85	0	0.5	0.5	80	#N/A
Excavator [3]	85	0	0.5	0.5	80	#N/A
Forklift [2]	83	0	0.5	0.5	80	#N/A
Grader [2]	85	0	0.5	0.5	80	#N/A
Generator [2]	81	0	0.5	0.5	80	#N/A
Paver [1]	85	1	0.5	0.5	80	75
Roller [2]	80	1	0.5	0.5	80	70
Saw [2]	70	0	0.5	0.5	80	#N/A
Welder [2]	74	0	0.5	0.5	80	#N/A
					80	

TOTAL Leq DURING NORMAL OPERATIOI	**79**	**dBA**
Daytime Ambient without Equipment Operatic	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	79	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***74***	***dBA***
ESTIMATED CNEL:	***74***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Demolition
Receptor Location: Del Norte residences at 115 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	115	#N/A
Aerial Lift [1]	80	0	0.5	0.5	115	#N/A
Backhoe [1]	80	0	0.5	0.5	115	#N/A
Cement Mixer [2]	85	0	0.5	0.5	115	#N/A
Crane [2]	88	0	0.5	0.5	115	#N/A
Dozer [2]	85	1	0.5	0.5	115	72
Excavator [3]	85	0	0.5	0.5	115	#N/A
Forklift [2]	83	0	0.5	0.5	115	#N/A
Grader [2]	85	0	0.5	0.5	115	#N/A
Generator [2]	81	0	0.5	0.5	115	#N/A
Jackhammer [2]	88	1	0.5	0.5	115	75
Paver [1]	85	0	0.5	0.5	115	#N/A
Roller [2]	80	0	0.5	0.5	115	#N/A
Saw [2]	70	1	0.5	0.5	115	57
Welder [2]	74	0	0.5	0.5	115	#N/A

TOTAL Leq DURING NORMAL OPERATIOI	**77**	**dBA**
Daytime Ambient without Equipment Operatio	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	77	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***72***	***dBA***
ESTIMATED CNEL:	***72***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Site Preparation
Receptor Location: Del Norte residences at 115 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	115	#N/A
Aerial Lift [1]	80	0	0.5	0.5	115	#N/A
Backhoe [1]	80	3	0.5	0.5	115	72
Cement Mixer [2]	85	0	0.5	0.5	115	#N/A
Crane [2]	88	0	0.5	0.5	115	#N/A
Dozer [2]	85	3	0.5	0.5	115	77
Excavator [3]	85	0	0.5	0.5	115	#N/A
Forklift [2]	83	0	0.5	0.5	115	#N/A
Grader [2]	85	0	0.5	0.5	115	#N/A
Generator [2]	81	0	0.5	0.5	115	#N/A
Paver [1]	85	0	0.5	0.5	115	#N/A
Roller [2]	80	0	0.5	0.5	115	#N/A
Saw [2]	70	0	0.5	0.5	115	#N/A
Welder [2]	74	0	0.5	0.5	115	#N/A

TOTAL Leq DURING NORMAL OPERATIOI	**78**	**dBA**
Daytime Ambient without Equipment Operatic	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	78	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***73***	***dBA***
ESTIMATED CNEL:	***73***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Grading/Excavation and Trenching
Receptor Location: Del Norte residences at 115 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	115	#N/A
Aerial Lift [1]	80	0	0.5	0.5	115	#N/A
Backhoe [1]	80	3	0.5	0.5	115	72
Cement Mixer [2]	85	0	0.5	0.5	115	#N/A
Crane [2]	88	0	0.5	0.5	115	#N/A
Dozer [2]	85	3	0.5	0.5	115	77
Excavator [3]	85	3	0.5	0.5	115	77
Forklift [2]	83	0	0.5	0.5	115	#N/A
Grader [2]	85	3	0.5	0.5	115	77
Generator [2]	81	0	0.5	0.5	115	#N/A
Paver [1]	85	0	0.5	0.5	115	#N/A
Roller [2]	80	0	0.5	0.5	115	#N/A
Saw [2]	70	0	0.5	0.5	115	#N/A
Welder [2]	74	0	0.5	0.5	115	#N/A

TOTAL Leq DURING NORMAL OPERATIOI	**82**	**dBA**
Daytime Ambient without Equipment Operatic	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	82	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***77***	***dBA***
ESTIMATED CNEL:	***77***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Building Construction (Interior and Exterior) and Architectural Coating
Receptor Location: Del Norte residences at 115 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	115	#N/A
Aerial Lift [1]	80	0	0.5	0.5	115	#N/A
Backhoe [1]	80	3	0.5	0.5	115	72
Cement Mixer [2]	85	0	0.5	0.5	115	#N/A
Crane [2]	88	0	0.5	0.5	115	#N/A
Dozer [2]	85	0	0.5	0.5	115	#N/A
Excavator [3]	85	0	0.5	0.5	115	#N/A
Forklift [2]	83	3	0.5	0.5	115	75
Grader [2]	85	0	0.5	0.5	115	#N/A
Generator [2]	81	3	0.5	0.5	115	73
Paver [1]	85	0	0.5	0.5	115	#N/A
Roller [2]	80	0	0.5	0.5	115	#N/A
Saw [2]	70	0	0.5	0.5	115	#N/A
Welder [2]	74	3	0.5	0.5	115	66

TOTAL Leq DURING NORMAL OPERATIOI	**78**	**dBA**
Daytime Ambient without Equipment Operatio	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	*78*	*dBA*
Combined Nighttime Hourly Leq:	*45*	*dBA*
ESTIMATED Ldn:	***73***	***dBA***
ESTIMATED CNEL:	***73***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

FLOOD PARK HEAVY EQUIPMENT NOISE IMPACT ESTIMATION

Scenario: Paving
Receptor Location: Del Norte residences at 115 feet

Noise Source	Ave. Maximum SPL @ 50 ft., dBA	Number	Percentage of Workday Hours In Use	Effective Use Factor *	Distance, Ft.	Leq, dBA
Air Compressor [2]	81	0	0.5	0.5	115	#N/A
Aerial Lift [1]	80	0	0.5	0.5	115	#N/A
Backhoe [1]	80	0	0.5	0.5	115	#N/A
Cement Mixer [2]	85	1	0.5	0.5	115	72
Crane [2]	88	0	0.5	0.5	115	#N/A
Dozer [2]	85	0	0.5	0.5	115	#N/A
Excavator [3]	85	0	0.5	0.5	115	#N/A
Forklift [2]	83	0	0.5	0.5	115	#N/A
Grader [2]	85	0	0.5	0.5	115	#N/A
Generator [2]	81	0	0.5	0.5	115	#N/A
Paver [1]	85	1	0.5	0.5	115	72
Roller [2]	80	1	0.5	0.5	115	67
Saw [2]	70	0	0.5	0.5	115	#N/A
Welder [2]	74	0	0.5	0.5	115	#N/A

TOTAL Leq DURING NORMAL OPERATIOI	**75**	**dBA**
Daytime Ambient without Equipment Operatic	56	dBA
Nighttime Ambient without Equipment Operat	45	dBA
Daytime Hours Operating:	8	
Evening Hours Operating:	0	
Nighttime Hours Operating:	0	
Combined Daytime Hourly Leq:	75	*dBA*
Combined Nighttime Hourly Leq:	45	*dBA*
ESTIMATED Ldn:	***71***	***dBA***
ESTIMATED CNEL:	***71***	***dBA***

Distance attenuation assumed at: 6 dBA per doubling of distance
Notes: #N/A = Not Applicable

Note: calculations assume a decrease in ambient evening noise levels over the assumed daytime level, nighttime ambient noise levels assumed to be 45 dBA Leq

* Assumed percentage of time that equipment is operating at near maximum sound level.
* Equipment type per applicant supplied information

Appendix H

Traffic Impact Study

Traffic Impact Study for Flood Park County Park Landscape Plan

Prepared for the San Mateo County Parks Department

Submitted by
W-Trans

May 26, 2017

Table of Contents

Appendices

Introduction

This report presents an analysis of the potential traffic impacts that would be associated with development of a Landscape Plan for the long-term redevelopment of San Mateo County's Flood County Park located at located at 215 Bay Road in the City of Menlo Park. The traffic study was completed in accordance with the criteria established by the City of Menlo Park and the County of San Mateo, and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide City and County staff, community stakeholders and policy makers with data that they can use to make an informed decision regarding the potential circulation impacts of a proposed project, and any associated improvements that would be required in order to mitigate these impacts to a level of insignificance as defined by the City General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed project would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

Project Profile

The San Mateo County Parks and Recreation Commission voted to approve the proposed Landscape Plan as the Draft Preferred Alternative for Flood County Park on April 7, 2016. The Draft Preferred Alternative was developed through extensive community outreach and public comment. The Landscape Plan was optimized to preserve large oak and bay trees, increase sports offerings, and provide a variety of active and passive uses for a range of user groups. Table 1 lists the proposed recreational features outlined in the Landscape Plan. The Landscape Plan does not include any changes to the existing parking lot and access driveway. Vehicular traffic would continue to access the Park from Bay Road and pedestrians would retain access to the park through gaps in a chain-link fence along Bay Road and Iris Lane.

Table 1 – Flood County Park Proposed Recreational Facilities and Phasing	
Phase	**Improvements**
Phase I	Baseball field replacement and bathroom Soccer/lacrosse field Two tennis courts Sand volleyball court replacement Basketball court Pump track Asphalt paths Adobe bathroom renovation Tree-lined promenade Drop-off at playground area New utilities: water, electric, gas, greywater piping
Phase II	Restrooms Demonstration gardens Playground replacement Gathering meadow (performance space) Individual picnic area renovations
Phase III	Rehabilitation of adobe administrative building Group picnic area renovations with shade shelters Gathering plazas with focal elements Completion of all pathways with exercise stations

Source: *Flood Park Preferred Plan*, San Mateo County Parks, 2015

Transportation Setting

Operational Analysis

Study Area and Periods

Based on a review of the project description, project site location, and consultation with County staff, the following three study intersections were selected for assessment of potential significant transportation impacts, as they represent the facilities most likely to be potentially impacted by the proposed project.

1. Bay Road/Marsh Road
2. Bay Road/Ringwood Avenue
3. Bay Road/Willow Road

Operating conditions during the weekday p.m. and Saturday midday peak periods were evaluated at the study intersections to capture the highest potential impacts of the proposed project as well as the highest volumes on the local transportation network. The weekday p.m. peak hour occurs between 4:00 and 6:00 p.m. and reflects conditions during the homeward bound commute, while the Saturday midday peak hour occurs between noon and 4:00 p.m. and typically reflects the highest level of weekend activity for a park.

Study Intersections

Bay Road/ Marsh Road is a four-legged signalized intersection with protected left-turn phasing on the southbound approach of Marsh Road and permitted left-turn phasing on all other approaches. Marked crosswalks, pedestrian signals, and curb ramps are provided across all four legs. Bicycle detection is marked for both approaches on Bay Road.

Bay Road/ Ringwood Avenue is a five-legged all-way stop controlled intersection. Marked Crosswalks are provided across all legs except the northbound Ringwood Avenue approach. Curb ramps are provided at the northwest and northeast corners of the intersection.

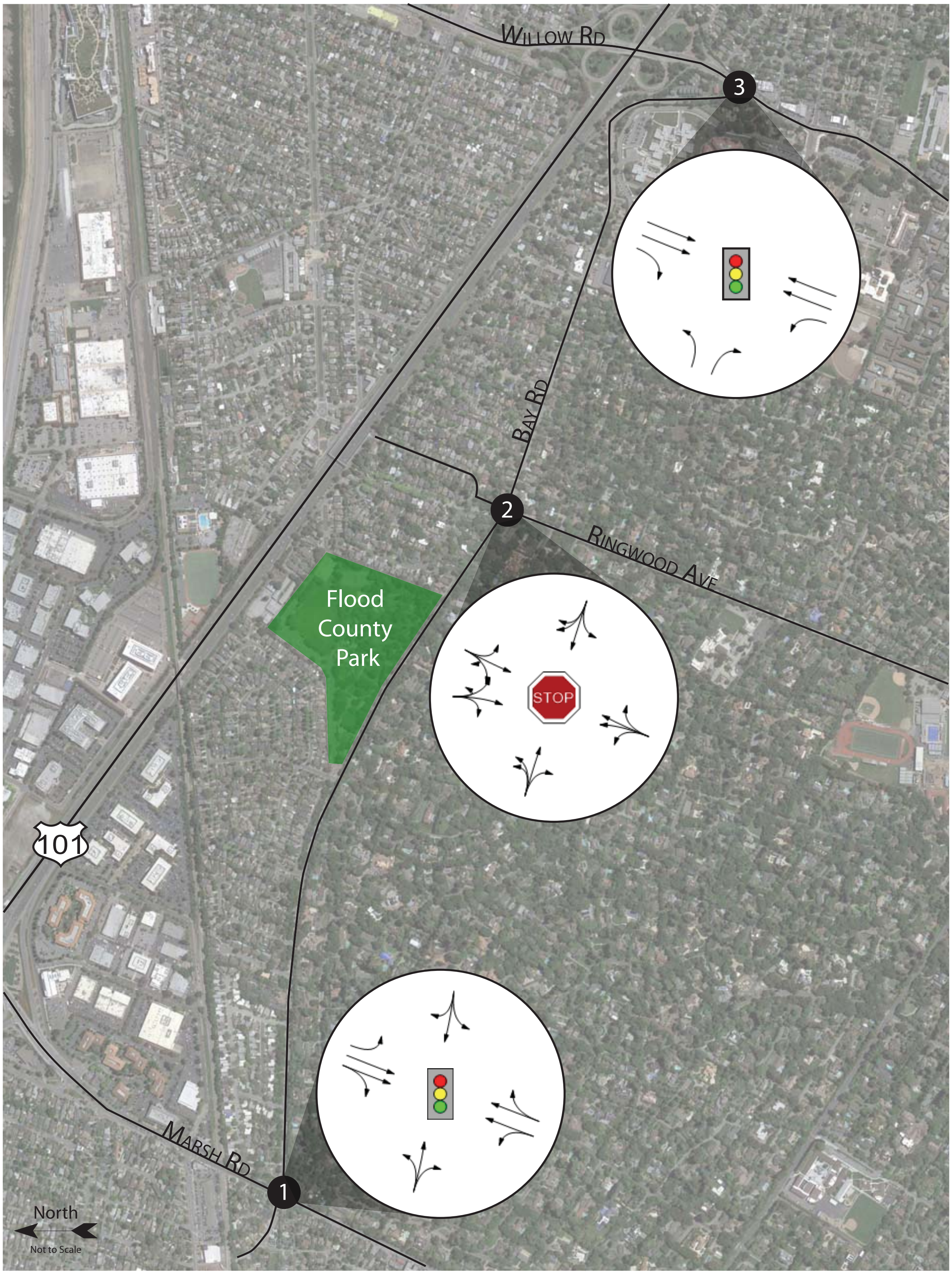
Bay Road/ Willow Road is a tee signalized with protected left-turn phasing on the northbound approach of Willow Road. The right-turn movement on the southbound approach of Willow Road is yield controlled. Pedestrian crossing is only permitted across Bay Road where a crosswalk, pedestrian signals, and curb ramps are provided.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, a network of sidewalks, crosswalks, and curb ramps provide access for pedestrians along the park frontage; however, sidewalk gaps can be found along nearly all of the roadways connecting to the project site. Existing gaps and obstacles along the connecting roadways impact convenient and continuous access for pedestrians and present safety concerns in those locations where appropriate pedestrian infrastructure would address potential conflict points.



LEGEND
● Study Intersection

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Flood Park Traffic Impact Study

Figure 1 – Study Area and Lane Configurations

W-Trans

- **Bay Road** – Intermittent sidewalk coverage is provided on Bay Road with significant gaps on both sides of the street between Marsh Road and Willow Road. Sidewalks are provided along the park frontage. Curb ramps and crosswalks at side street approaches within direct vicinity of the park. Lighting is non-existent on roadways within the vicinity of the park.
- **Marsh Road** – Continuous sidewalks are provided on both sides of Marsh Road north of Bay Road, and only on the west side of Marsh Road from May Road to Fair Oaks Avenue. Curb ramps and crosswalks are provided at Bay Road, but only curb ramps are provided at Fifteenth Avenue and at Fair Oaks Avenue. Sparse lighting is provided form Bay Road to Fair Oaks Avenue, with no lighting south of Fair Oaks Avenue.
- **Ringwood Avenue** – No sidewalks are provided on Ringwood Avenue north of Arlington Way, but a path is provided on the west side that often doubles as parking. Crosswalks are provided at several intersections near Laurel Elementary School, however. South of Arlington Way, crosswalks, curb ramps, and sidewalks on both sides are provided. Sparse lighting is provided.
- **Willow Road** – Continuous sidewalks are provided on both sides of Willow Road throughout the project area, often with planters separating the sidewalk from the road. Curb ramps are provided at all intersections, as are crosswalks at all major intersections. Lighting is provided on Willow Road.
- **Middlefield Road –** A continuous sidewalk is provided on the south side of Middlefield Road from Willow Road to Ravenswood Avenue. West of Ravenswood Avenue, the sidewalk turns into an unpaved intermittent path. A mostly unpaved continuous path is provided on the north side of Middlefield Road from Willow Road to Marsh Road. Curb ramps and crosswalks are provided at major intersections. Lighting is provided on Middlefield Road from Willow Road to Ravenswood Avenue, with no lighting west of Ravenswood Avenue.

Bicycle Facilities

The *Highway Design Manual*, California Department of Transportation (Caltrans), 2012, classifies bikeways into three categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.

Guidance for Class IV Bikeways is provided in *Design Information Bulletin Number 89: Class IV Bikeway Guidance (Separated Bikeways/Cycle Tracks)*, Caltrans, 2015.

- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, Class II bike lanes exist on Bay Road between Marsh Road and Van Buren Road, Ringwood Avenue between Middlefield Road and Bay Road, Willow Road between Durham Street and Alma Street, Middlefield Road between the Atherton city limits and Willow Road, Encinal Avenue between the PCJPB tracks and Middlefield Road, Ravenswood Avenue between Noel Drive and Middlefield Road, Laurel Street between Encinal Avenue and Burgess Drive, Alma Street between Ravenswood Avenue and East Creek Drive, and Glenwood Avenue between Laurel Street and El Camino Real. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 2 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *Menlo Park Comprehensive Bicycle Development Plan*, and *Town of Atherton Bicycle/Pedestrian Master Plan*.

Table 2 – Bicycle Facility Summary				
Status **Facility**	**Class**	**Length (miles)**	**Begin Point**	**End Point**
Existing				
US101 Bike/Ped Bridge	I	0.18	Van Buren Road	Pierce Road
El Palo Alto Park Bike Trail	I	0.11	East Creek Drive	Palo Alto Avenue
Bay Road	II	1.72	Marsh Road	Van Buren Road
Ringwood Avenue	II	0.89	Middlefield Road	Bay Road
Willow Road	II	1.43	Durham Street	Alma Street
Middlefield Road	II	2.26	Atherton City Limits	Willow Road
Encinal Avenue	II	0.46	PCJPB Tracks	Middlefield Road
Ravenswood Avenue	II	0.46	Noel Drive	Middlefield Road
Laurel Street	II	0.93	Encinal Avenue	Burgess Drive
Alma Street	II	0.66	Ravenswood Avenue	East Creek Drive
Glenwood Avenue	II	0.22	Laurel Street	El Camino Real
Ravenswood Avenue	III	0.08	PCJPB Tracks	Noel Drive
Laurel Street	III	0.23	Burgess Drive	Willow Road
Planned				
El Camino Real/PCJPB Tracks Undercrossing	I	0.04	Middle Avenue	Alma Street
Marsh Road	I	0.62	Bay Road	Middlefield Road
Watkins Avenue	I	0.30	Middlefield Road	Holbrook-Palmer Park
Marsh Road	II	0.79	Bayshore Expressway	Bay Road
Ringwood Avenue	II	0.23	Van Buren Road	Bay Road
Bay Road	II	0.21	Van Buren Road	Willow Road
Willow Road	II	0.46	Durham Street	US 101 NB Ramps
Willow Place	II	0.07	Willow Road	San Francisquito Creek Crossing

Source: *Menlo Park Comprehensive Bicycle Development Plan*, City of Menlo Park, 2005; *Town of Atherton Bicycle/Pedestrian Master Plan*, Town of Atherton, 2013

Transit Facilities

The San Mateo County Transit District (SamTrans) provides fixed route bus service in the project area. SamTrans Local Route 281 provides line service to destinations throughout Menlo Park and Palo Alto and stops on Newbridge Street at Pierce Road, a quarter-mile walk from Flood Park across the US 101 Pedestrian Bridge. Route 281 operates Monday through Friday with approximately 20-30 minute headways between 6:00 a.m. and 8:00 a.m. and 6:00 p.m. and 10:30 p.m., and 15 minute headways between 8:00 a.m. and 6:00 p.m. Saturday service operates with approximately one-half hour headways between 8:00 a.m. and 7:30 p.m. Sunday service operates with approximately one-half hour headways between 8:30 a.m. and 6:30 p.m.

Routes 82, 83, and 88 provide school bus service in Atherton and Menlo Park to Hillview Middle School and Encinal Elementary School. Each route stops on Bay Road near the project site, with Routes 82 and 88 directly serving the park, and operates schooldays only with one or two runs in the mornings before school begins, and one or two runs in the afternoon after school ends.

Two bicycles can be carried on most SamTrans buses. Bike rack space is on a first come, first served basis. Two additional bicycles are allowed on SamTrans buses depending on passenger loads.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. Redi-Wheels is designed to serve the needs of individuals with disabilities on the bayside area of San Mateo County, including the project area.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2000. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The study intersections with stop signs on all approaches were analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole, and is then related to a Level of Service.

The study intersections that are currently controlled by a traffic signal, or may be in the future, were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using optimized signal timing.

The ranges of delay associated with the various levels of service are indicated in Table 3.

Table 3 – Intersection Level of Service Criteria		
LOS	**All-Way Stop-Controlled**	**Signalized**
A	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual,* Transportation Research Board, 2000

Traffic Operation Standards

The City of Menlo Park's traffic impact analysis guidelines are contained in the 2004 Circulation System Assessment document. Within the Circulation System Assessment, the City has established detailed standards of significance, which are to be used when analyzing a project's impact on the City's circulation network.

Intersections

A Project is considered to have a potentially significant traffic impact if the addition of project traffic causes an intersection on a collector street operating at LOS A through C to operate at an unacceptable level (LOS D, E, or F) or have an increase of 23 seconds or greater in average vehicle delay, whichever comes first. A potential significant traffic impact shall also include a project that causes an intersection on arterial streets or local approaches to state-controlled signalized intersections operating at LOS A through D to operate at an unacceptable level (LOS E or F) or have an increase of 23 seconds or greater in average vehicle delay, whichever comes first.

A project is also considered to have a potentially significant traffic impact if the addition of project traffic causes an increase of more than 0.8 second of average delay to vehicles on all critical movements for intersections operating at a near term LOS D through F for collector streets and at a near term LOS E or F for arterial streets. The movement for a given phase or leg of the intersection that requires the most green time is known as the critical movement. For local approaches to state-controlled signalized intersections, a project is considered to have a potentially significant impact if the addition of project traffic causes an increase of more than 0.8 second of delay to vehicles on the most critical movements for intersections operating at a near term LOS E or F.

The LOS thresholds that were applied to the study intersections are summarized in Table 4.

Table 4 – LOS Significance			
Study Intersection	**Jurisdiction**	**LOS Significance Threshold**	**Significance Threshold for Unacceptable LOS**
1. Bay Road/Marsh Road	City of Menlo Park	D[1]	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 seconds
2. Bay Road/Ringwood Avenue	City of Menlo Park	C[1]	LOS becomes D or worse or delay increases by 23 seconds or more or, if LOS is currently D, E or F, all critical movement delay increases by 0.8 seconds
3. Bay Road/Willow Road	State (local approach)	D[1]	LOS becomes E or F or, if LOS is currently E or F, all critical movement delay increases by 0.8 seconds

Source: [1]Transportation Impact Analysis Guidelines, *City of Menlo Park*, 2014

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the p.m. and Saturday afternoon peak periods. This condition does not include project-generated traffic volumes. Volume data was collected during in November 2016 while local schools were in session.

Intersection Levels of Service

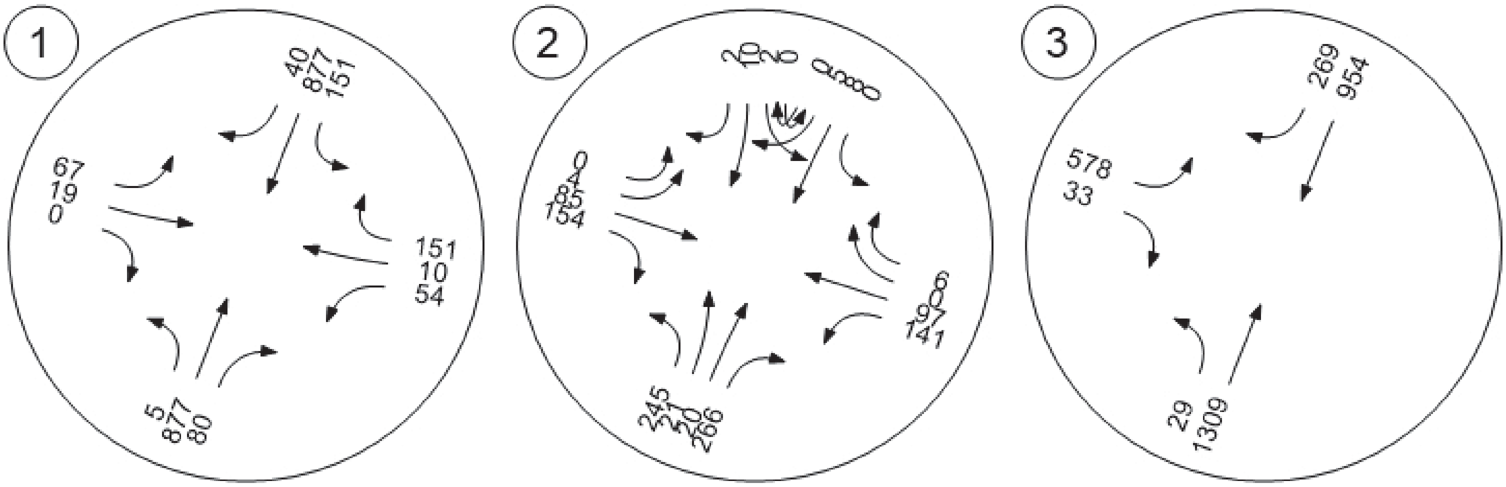
Under existing conditions, all study intersections are operating acceptably, with the exception of the intersection of Bay Road and Willow Road during the p.m. peak hour. City staff indicated in the 2016 *Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update* that counted traffic volumes along the Willow Road corridor "do not appropriately reflect demand, and isolated intersection operations limit the ability of the Vistro program to capture these results." (The City of Menlo Park requires the use of Vistro for traffic analysis.) Due to these limitations, the p.m. peak hour level of service reflects "unserved demand" as identified by City staff. Unserved demand refers to congestion upstream and downstream of a given intersection that results in delays that are not captured by Vistro program. The existing traffic volumes are shown in Figure 2 (p.m.) and Figure 3 (Saturday). A summary of the intersection level of service calculations is contained in Table 5, and copies of the Level of Service calculations are provided in Appendix A.

Table 5 – Existing Peak Hour Intersection Levels of Service				
Study Intersection	**PM Peak**		**SAT Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Bay Road/Marsh Road	15.9	B	13.7	B
2. Bay Road/Ringwood Avenue	21.2	C	8.8	A
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	9.4	A

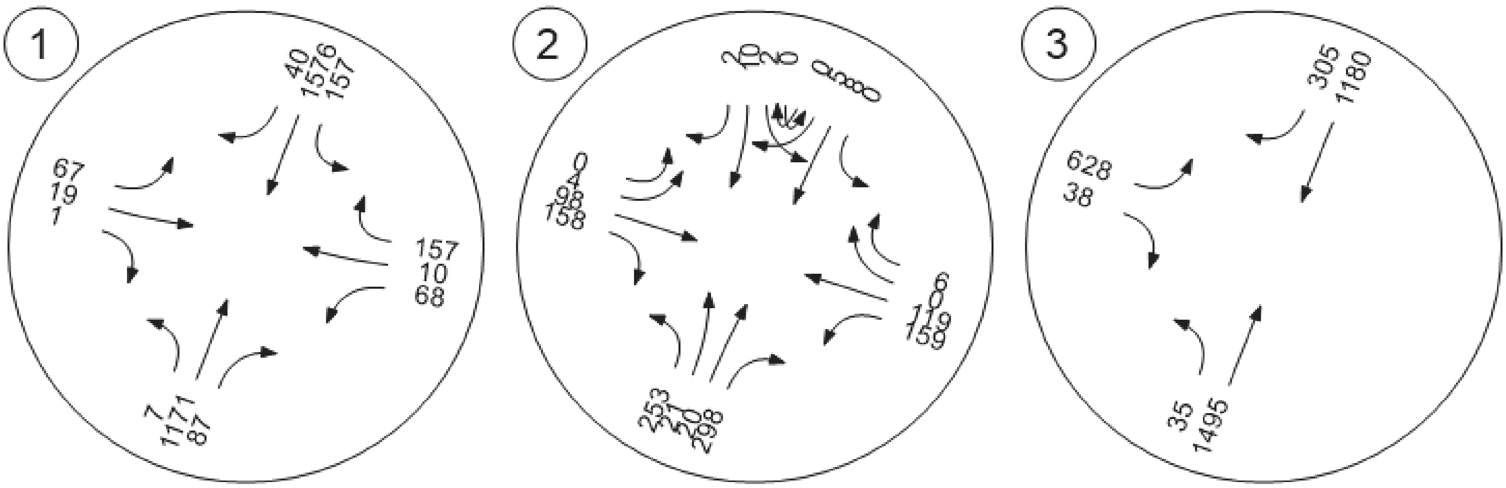
Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.

Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

Weekday PM Existing Traffic Volumes



Weekday PM Near-Term Traffic Volumes



Weekday PM Cumulative Traffic Volumes

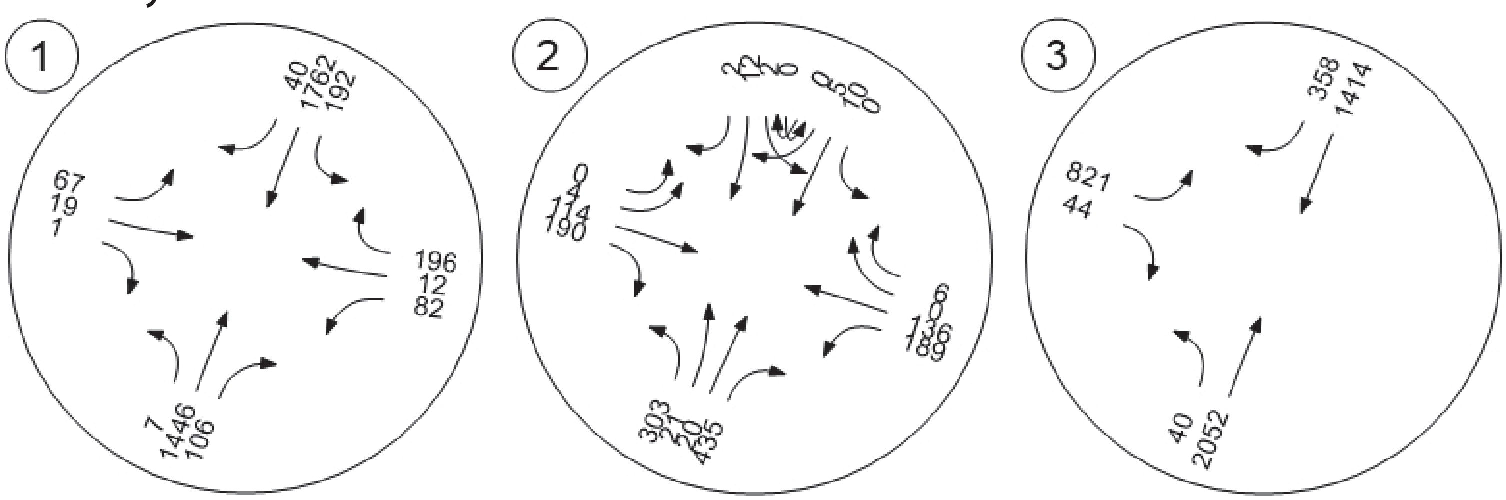


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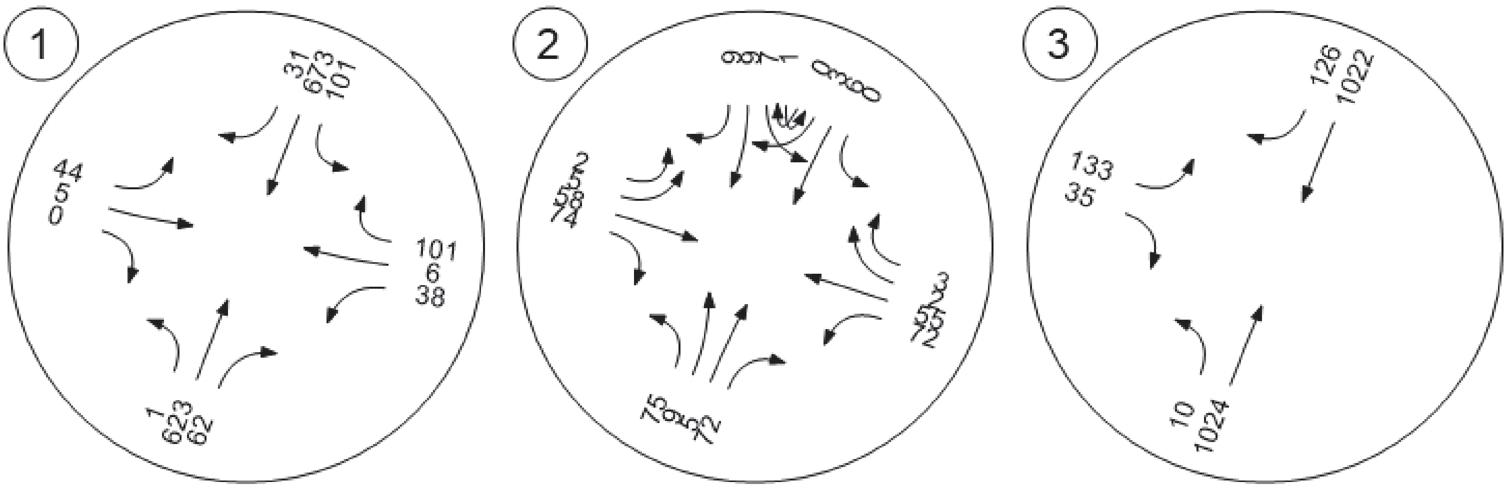
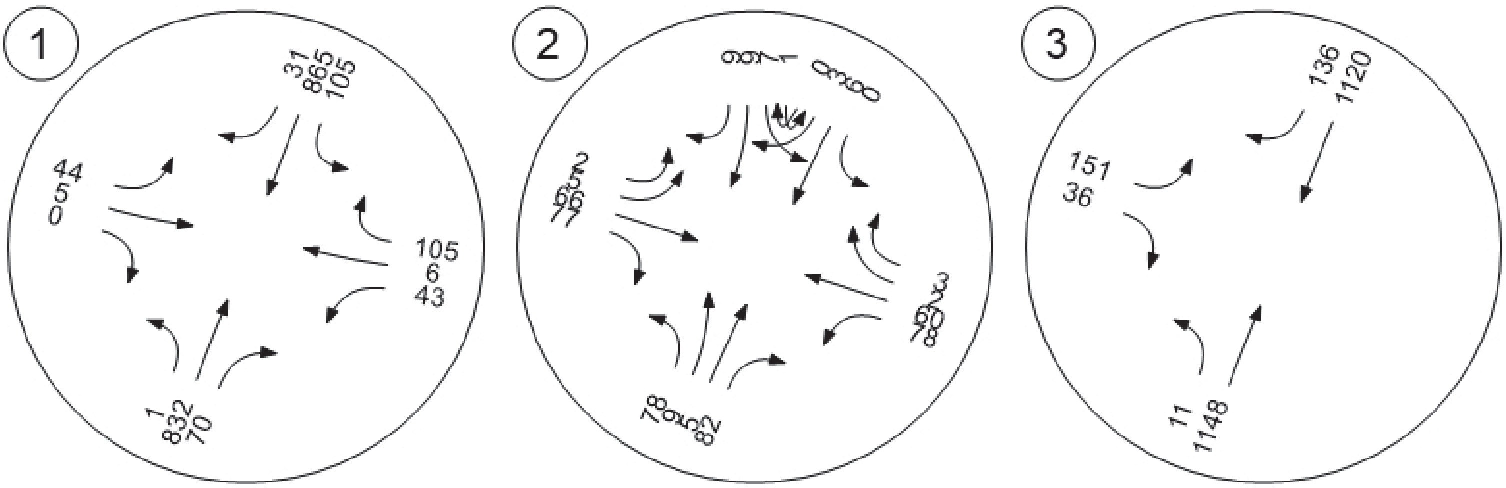
Figure 2 – Weekday PM Existing, Near-Term, & Cumulative Traffic Volumes

Saturday Existing Traffic Volumes



Saturday Near-Term Traffic Volumes



Saturday Cumulative Traffic Volumes

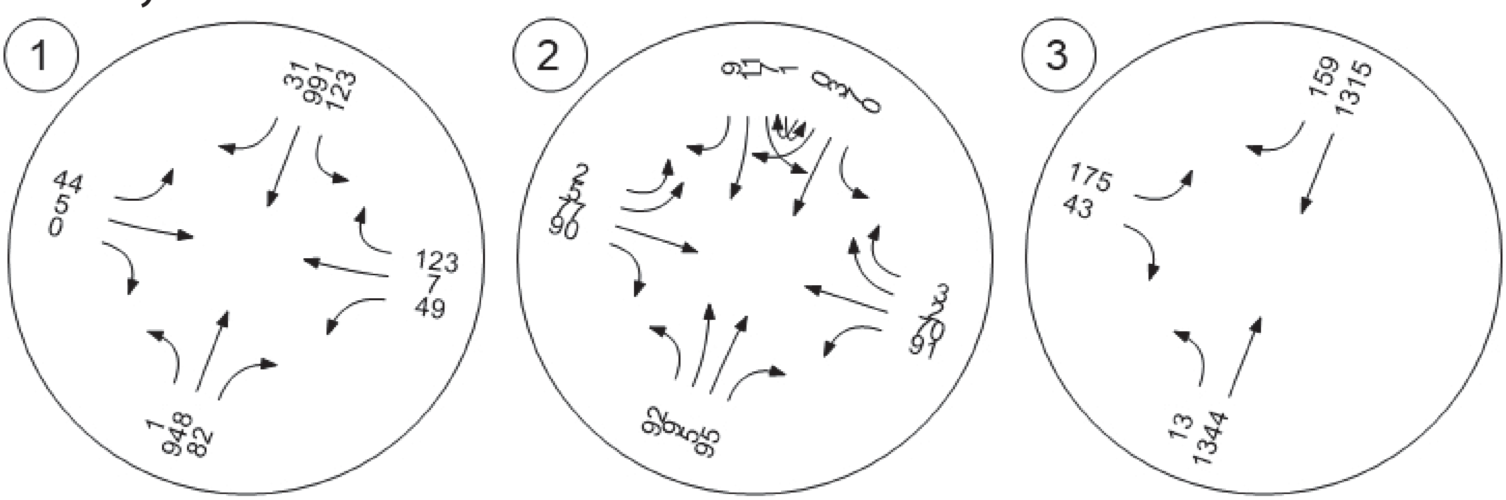


Figure 3 – Saturday Existing, Near-Term, & Cumulative Traffic Volumes

Near-Term 2021 Conditions

The near-term scenario represents a short-term horizon year of 2021, the assumed completion date for the majority of the landscape and park improvements. The near-term scenario includes traffic that would be generated by approved projects within the City of Menlo Park. In addition, traffic from approved projects from the Town of Atherton were included in the near-term scenario for all projects expected to add 10 or more trips to the study intersections. A list of developments was provided by the City of Menlo Park. Detailed information regarding the land uses that are being replaced was also provided by the City of Menlo Park, included as Appendix B. The traffic volumes that would be generated by these approved projects was obtained from the City's Vistro analysis network, where available, or developed from data published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9th Edition, 2012.

Additionally, a growth rate, provided by the City of Menlo Park, based on the C/CAG Travel Forecast Model was applied to account for growth in regional traffic until the horizon year of 2021. The growth rate applied was 0.8 percent per year for both p.m. and Saturday peak hour volumes.

Under these conditions, Bay Road and Ringwood Avenue is expected to operate at an unacceptable level of service, LOS D, during the p.m. peak hour. Same as the existing conditions scenario, Bay Road and Willow Road is expected to continue to operate unacceptably due to "unserved demand." These results are summarized in Table 6 and Near-Term volumes are shown in Figure 2 (p.m.) and Figure 3 (Saturday).

Table 6 – Near-Term 2021 Peak Hour Intersection Levels of Service

Study Intersection	PM Peak		SAT Peak	
	Delay	LOS	Delay	LOS
1. Bay Road/Marsh Road	19.1	B	14.2	B
2. Bay Road/Ringwood Avenue	**29.4**	**D**	9.1	A
Addition of Northbound Left-Turn Lane	14.3	B	9.0	A
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	9.9	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** text = deficient operation; Shaded cells = conditions with potential improvements; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.

Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

In order to achieve acceptable operation at Bay Road and Ringwood Avenue, the northbound approach on Ringwood Avenue would have to be restriped to include a left-turn lane. This intersection improvement is included as a mitigation measure under Existing plus Project Conditions and would require the removal of the on-street parking and street trees on the eastside of Ringwood Avenue, relocation of exiting utility poles, and redesign of the existing roadway drainage.

Cumulative 2040 Conditions

The cumulative scenario includes an analysis of projected traffic volumes for the horizon year of 2040. This scenario includes traffic that would be generated by approved developments that were identified in the near-term scenario, traffic that would be generated by developments that are currently pending approval, as well as a growth rate to account for growth in regional traffic. A list of developments was provided by the City of Menlo Park, included as Appendix B. This list included projects that are already identified in the near-term scenario as well as pending projects that are not yet approved. The growth rate applied, as determined by a review of the C/CAG Travel Forecast Model, was 0.8 percent per year for both p.m. and Saturday peak hour volumes.

The intersection of Bay Road and Ringwood Avenue under the anticipated cumulative conditions, with the addition of a left-turn lane on the northbound approach of Ringwood Avenue at Bay Road, outlined under near-term conditions, is expected to operate at an acceptable level of service, LOS C, during the p.m. peak hour. The 2016 *Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update* reported that the intersection of Bay Road and Willow Road will continue to operate unacceptably at LOS F in 2040 due to "unserved demand" after the implementation of General Plan Goals, Policies, and Programs. Cumulative volumes are shown in Figure 2 (p.m.) and Figure 3 (Saturday) and operating conditions are summarized in Table 7.

Table 7 – Cumulative 2040 Peak Hour Intersection Levels of Service				
Study Intersection	**PM Peak**		**SAT Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Bay Road/Marsh Road	29.1	C	16.0	B
2. Bay Road/Ringwood Avenue	**95.7**	**F**	9.7	A
Addition of Northbound Left-Turn Lane	22.4	C	9.5	A
Signalization	30.8	C	12.0	B
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	10.9	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** text = deficient operation; Shaded cells = conditions with potential improvements; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.

Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

Traffic volumes at the intersection of Bay Road and Ringwood Avenue, under anticipated cumulative conditions, would satisfy peak-hour traffic signal warrant criteria, as discussed in the Traffic Signal Warrants section. The impact would be reduced to a less-than-significant level with the implementation of a traffic signal and the addition of left-turn lanes on two approaches. However, this improvement may require the acquisition of additional rights-of-way to install traffic signal equipment and a add left-turn lane to the northbound approach of Ringwood Avenue and to the westbound approach of Bay Road. The existing two-way southbound approaches of Sonoma Avenue and Ringwood Avenue would need to be converted into one-way couplets, utilizing Oakwood Place to complete the connection, in order to facilitate efficient traffic signal operations. This measure would require coordination with, and approval, by the City of Menlo Park and the Town of Atherton, which cannot be guaranteed. Therefore, the installation of a traffic signal is not feasible as an intersection improvement.

Project Description

The proposed project will redevelop Flood County Park to preserve large oak and bay trees, provide a variety of active and passive uses, and construct new athletic fields to hold programmed events. The existing park currently has a mixture of passive recreation facilities, such as picnic areas and trails, and active recreation facilities like athletic fields, tennis courts, a playground, sand volleyball courts, and a gravel pétanque court. An asphalt loop trail connects the parking lot to the central and southern sections of the park. The Landscape Plan, during Phase I, proposes improvements to a majority of the existing facilities, the installation of a pump track for bicycles, the reconstruction of the baseball field and the development of a new soccer/lacrosse field to allow for programmed use of the athletic fields and the addition of a drop off zone for programmed events. Phase II and III will add additional gathering plazas and focal elements, as well as, renovate the existing playground and picnic areas.

The Landscape Plan does not involve any physical changes to parking and site access. The existing vehicular access point on Bay Road would be retained. A new drop off zone is proposed near the playground. Visitors dropping off activity participants would be allowed to enter the park, without paying the entrance fee, for drop-off and pick-up. The parking supply would remain unchanged, field observations in November 2016 counted approximately 375 spaces. The proposed project site plan is shown in Figure 4.

Trip Generation

Trip generation estimates are typically developed using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9th Edition, 2012. However, standard rates are not available or applicable to the improvements planned at the park; therefore, trip generation rates were developed based on historic park visitor statistics and anticipated future programing and park usage.

The existing conditions at Flood County Park were derived using historic park visitor statistics from 2011 through 2015. During this time period the baseball field was not in programmed use and this time period was assumed to represents the existing conditions at the park. The average daily number of visitors was determined for each month and then averaged over the four years, to account for annual variation in park visit. An average vehicle occupancy of 1.2 persons per vehicle was used to convert the average daily visitor total into average daily trips per month. In order to account for seasonal variation, these daily trips were averaged over 12 months to determine the number of daily trips the park generates. Driveway counts collected in November 2016 were used to validate this methodology.

It is anticipated that the programmed active recreation would be implemented as soon as the construction for Phase I is complete. The anticipated schedule of events for the Menlo Park Legends included the number of events per month, the events' anticipated time of day, and the number of active users. Both games and practices are expected to occur during the week and on weekends. However, youth practices would typically occur on weekdays and youth games would more often occur on weekends, while adult league games would occur on both weekdays and weekends. It is also anticipated that passive recreation park trips would increase proportional to regional traffic growth, 0.8 percent per year through Phase I.

During the summer months the Park would be expected to have peak visitation for both passive and active recreation. The review of historic park visitor statistics determined that the summer months can experience up to twice as many daily visitors compared to an average day. The peak months are June through September and would be expected to experience the largest traffic impact. During the low months, November through February, traffic impacts would be expected to be minimal The Saturday peak hour would be expected to experience more variability throughout the year compared to the weekday p.m. peak hour. The weekday p.m. peak hour is largely dependent on programmed active recreation while passive recreation would be expected to vary depending on the time of year and weather. The peak visitation periods for the Park are not expected overlap with other peak periods throughout the year with lower visitation during the winter months. Peak visitation would also be expected to occur outside of commute hours.

Trip generation estimates are presented in Appendix C and summarized in Table 8. Overall, the park would generate an average of 91 weekday p.m. peak hour trips and 48 Saturday peak hour trips.

The Flood Park Preferred Plan reflects the community feedback received on the three alternatives. The plan provides a wide range of uses, both active and passive, for a variety of user groups. Fields sports (soccer and lacrosse) have been added, as wella number elements targeted to youth (basketball, pump track, adventure play).

Based on community feedback, uses have been located to minimize the removal of large Oak and Bay trees.

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Figure 4 – Site Plan

Table 8 – Phase I Average Trip Generation Summary							
Park Use	**Daily Trips**	**PM Peak Hour**			**SAT Peak Hour**		
		Trips	**In**	**Out**	**Trips**	**In**	**Out**
Baseline							
Passive Recreation	149	15	8	7	14	7	7
Proposed							
Growth in Passive Recreation	15	2	1	1	2	1	1
Programmed Active Recreation	143	74	37	37	32	16	16
Phase I Average Trips	**307**	**91**	**46**	**45**	**48**	**24**	**24**

Trip Distribution

Flood County Park is expected to be both a local-serving passive recreation park and a regional programmed active recreation park. It was assumed that a majority of project trips would originate locally in Menlo Park. Traffic utilize local streets, while regional park trips, accounting for ten percent of all trips, would utilize US 101 or I-280 before travelling on local streets to access the park. The applied distribution assumptions and resulting trips are shown in Table 9.

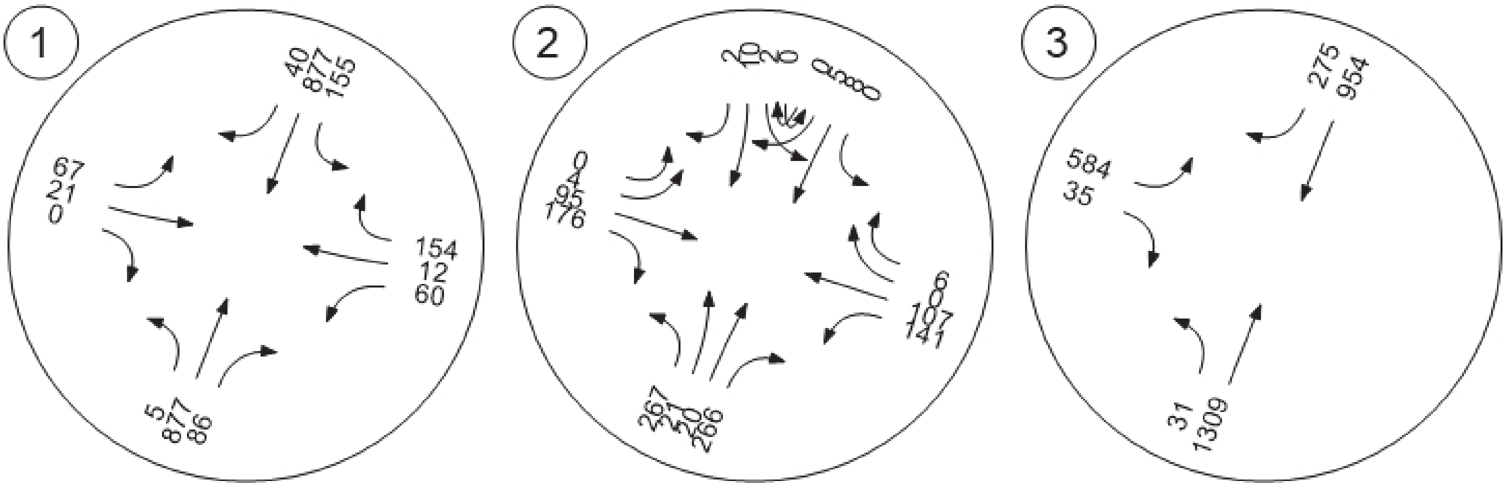
Table 9 – Trip Distribution Assumptions				
Route	**Percent**	**Daily Trips**	**PM Trips**	**SAT Trips**
To/From Marsh Road east of Bay Road	12%	37	12	7
To/From Marsh Road west of Bay Road	8%	25	7	4
To/From Bay Road north of Marsh Road	5%	15	4	2
To/From Flood Park Triangle	9%	28	8	4
To/From Ringwood Avenue west of Bay Road	48%	147	44	23
To/From Willow Road east of Bay Road	13%	40	12	6
To/From Willow Road west of Bay Road	5%	15	4	2
TOTAL	**100%**	**307**	**91**	**48**

Intersection Operation

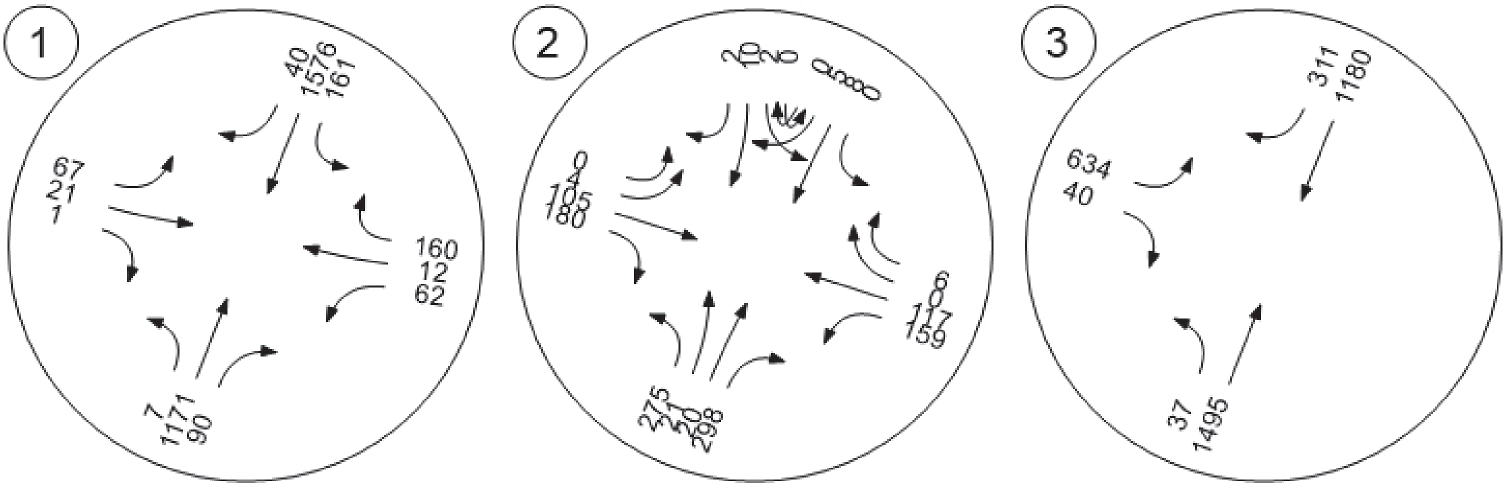
Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the intersection of Bay Road and Ringwood Avenue is expected to operate unacceptably at LOS D during the p.m. peak hour. The intersection of Bay Road and Willow Road is expected to continue to operate at LOS F during the p.m. peak hour due to "unserved demand." These results are summarized in Table 10. Existing plus project traffic volumes are shown in Figure 5 (p.m.) and Figure 6 (Saturday).

Weekday PM Existing plus Project Traffic Volumes



Weekday PM Near-Term plus Project Traffic Volumes



Weekday PM Cumulative plus Project Traffic Volumes

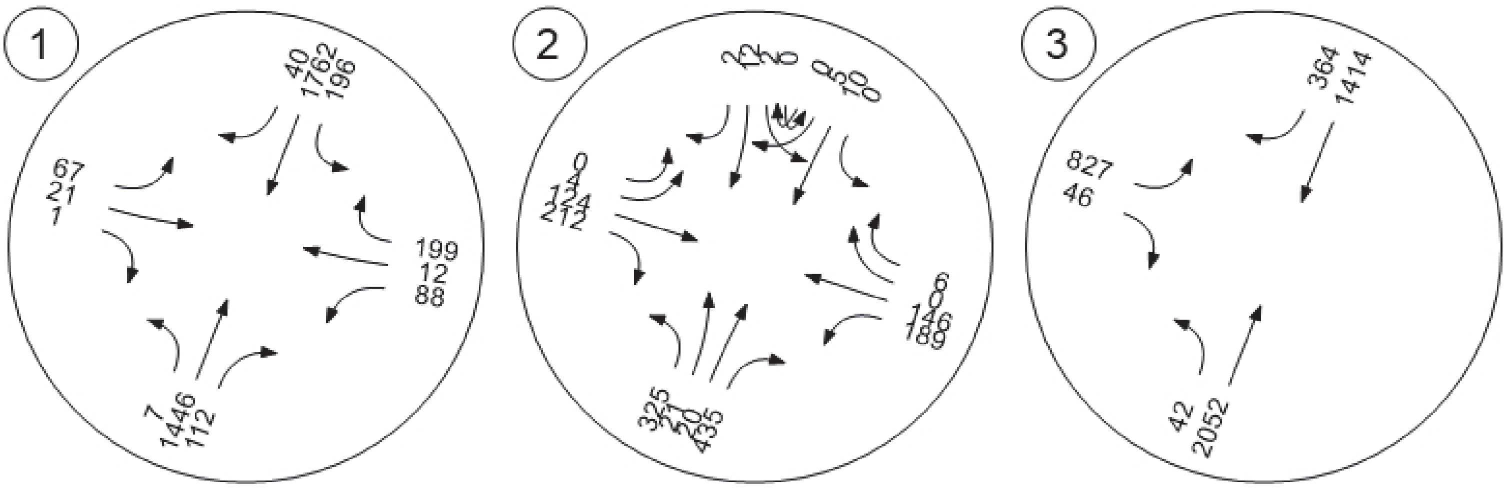


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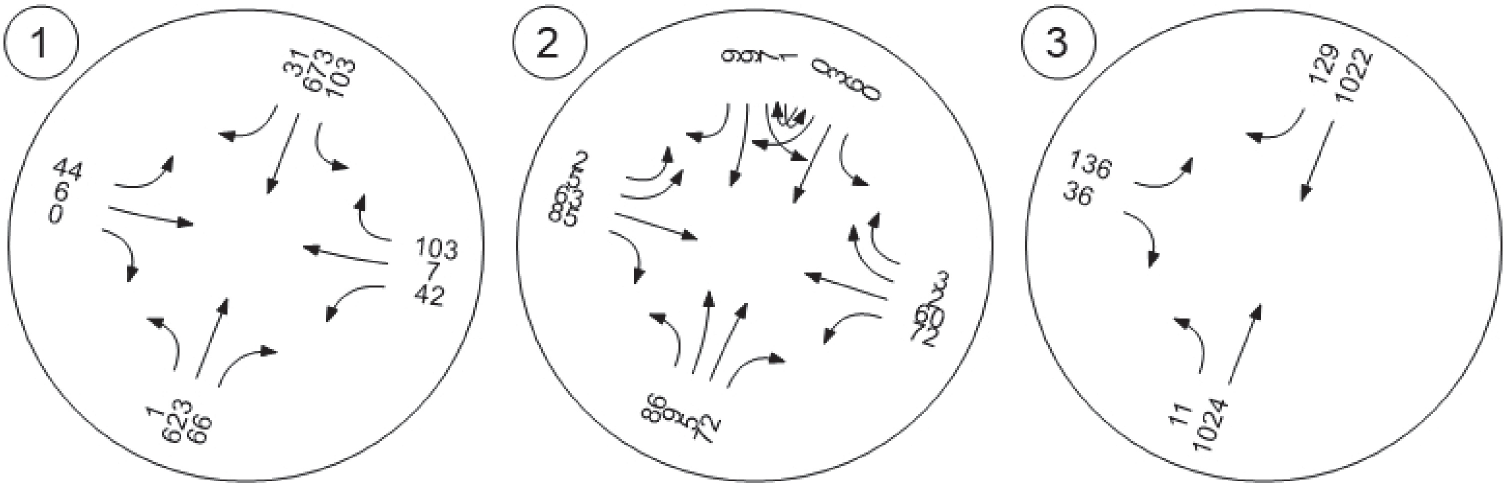
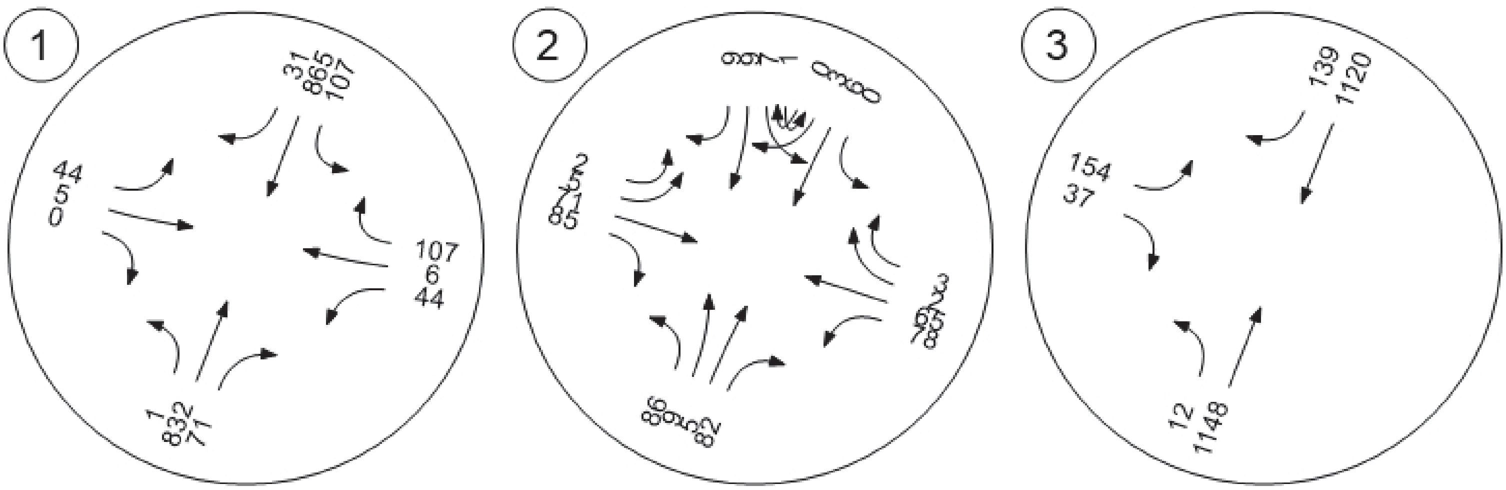
Figure 5 – Weekday PM Existing plus Project, Near-Term plus Project, & Cumulative plus Project Traffic Volumes

W-Trans

Saturday Existing plus Project Traffic Volumes



Saturday Near-Term plus Project Traffic Volumes



Saturday Cumulative plus Project Traffic Volumes

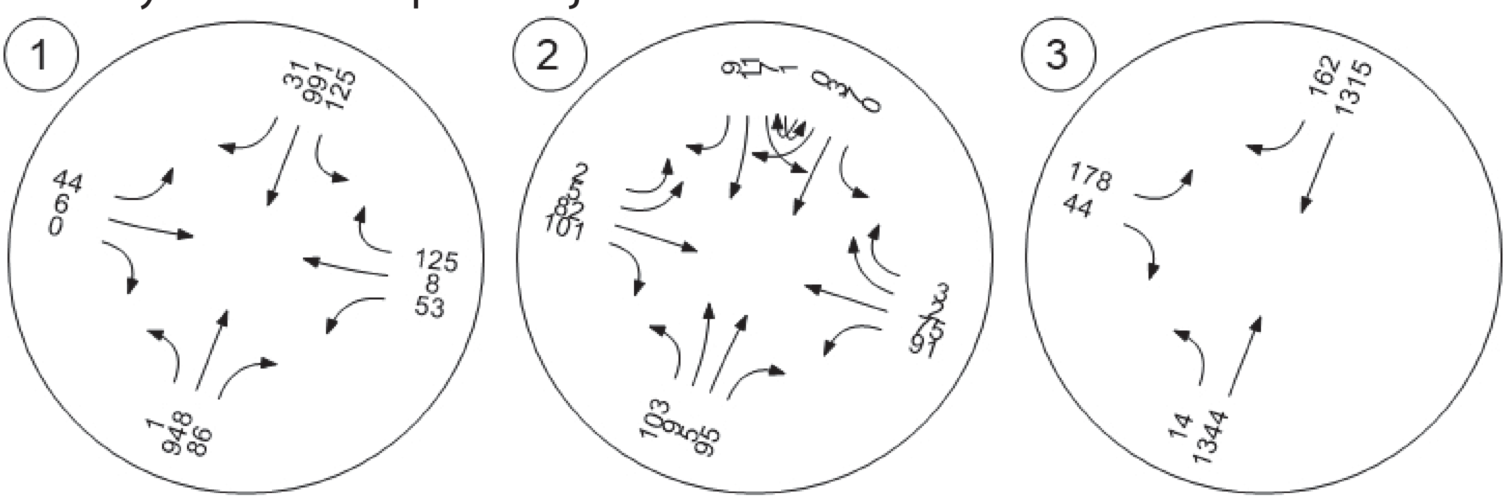


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Figure 6 – Saturday Existing plus Project, Near-Term plus Project, & Cumulative plus Project Traffic Volumes

W-Trans

Table 10 – Existing and Existing plus Project Peak Hour Intersection Levels of Service								
Study Intersection	**Existing Conditions**				**Existing plus Project**			
	PM Peak		**SAT Peak**		**PM Peak**		**SAT Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Bay Road/Marsh Road	16.0	B	13.7	B	16.4	B	13.9	B
2. Bay Road/Ringwood Avenue	21.2	C	8.8	A	**25.7**	**D**	9.1	A
Addition of Northbound Left-Turn Lane	-	-	-	-	13.8	B	9.0	A
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	9.4	A	**>80*[1]**	**F[1]**	9.5	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** text = deficient operation; Shaded cells = conditions with potential improvements; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.
Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

Finding – The intersection of Bay Road and Ringwood Avenue is expected to operate unacceptably at LOS D upon the addition of project-generated traffic. The intersection of Bay Road and Willow Road is expected to continue operating at LOS F during the p.m. peak hour. This intersection operates unacceptably without the addition of project-generated traffic and would continue to operate deficiently due to “unserved demand” upon the addition of project-generated traffic.

A sensitivity analysis was conducted to determine the threshold for a significant impact at the intersection of Bay Road and Ringwood Avenue based on project-generated traffic, utilizing the existing lane configuration and all-way stop control. In order to maintain LOS C, the project could generate up to 25 p.m. peak hour trips (13 outbound and 12 inbound trips) from passive and active recreation combined. Based on the project description and planned programmed activity, it would not be feasible to maintain LOS C at this intersection, based on the potential trip generation. For reference, one adult baseball game would generate approximately 30 p.m. peak hour inbound trips. Without lighting, weekday evening programmed would have to start during the p.m. peak hour in order to be completed within the defined programmed activity hours, 9 a.m. to 8 p.m.

Recommendation – In order to achieve acceptable operation at Bay Road and Ringwood Avenue, the northbound approach on Ringwood Avenue would have to be restriped to include a left-turn lane. The San Mateo County Assessor Map confirms that Ringwood Avenue has 55 feet of right-of-way and although the impact would be reduced to a less-than-significant level with the implementation of this intersection improvement, the removal of the parking lane and street trees on the east side of Ringwood Avenue at the intersection of Bay Road would be required. This improvement would also require the relocation of existing utility poles and street drainage. Additionally, this measure would require coordination with, and approval, by the City of Menlo Park and the Town of Atherton, which cannot be guaranteed. Therefore, the impact would be significant and unavoidable.

Near-Term 2021 plus Project Conditions

With project-related traffic added to Near-Term volumes, the intersection of Bay Road and Ringwood Avenue is expected to operate unacceptably at LOS E during the p.m. peak hour. The intersection of Bay Road and Willow Road is expected to continue to operate at LOS F during the p.m. peak hour due to “unserved demand.” These results are summarized in Table 11. Near-term plus project traffic volumes are shown in Figure 5 (p.m.) and Figure 6 (Saturday).

Table 11 – Near-Term 2021 and Near-Term 2021 plus Project Peak Hour Intersection Levels of Service								
Study Intersection	**Near-Term Conditions**				**Near-Term plus Project**			
	PM Peak		**SAT Peak**		**PM Peak**		**SAT Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Bay Road/Marsh Road	19.1	B	14.2	B	19.2	B	14.3	B
2. Bay Road/Ringwood Avenue	**29.4**	**D**	9.1	A	**36.6**	**E**	9.1	A
Addition of Northbound Left-Turn Lane	14.3	B	9.0	A	15.1	C	9.2	A
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	9.9	A	**>80*[1]**	**F[1]**	10.0	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** text = deficient operation; Shaded cells = conditions with potential improvements; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.
Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

Finding – The study intersections are expected to continue operating at the same levels of service upon the addition of project-generated traffic, with the exception of Bay Road at Ringwood Avenue. The significant impact would remain significant and unavoidable.

Cumulative 2040 plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Cumulative volumes, the intersection of Bay Road and Ringwood Avenue is expected to operate unacceptably at LOS F during the p.m. peak hour. The intersection of Bay Road and Willow Road is expected to continue to operate at LOS F during the p.m. peak hour due to "unserved demand." The Future plus Project operating conditions are summarized in Table 12. Cumulative plus project traffic volumes are shown in Figure 5 (p.m.) and Figure 6 (Saturday).

Table 12 – Cumulative 2040 and Cumulative 2040 plus Project Peak Hour Levels of Service								
Study Intersection *Approach*	**Cumulative Conditions**				**Cumulative plus Project**			
	PM Peak		**SAT Peak**		**PM Peak**		**SAT Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Bay Road/Marsh Road	29.1	C	16.0	B	30.9	C	16.5	B
2. Bay Road/Ringwood Avenue	**95.7**	**F**	9.7	A	**111.3**	**F**	10.0	A
Addition of Northbound Left-Turn Lane	22.4	C	9.5	A	**27.5**	**D**	9.8	A
Signalization	30.8	C	12.0	B	34.5	C	12.4	B
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	10.9	B	**>80*[1]**	**F[1]**	11.0	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** text = deficient operation; Shaded cells = conditions with potential improvements; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.
Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

Finding – The study intersections are expected to continue operating at the same levels of service upon the addition of project-generated traffic. Traffic volumes at the Bay Road and Ringwood Avenue would satisfy peak-hour traffic signal warrant criteria, as discussed in the Traffic Signal Warrants section. However, as discussed under Cumulative 2040 Conditions, this intersection improvement is not feasible. The significant impact would remain significant and unavoidable.

Analysis of Alternatives

An alternative to the Flood County Park Landscape Plan was considered and analyzed which would prohibit programmed activities on the park's athletic fields to be scheduled or take place during the p.m. peak hour on weekdays. The trip generation for this alternative only considered the baseline passive recreation and proposed growth in passive recreation trips during the p.m. peak hour. The proposed growth in passive recreation would mirror the growth on the roadway network, 0.8% per year. Under this alternative, no changes would be made to the trip generation or park operations during the Saturday peak hour. The intent of this alternative is to lessen the significant impact at the intersection of Bay Road and Ringwood Avenue while maintaining basic park functionality.

Upon the addition of the passive recreation trips to the Existing volumes, during the p.m. peak hour, the study intersections are expected to continue to operate acceptably at the same levels of service as without project generated trips. The alternative would result in a less than significant impact at the intersection of Bay Road and Ringwood Avenue. These results are summarized in Table 13.

Table 13 – Alternative Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection	Existing Conditions		Existing plus Project		Alternative Existing plus Project	
	PM Peak		PM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. Bay Road/Marsh Road	16.0	B	16.4	B	16.0	B
2. Bay Road/Ringwood Avenue	21.2	C	**25.7**	**D**	24.7	C
Addition of Northbound Left-Turn Lane	-	-	13.8	B	-	-
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	**>80*[1]**	**F[1]**	**>80*[1]**	**F[1]**

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** text = deficient operation; Shaded cells = conditions with potential improvements; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.
Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

Upon the addition of the passive recreation trips to the Near-Term volumes, the intersection of Bay Road and Ringwood Avenue is expected to operate unacceptably at LOS E during the p.m. peak hour (as it would under the proposed project condition). The intersection of Bay Road and Willow Road is expected to continue to operate at LOS F during the p.m. peak hour due to "unserved demand." These results are summarized in Table 14.

Table 14 – Alternative Near-Term plus Project Peak Hour Intersection Levels of Service

Study Intersection	Near-Term Conditions PM Peak		Near-Term plus Project PM Peak		Alternative Near-Term plus Project PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. Bay Road/Marsh Road	19.1	B	19.2	B	18.8	B
2. Bay Road/Ringwood Avenue	**29.4**	**D**	**36.6**	**E**	**35.4**	**E**
Addition of Northbound Left-Turn Lane	14.3	B	15.1	C	14.9	B
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	**>80*[1]**	**F[1]**	**>80*[1]**	**F[1]**

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** text = deficient operation; Shaded cells = conditions with potential improvements; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.
Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

Upon the addition of the passive recreation trips to the Cumulative volumes, the intersection of Bay Road and Ringwood Avenue is expected to continue operating unacceptably at LOS F during the p.m. peak hour. The intersection of Bay Road and Willow Road is expected to continue to operate at LOS F during the p.m. peak hour due to "unserved demand." These results are summarized in Table 15.

Table 15 – Alternative Cumulative plus Project Peak Hour Intersection Levels of Service

Study Intersection	Cumulative Conditions PM Peak		Cumulative plus Project PM Peak		Alternative Cumulative plus Project PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. Bay Road/Marsh Road	29.1	C	30.9	C	30.1	C
2. Bay Road/Ringwood Avenue	**95.7**	**F**	**111.3**	**F**	**113.4**	**F**
Addition of Northbound Left-Turn Lane	22.4	C	**27.5**	**D**	**25.3**	**D**
Signalization	30.8	C	34.5	C	31.5	C
3. Bay Road/Willow Road	**>80*[1]**	**F[1]**	**>80*[1]**	**F[1]**	**>80*[1]**	**F[1]**

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** text = deficient operation; Shaded cells = conditions with potential improvements; *Indicates LOS based on unserved demand. At these locations, upstream & downstream congestions results in delay not captured by VISTRO analysis.
Source: [1]Public Review Draft EIR Connect Menlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update

Finding – The project alternative would result in a less than significant impact under Existing plus Project conditions. However, the project alternative would result in similar impacts to the proposed project under Near-Term and Cumulative plus Project conditions.

Recommendation – In order to achieve acceptable operation at Bay Road and Ringwood Avenue, under Near-Term Conditions, the northbound approach on Ringwood Avenue would have to be restriped to include a left-turn lane and under Cumulative Conditions the intersection would have to be signalized. The San Mateo County Assessor Map confirms that Ringwood Avenue has 55 feet of right-of-way and although the impact would be reduced to a less-than-significant level with the implementation of this intersection improvement, the removal of the parking lane and street trees on the east side of Ringwood Avenue at the intersection of Bay Road would be required. This improvement would also require the relocation of existing utility poles and street drainage.

Additionally, this measure would require coordination with, and approval, by the City of Menlo Park and the Town of Atherton, which cannot be guaranteed. Therefore, the project alternative impact would be significant and unavoidable.

Vehicle Miles Traveled

Vehicle miles traveled (VMT) is the measure of miles traveled within a specific geographic area for a given period and it provides an indication of automobile and truck travel on a transportation system. This metric is often used in noise, air quality, and greenhouse gas emissions analyses. VMT can also be used to quantify the impact of a project or plan on the larger transportation system. The California Governor's Office of Planning and Research in the *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* (2016) proposes that VMT be used as the metric to quantify a project's impact in place of level of service.

According to the Metropolitan Transportation Commission (MTC), on average residents of the Bay Area as a whole travel a total of approximately 23 miles daily, while residents of San Mateo Country drive over 25 miles daily. Land use planning in San Mateo County has historically followed a typical suburban pattern of development, and is therefore expected to have a higher average VMT per capita than the region.

The Flood County Park Landscape Plan would be expected to have a negligible impact on the VMT of San Mateo County. The renovation of the baseball field could shorten the trip of active recreation users who no longer have to travel outside of Menlo Park to access quality athletic fields. The main user of the athletic fields would be the Menlo Legends Baseball who currently use other fields in Menlo Park and Atherton. The Plan is maintaining and revitalizing the passive recreation elements likely to be used by local residents.

Alternative Modes

Pedestrian Facilities

Given the proximity of single-family residential homes surrounding Flood County Park, it is reasonable to assume that some park visitors will want to walk and/or bicycle to reach the Park.

Flood County Park Landscape Plan – Three pedestrian access points are located along Bay Road and one access point is located at the terminus of Iris Lane at the eastern corner of the Park. The Landscape Plan proposes a network of paved walkways that would enable a park user to go from one park feature to another. A pedestrian path currently exists along the edge of the parking lot, no improvements are planned for the parking lot as part of the Landscape Plan.

Project Vicinity – Sidewalks exist along the project frontage, the north side of Bay Road, from Del Norte Avenue to Marsh Road. Sidewalks are not provided on the south side of Bay Road. Between Del Norte Avenue and Ringwood Avenue no sidewalks exist, pedestrians have to walk along the roadway shoulder or in the bike lane. Sidewalks are provided along Iris Lane to connect the Park to the pedestrian bridge over US 101. Complete sidewalk networks exist in the Menlo Park neighborhoods to the northwest and southeast of the Park. Atherton neighborhoods, located south of Bay Road, do not have sidewalks.

Finding – Onsite pedestrian facilities within Flood County Park are expected to be adequate; however, a gap exists in the sidewalk network on the north side of Bay Road, a route which could be utilized by pedestrians to access the Park. There are two mature oak trees located within the right of way along Bay Road which would have to be removed to complete the sidewalk; therefore it would not be feasible to complete the sidewalk along Bay Road.

Recommendation – Install signage along the north side of Bay Road between Del Norte Avenue and Ringwood Avenue to inform motorists and bicyclist of pedestrians walking along the shoulder and in the bike lane.

Bicycle Facilities

Existing bicycle facilities, including bike lanes on Bay Road, Ringwood Avenue, Middlefield Road, and Willow Road together with shared use of minor streets provide adequate access for bicyclists.

Bicycle Storage

The Flood County Park Landscape Plan does not identify any bicycle parking or storage facilities in the park, restricting the amenities for park visitors who may which may wish to travel to and from the park via a bicycle.

Finding – Bicycle storage should be provided for patrons due to the recreational nature of the project. All other bicycle facilities serving the project site are expected to be adequate.

Recommendation – Install racks that can accommodate a minimum of six bicycles near the gathering plaza.

Transit

Due to the nature and location of the Park, the majority of park visitors would be from the nearby residential neighborhoods and would access the Park via foot, bike or vehicle. Existing stops are available within acceptable walking distance of the site for those visitors who choose to access the site via transit.

Finding – Transit facilities serving the project site are expected to be adequate.

Access and Circulation

Site Access

The Landscape Plan does not involve any physical changes to parking and site access. The existing vehicular access point on Bay Road will be retained. A new drop off zone is proposed near the playground. Visitors dropping off activity participants will be allowed to enter the park, without paying the entrance fee, for drop-off and pick-up. The parking supply will remain unchanged, field observations in November 2016 counted approximately 375 spaces.

Access Analysis

Left-Turn Lane Warrants

The need for left-turn lanes on Bay Road at the Flood County Park driveway was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as a more recent update of the methodology developed by the Washington State Department of Transportation. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes in order to determine the need for a left-turn pocket based on safety issues. Based on our research and discussions with Caltrans staff, this methodology is consistent with the "Guidelines for Reconstruction of Intersections," August 1985, which was referenced in Section 405.2, Left-turn Channelization, of previous editions of the Caltrans *Highway Design Manual*, though this reference has been deleted from the most recent edition of this manual.

The need for left-turn channelization in the form of a left-turn pocket on Bay Road was evaluated based on Near-Term 2021 peak hour volumes as well as safety criteria. Under Near-Term conditions, which includes traffic generated by both passive and programed active recreation, a left-turn lane is not warranted on Bay Road at the Flood County Park driveway during either of the peak periods evaluated.

Right-Turn Lane Warrants

The need for a right-turn lane or taper was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985. A right-turn lane would consist of a lane installed to the right of the travel lane and would be a minimum of ten feet wide, plus a shoulder where not adjacent to a curb. A right-turn taper is a shoulder area that gets progressively wider as the motorist drives toward the intersection. Both improvements are meant to provide an area for motorists turning right to move out of the traffic lane without impeding through traffic.

The need for a right-turn lane or taper was evaluated for the Flood County Park driveway on Bay Road. Using the same criteria contained in the *Intersection Channelization Design Guide*, the warrants were evaluated using Near-Term 2021 plus Project volumes during both the p.m. and Saturday peak hour. Based on these assumptions, no additional facilities in the form of either a right-turn lane or right-turn taper would be warranted.

Traffic Signal Warrants

A signal warrant analysis was performed to determine potential need for a traffic signal at Bay Road and Ringwood Avenue.

Chapter 4C of the *California Manual on Uniform Traffic Control Devices* (CA-MUTCD) provides guidance on when a traffic signal should be considered. There are nine different warrants, or criteria, presented, as follows:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour Volume
- Warrant 4, Pedestrian Volume
- Warrant 5, School Crossing
- Warrant 6, Coordinated Signal System
- Warrant 7, Crash Experience
- Warrant 8, Roadway Network
- Warrant 9, Intersection Near a Grade Crossing

Warrant 3, which is often the first warrant to be met, has a notice that this signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. Under the Peak Hour Warrant the need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

A. If all three of the following conditions exist for the same one hour (any four consecutive 15-minute periods) of an average day:

    1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: four vehicle-hours for a one-lane approach; or five vehicle-hours for a two-lane approach, and
    2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and
    3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

For the purposes of this study, Warrant 3, the Peak Hour volume warrant, which determines the need for traffic control based on the highest volume hour of the day, was used as an initial indication of traffic control needs under Cumulative 2040 conditions. The use of this signal warrant is common practice for planning studies. Other warrants, which are more generally applicable to existing traffic issues, require collection of traffic volumes for the highest four or eight hours of the day, review of the collision history, and evaluation of the system surrounding the location. The traffic volume at Bay Road and Ringwood Avenue do not satisfy the warrant under Existing, Existing plus Project, Near-Term 2021, and Near-Term 2021 plus Project conditions.

Parking

Flood County Park was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated parking demand. The City of Menlo Park Municipal Code does not specify parking requirements for a park. The existing Park, and as proposed, would provide approximately 375 parking spaces. During the parking utilization surveys conducted in November 2016, a portion of the parking lot was being used for long-term storage. This storage did not allow for a complete survey of the parking facilities.

Parking demand was estimated using standard rates published by ITE in *Parking Generation*, 4th Edition, 2010. The parking demand potential of the project was estimated using the published standard rates for a City Park (ITE LU#412). The published rates are based on a 25 acre park with softball and soccer fields, outdoor group meeting areas, and an administration building with 375 parking spaces. Based on the size and anticipated use of Flood County Park, the anticipated peak parking demand for the proposed project is approximately 5.1 parking spaces per acre, or 125 parking spaces. Using this standard rate, it is anticipated that the existing parking supply would be adequate.

The proposed Plan includes a drop-off zone for loading and unloading at the existing playground. Visitors dropping off activity participants would be allowed to enter the park, without paying the entrance fee, for drop-off and pick-up.

During peak summer demand, the use of the fee collection booth at the main entrance may cause temporary queue spillback on to City streets. In order to accommodate high demand the Park could allow visitors to enter the park without paying the entrance fee and collect the fee upon vehicle exit. This would move the queue related to park visitors on-site. Additionally, the self-registration fee collection station could be converted into an automated fee machine to collect and print daily or multiple day passes. Park visitors could either be required to display this pass while parked or present the pass upon exit. Since the park has set hours and is staffed during peak periods, a combination of the automated and manual strategies could be used to mitigate queue spillback on to City streets.

The parking utilization surveys conducted in November 2016 identified the number of vehicles parked on City streets surrounding Flood County Park which were not displaying a residential parking permit. During the six-hour weekday count, an average of seven cars per hour, not displaying a permit, were parked within the vicinity of the park. During the six-hour Saturday count, an average of 10 cars per hour, not displaying a permit, were parked within the vicinity of the park. While it is not possible to know the final destination of the drivers of the parked vehicles, daytime parking is not allowed on the surveyed streets without a parking permit. County Parks should work with the City of Menlo Park and the Town of Atherton to educate park visitors about the parking restrictions, as well as, increase random enforcement of the parking restrictions.

Finding – The parking supply would be adequate based on the ITE standard rate. While temporary queue spillback on to City streets may occur during peak summer demand, the impact can be mitigated to a less than significant level with the implantation of new fee collection practices.

Recommendation – Implement parking fee collection practices; automated fee machines, pay on exit, or a combination of both to move the queues associated with fee collection off of City streets and on-site. Develop a mechanism to inform park visitors about on-street parking restrictions on City streets within the vicinity of the Park. Cleary mark drop-off and pick-up zone.

CEQA Checklist

The 2010 California Environmental Quality Act (CEQA) Guidelines lists six criteria to be considered when determining if a project would result in a significant impact on transportation. Additionally, consideration should be given to the impacts of congestion on greenhouse gases.

XVI. TRANSPORTATION/TRAFFIC

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?*

   Potentially Significant. As detailed in the Intersection Operations section, the proposed project is expected to result in a significant impact to the performance of the circulation system. Project generated trips are expected to cause a significant impact at the intersection of Bay Road and Ringwood Avenue. Under Existing plus Project conditions, the intersection is expected to operate at LOS D during the p.m. peak hour. The addition of a northbound left-turn lane on Ringwood Avenue and the installation of a traffic signal were investigated as possible mitigation measures. However, both were deemed infeasible due to the acquisition of right-of-way, removal of existing street trees, and relocation of utilities required to implement the improvements. Additionally, this measure would require coordination with, and approval, by the City of Menlo Park and the Town of Atherton, which cannot be guaranteed. Therefore, the impact would be significant and unavoidable. The proposed project is not expected to hinder efforts to encourage walking, bicycling, or public transit use, but rather it supports non-vehicular trips by providing a destination within walking or bicycling distance of many local residents. The project is therefore expected to have a less-than-significant impact on pedestrians, bicyclists, and public transit by providing a destination within walking or bicycling distance of many local residents and nearby transit stops.

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?*

   Less than significant. The City/County Association of Governments of San Mateo County (C/CAG) serves at the Congestion Management Agency (CMA) for San Mateo County. C/CAG's most recent Congestion Management Plan (CMP), referred to as the 2013 CMP Monitoring Report, establishes the designated CMP Roadway network, which includes I-280, US 101, Bayfront Expressway (SR 84), El Camino Real (SR 82), and Willow Road (SR 114) and the LOS standard for each roadway in the network. The project is expected to generate the majority of trips from local residents. Traffic on the designated CMP roadway network is not expected to be impacted. Therefore, the proposed project is not expected to conflict with C/CAG's Congestion Management Program.

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 project site is not located near any airports; therefore, the implementation and full buildout of the Flood County Park Landscape Plan would have no impact on air safety or operation of airport facilities.

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

Less than significant. Proposed modifications to the existing transportation facilities, including sidewalks, crosswalk installation, are expected to accommodate any increase in pedestrians and bicyclists travelling along Bay Road.

e. *Result in inadequate emergency access?*

Less than significant. The proposed project does not include any modifications to the exiting transportation and street network. Therefore, the Flood County Park Landscape Plan would not affect 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?*

Less than significant. The proposed project is consistent with adopted policies and plans regarding public transit, bicycle, and pedestrian facilities. As described, any improvements to pedestrian and bicycle facilities are expected to improve access to the project site and would adequately accommodate any increase in pedestrian and bicycle activity in the vicinity of Flood County Park.

g. *Cause noticeable increase in pedestrian traffic or a change in pedestrian patterns?*

Less than significant. The proposed project is not expected to generate noticeable increases in pedestrian traffic or travel patterns in the vicinity of Flood County Park. The mode split for park visitors is expected to remain the same upon implementation of the Landscape Plan. Visitors who currently live within reasonable walking distance would continue to utilize the pedestrian network to access the Park.

h. *Result in inadequate parking capacity?*

Less than significant. As detailed in the Parking Section, the proposed project is expected to provide ad equate parking capacity based on standard rates published by ITE. Flood County Park has approximately 375 parking spaces. The Landscape Plan also includes a drop-off zone for loading and unloading, and visitors would be able to access this drop-off zone without paying the entrance fee.

Adopted Policies and Plans

The City of Menlo Park's adopted polices and planes regarding public transit, bicycle and pedestrian facilities are included in the City's General Plan. The General Plan establishes the following policies relevant to the Flood County Park Landscape Plan and alternative transportation modes:

Policy CIRC-1.8 **Pedestrian Safety**. Maintain and create a connected network of safe sidewalks and walkways within the public right of way [Policy CIRC-5.2] ensure that appropriate facilities, traffic control, and street lighting are provided for pedestrian safety and convenience, including for sensitive populations. [Policy CIRC-5.3]

Policy CIRC-4.3 **Active Transportation.** Promote active lifestyles and active transportation, focusing on the role of walking and bicycling, to improve public health and lower obesity.

Policy CIRC-5.2 **Transit Proximity to Activity Centers**. Promote the clustering of as many activities as possible within easy walking distance of transit stops, and locate any new transit stops as close as possible to housing, jobs, shopping areas, open space, and parks. [Policy CIRC-2.2]

Conclusions and Recommendations

Conclusions

- The proposed project is expected to generate an average of 307 new trips per day including 91 trips during the weekday p.m. peak hour and 48 trips during the Saturday peak hour.

- Under Existing Conditions, the study intersections operate acceptably during the Saturday peak hour; however Bay Road/Willow Road operates unacceptably at LOS F due to "unserved demand" during the p.m. peak hour.

- Upon the addition of project-generated traffic to Existing Conditions, the study intersections are expected to continue operating acceptably during the Saturday peak hour, but Bay Road/Willow Road is expected to continue to operate unacceptably at LOS F due to "unserved demand" and Bay Road/Ringwood Avenue is expected to deteriorate to LOS D during the p.m. peak hour.

- Project generated trips are expected to cause a potentially significant impact at the intersection of Bay Road and Ringwood Avenue under Existing plus Project Conditions. Mitigation measures were deemed infeasible due to the acquisition of right-of-way, removal of existing street trees, and relocation of utilities required to implement the improvements. Additionally, intersection improvements would require coordination with, and approval, by the City of Menlo Park and the Town of Atherton, which cannot be guaranteed. Therefore, the impact would be significant and unavoidable.

- Under Near Term 2021, Near Term 2021 plus Project, Cumulative 2040, and Cumulative 2040 plus Project Conditions the study intersections are expected to operate acceptably at the same levels of service upon the addition of project-generated traffic during the Saturday peak hour. During the p.m. peak hour, the intersections of Bay Road/Willow Road and Bay Road/Ringwood Avenue are expected to operate unacceptably under all conditions, these impacts would be significant and unavoidable.

- The project alternative, which would prohibit programmed activities to be scheduled or take place during the p.m. peak hour, would result in a less than significant impact under Existing plus Project conditions. However, the project alternative would result in similar impacts to the proposed project under Near-Term and Cumulative plus Project conditions.

- Onsite pedestrian facilities within Flood County Park are expected to be adequate; however, there are gaps in the pedestrian facilities accessing the project vicinity. Bicycle and Transit facilities serving the project site are expected to be adequate.

- The proposed parking supply at Flood County Park would be adequate based on ITE standard parking demand rates. During a recent six-hour weekday count, an average of seven cars per hour, not displaying a permit, were parked within the vicinity of the park. During a recent six-hour Saturday count, an average of 10 cars per hour, not displaying a permit, were parked within the vicinity of the park. Temporary queue spillback on to City streets may occur during peak summer demand.

- The Flood County Park Landscape Plan's impacts to the congestion management program, air traffic, hazardous design features, emergency access, and conflicts with adopted policies are considered to be less than significant.

Recommendations

- To address gaps in the pedestrian network, completion of the sidewalk along the north side of Bay Road between Del Norte Avenue and Ringwood Avenue is recommended to provide continuous pedestrian connectivity.

- Install racks that can accommodate a minimum of six bicycles near the gathering plaza.

- Implement parking fee collection practices to avoid the back up of entering traffic onto local streets. These may include automated fee machines, pay on exit, or a combination of both to move the queues associated with fee collection off of City streets and on-site. Develop a mechanism to inform park visitors about on-street parking restrictions on City streets within the vicinity of the Park. Cleary mark drop-off and pick-up zone.

Study Participants and References

Study Participants

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Assistant Engineer	Nick Bleich
Graphics	Hannah Yung
Editing/Formatting	Hannah Yung

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SMX013

Appendix A

Intersection Level of Service Calculations

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro — Scenario 1: PM Existing

Report File: C:\...\PM Existing.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.659	15.9	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		21.2	C
3	Willow Rd/Bay Rd	Signalized	HCM 2000	EB Left	0.815	30.4	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	15.9
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.659

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	877	80	151	877	40	67	19	0	54	10	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	877	80	151	877	40	67	19	0	54	10	151
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	231	21	40	231	11	18	5	0	14	3	40
Total Analysis Volume [veh/h]	5	923	84	159	923	42	71	20	0	57	11	159
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	68
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	35	35	35	14	49	49	19	19	19	19	19	19
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	10	45	15	15
g / C, Green / Cycle	0.46	0.15	0.66	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.30	0.09	0.27	0.09	0.15
Total Saturation Flow Adjustment	0.88	0.93	0.93	0.52	0.80
s, saturation flow rate [veh/h]	3331	1770	3524	984	1520
c, Capacity [veh/h]	1519	260	2332	217	335
d1, Uniform Delay [s]	14.46	27.18	5.36	22.76	24.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.33	10.26	0.54	5.85	10.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.61	0.41	0.42	0.68
d, Delay for Lane Group [s/veh]	16.79	37.44	5.90	28.61	34.77
Lane Group LOS	B	D	A	C	C
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	9.38	3.37	5.22	1.71	4.79
50th-Percentile Queue Length [ft]	234.41	84.13	130.42	42.64	119.73
95th-Percentile Queue Length [veh]	16.44	7.10	10.18	3.94	9.50
95th-Percentile Queue Length [ft]	410.99	177.53	254.61	98.53	237.51

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.79	16.79	16.79	37.44	5.90	5.90	28.61	28.61	28.61	34.77	34.77	34.77
Movement LOS	B	B	B	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.79			10.36			28.61			34.77		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	15.95											
Intersection LOS	B											
Intersection V/C	0.659											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Intersection Level Of Service Report

Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	21.2
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	5	5	69	0	1	3	1	0	1	22	40
Total Analysis Volume [veh/h]	253	22	21	274	0	2	10	2	0	4	88	159
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	9.11	0.08	1.92
95th-Percentile Queue Length [ft]	227.82	1.95	48.12
Approach Delay [s/veh]	28.79	9.68	12.53
Approach LOS	D	A	B
Intersection Delay [s/veh]	21.18		
Intersection LOS	C		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	97	0	6	0	8	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	25	0	2	0	2	1	0
Total Analysis Volume [veh/h]	145	100	0	6	0	8	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.16	0.07
95th-Percentile Queue Length [ft]	54.10	1.75
Approach Delay [s/veh]	13.80	9.49
Approach LOS	B	A
Intersection Delay [s/veh]	21.18	
Intersection LOS	C	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.815

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	29	1309	954	269	578	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	29	1309	954	46	578	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	337	246	12	149	0
Total Analysis Volume [veh/h]	30	1349	984	47	596	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	10	64	54	54	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	60	50	50	32	32
g / C, Green / Cycle	0.06	0.60	0.50	0.50	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.38	0.28	0.03	0.34	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	106	2128	1773	792	566	507
d1, Uniform Delay [s]	44.94	12.91	17.30	12.88	34.00	23.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.54	1.45	1.26	0.14	52.37	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.63	0.55	0.06	1.05	0.00
d, Delay for Lane Group [s/veh]	51.49	14.36	18.56	13.03	86.37	23.12
Lane Group LOS	D	B	B	B	F	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.90	14.91	11.35	0.74	26.47	0.00
50th-Percentile Queue Length [ft]	22.41	372.78	283.84	18.47	661.85	0.00
95th-Percentile Queue Length [veh]	2.18	24.61	19.34	1.82	42.49	0.00
95th-Percentile Queue Length [ft]	54.60	615.34	483.45	45.47	1062.29	0.00

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.49	14.36	18.56	13.03	86.37	23.12
Movement LOS	D	B	B	B	F	C
d_A, Approach Delay [s/veh]	15.17		18.31		86.37	
Approach LOS	B		B		F	
d_I, Intersection Delay [s/veh]	30.36					
Intersection LOS	C					
Intersection V/C	0.815					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro
Scenario 2: PM Existing + Project
Report File: C:\...\PM Existing plus Project.pdf
12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.674	16.4	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		25.7	D
3	Willow Rd/Bay Rd	Signalized	HCM 2000	EB Left	0.819	31.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		35.00			35.00			25.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	877	80	151	877	40	67	19	0	54	10	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	4	0	0	0	2	0	6	2	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	877	86	155	877	40	67	21	0	60	12	154
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	231	23	41	231	11	18	6	0	16	3	41
Total Analysis Volume [veh/h]	5	923	91	163	923	42	71	22	0	63	13	162
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	68
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	35	35	35	14	49	49	19	19	19	19	19	19
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	10	45	15	15
g / C, Green / Cycle	0.46	0.15	0.66	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.31	0.09	0.27	0.09	0.16
Total Saturation Flow Adjustment	0.88	0.93	0.93	0.52	0.80
s, saturation flow rate [veh/h]	3328	1770	3524	982	1515
c, Capacity [veh/h]	1517	260	2332	217	334
d1, Uniform Delay [s]	14.51	27.24	5.36	22.82	24.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.39	10.89	0.54	6.11	12.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.63	0.41	0.43	0.71
d, Delay for Lane Group [s/veh]	16.90	38.13	5.90	28.92	36.67
Lane Group LOS	B	D	A	C	D
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	9.49	3.48	5.22	1.75	5.15
50th-Percentile Queue Length [ft]	237.27	86.94	130.42	43.77	128.80
95th-Percentile Queue Length [veh]	16.61	7.30	10.18	4.03	10.08
95th-Percentile Queue Length [ft]	415.18	182.47	254.61	100.87	252.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.90	16.90	16.90	38.13	5.90	5.90	28.92	28.92	28.92	36.67	36.67	36.67
Movement LOS	B	B	B	D	A	A	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	16.90			10.56			28.92			36.67		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	16.36											
Intersection LOS	B											
Intersection V/C	0.674											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	25.7
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes		

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	0	0	0	0	0	0	0	0	0	10	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	267	21	20	266	0	2	10	2	0	4	95	176
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	5	5	69	0	1	3	1	0	1	24	45
Total Analysis Volume [veh/h]	275	22	21	274	0	2	10	2	0	4	98	181
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	11.10	0.08	2.45
95th-Percentile Queue Length [ft]	277.52	2.04	61.36
Approach Delay [s/veh]	36.85	10.01	13.93
Approach LOS	E	B	B
Intersection Delay [s/veh]	25.70		
Intersection LOS	D		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	107	0	6	0	8	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	28	0	2	0	2	1	0
Total Analysis Volume [veh/h]	145	110	0	6	0	8	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.44	0.07
95th-Percentile Queue Length [ft]	60.92	1.84
Approach Delay [s/veh]	14.81	9.81
Approach LOS	B	A
Intersection Delay [s/veh]	25.70	
Intersection LOS	D	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.819

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	29	1309	954	269	578	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	6	6	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	31	1309	954	52	584	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	337	246	13	151	0
Total Analysis Volume [veh/h]	32	1349	984	54	602	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	10	64	54	54	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO
Version 4.00-02

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	60	50	50	32	32
g / C, Green / Cycle	0.06	0.60	0.50	0.50	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.38	0.28	0.03	0.34	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	106	2128	1773	792	566	507
d1, Uniform Delay [s]	44.99	12.91	17.30	12.94	34.00	23.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.15	1.45	1.26	0.17	55.69	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.63	0.55	0.07	1.06	0.00
d, Delay for Lane Group [s/veh]	52.14	14.36	18.56	13.11	89.69	23.12
Lane Group LOS	D	B	B	B	F	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.96	14.91	11.35	0.85	27.15	0.00
50th-Percentile Queue Length [ft]	24.00	372.78	283.84	21.32	678.71	0.00
95th-Percentile Queue Length [veh]	2.33	24.61	19.34	2.08	43.56	0.00
95th-Percentile Queue Length [ft]	58.21	615.34	483.45	52.09	1088.91	0.00

Generated with PTV VISTRO
Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.14	14.36	18.56	13.11	89.69	23.12
Movement LOS	D	B	B	B	F	C
d_A, Approach Delay [s/veh]	15.24		18.27		89.69	
Approach LOS	B		B		F	
d_I, Intersection Delay [s/veh]	31.12					
Intersection LOS	C					
Intersection V/C	0.819					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro — Scenario 14: 14:PM Existing + Project (Mit)

Report File: C:\...\PM Existing plus Project Mit.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		13.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	0	0	0	0	0	0	0	0	0	10	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	267	21	20	266	0	2	10	2	0	4	95	176
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	5	5	69	0	1	3	1	0	1	24	45
Total Analysis Volume [veh/h]	275	22	21	274	0	2	10	2	0	4	98	181
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.83	2.68	0.08	2.19
95th-Percentile Queue Length [ft]	70.70	67.06	2.11	54.86
Approach Delay [s/veh]	14.55		10.23	12.68
Approach LOS	B		B	B
Intersection Delay [s/veh]	13.76			
Intersection LOS	B			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	107	0	6	0	8	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	28	0	2	0	2	1	0
Total Analysis Volume [veh/h]	145	110	0	6	0	8	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.20	0.08
95th-Percentile Queue Length [ft]	54.88	1.90
Approach Delay [s/veh]	13.54	10.04
Approach LOS	B	B
Intersection Delay [s/veh]	13.76	
Intersection LOS	B	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro Scenario 3: Near Term (2021) PM

Report File: C:\...\PM Near Term.pdf 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	WB Right	0.801	19.1	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		29.4	D
3	Willow Rd/Bay Rd	Signalized	HCM 2000	EB Left	0.909	36.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	19.1
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.801

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	877	80	151	877	40	67	19	0	54	10	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.04	1.00	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	259	4	0	664	0	0	0	1	12	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	1171	87	157	1576	40	67	19	1	68	10	157
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	308	23	41	415	11	18	5	0	18	3	41
Total Analysis Volume [veh/h]	7	1233	92	165	1659	42	71	20	1	72	11	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	68
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	35	35	35	14	49	49	19	19	19	19	19	19
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO
Version 4.00-02

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	10	45	15	15
g / C, Green / Cycle	0.46	0.15	0.66	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.40	0.09	0.48	0.09	0.16
Total Saturation Flow Adjustment	0.87	0.93	0.93	0.52	0.80
s, saturation flow rate [veh/h]	3312	1770	3534	982	1512
c, Capacity [veh/h]	1510	260	2338	217	334
d1, Uniform Delay [s]	16.84	27.28	7.50	22.79	24.71
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.79	11.22	2.02	6.00	13.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.63	0.73	0.42	0.74
d, Delay for Lane Group [s/veh]	24.62	38.50	9.52	28.79	38.66
Lane Group LOS	C	D	A	C	D
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	16.38	3.53	13.72	1.73	5.51
50th-Percentile Queue Length [ft]	409.52	88.37	343.05	43.21	137.69
95th-Percentile Queue Length [veh]	26.83	7.40	22.84	3.99	10.64
95th-Percentile Queue Length [ft]	670.71	184.98	570.94	99.73	266.07

Generated with PTV VISTRO
Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.62	24.62	24.62	38.50	9.52	9.52	28.79	28.79	28.79	38.66	38.66	38.66
Movement LOS	C	C	C	D	A	A	C	C	C	D	D	D
d_A, Approach Delay [s/veh]		24.62			12.08			28.79			38.66	
Approach LOS		C			B			C			D	
d_I, Intersection Delay [s/veh]	19.10											
Intersection LOS	B											
Intersection V/C	0.801											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	29.4
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes		

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	-2	0	0	21	0	0	0	0	0	0	10	-2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	21	20	298	0	2	10	2	0	4	98	158
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	5	5	77	0	1	3	1	0	1	25	41
Total Analysis Volume [veh/h]	261	22	21	307	0	2	10	2	0	4	101	163
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	12.55	0.08	2.35
95th-Percentile Queue Length [ft]	313.74	2.10	58.85
Approach Delay [s/veh]	43.24	10.20	14.06
Approach LOS	E	B	B
Intersection Delay [s/veh]	29.42		
Intersection LOS	D		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	18	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	119	0	6	0	8	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	31	0	2	0	2	1	0
Total Analysis Volume [veh/h]	164	123	0	6	0	8	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.06	0.08
95th-Percentile Queue Length [ft]	76.39	1.89
Approach Delay [s/veh]	16.45	10.00
Approach LOS	C	B
Intersection Delay [s/veh]	29.42	
Intersection LOS	D	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.909

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	29	1309	954	269	578	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	134	188	25	27	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	35	1495	1180	82	628	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	385	304	21	162	0
Total Analysis Volume [veh/h]	36	1541	1216	85	647	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	10	64	54	54	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Version 4.00-02

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	60	50	50	32	32
g / C, Green / Cycle	0.06	0.60	0.50	0.50	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.43	0.34	0.05	0.37	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	106	2128	1773	792	566	507
d1, Uniform Delay [s]	45.10	14.15	19.02	13.21	34.00	23.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.46	2.18	2.18	0.27	83.68	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.72	0.69	0.11	1.14	0.00
d, Delay for Lane Group [s/veh]	53.55	16.33	21.20	13.48	117.68	23.12
Lane Group LOS	D	B	C	B	F	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.09	19.12	15.89	1.37	32.62	0.00
50th-Percentile Queue Length [ft]	27.22	478.06	397.35	34.32	815.55	0.00
95th-Percentile Queue Length [veh]	2.62	31.01	26.09	3.24	52.24	0.00
95th-Percentile Queue Length [ft]	65.45	775.33	652.30	81.00	1306.07	0.00

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Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.55	16.33	21.20	13.48	117.68	23.12
Movement LOS	D	B	C	B	F	C
d_A, Approach Delay [s/veh]	17.18		20.70		117.68	
Approach LOS	B		C		F	
d_I, Intersection Delay [s/veh]	36.92					
Intersection LOS	D					
Intersection V/C	0.909					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro — Scenario 10: Near Term (2021) PM (Mit)

Report File: C:\...\PM Near Term Mit.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		14.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type: All-way stop — Delay (sec / veh): 14.3
Analysis Method: HCM 2000 — Level Of Service: B
Analysis Period: 15 minutes

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	-2	0	0	21	0	0	0	0	0	0	10	-2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	21	20	298	0	2	10	2	0	4	98	158
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	5	5	77	0	1	3	1	0	1	25	41
Total Analysis Volume [veh/h]	261	22	21	307	0	2	10	2	0	4	101	163
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.62	3.28	0.09	2.08
95th-Percentile Queue Length [ft]	65.59	82.08	2.14	51.99
Approach Delay [s/veh]	15.08		10.35	12.67
Approach LOS	C		B	B
Intersection Delay [s/veh]	14.33			
Intersection LOS	B			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	18	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	119	0	6	0	8	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	31	0	2	0	2	1	0
Total Analysis Volume [veh/h]	164	123	0	6	0	8	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.69	0.08
95th-Percentile Queue Length [ft]	67.34	1.94
Approach Delay [s/veh]	14.67	10.16
Approach LOS	B	B
Intersection Delay [s/veh]	14.33	
Intersection LOS	B	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro — Scenario 4: Near Term (2021) PM + Project

Report File: C:\...\PM Near Term plus Project.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.802	19.2	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		36.6	E
3	Willow Rd/Bay Rd	Signalized	HCM 2000	EB Left	0.906	37.6	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	19.2
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.802

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	877	80	151	877	40	67	19	0	54	10	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.04	1.00	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	259	7	4	664	0	0	2	1	6	2	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	1171	90	161	1576	40	67	21	1	62	12	160
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	308	24	42	415	11	18	6	0	16	3	42
Total Analysis Volume [veh/h]	7	1233	95	169	1659	42	71	22	1	65	13	168
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	68
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	35	35	35	14	49	49	19	19	19	19	19	19
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO

Version 4.00-02

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	10	45	15	15
g / C, Green / Cycle	0.46	0.15	0.66	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.40	0.10	0.48	0.10	0.16
Total Saturation Flow Adjustment	0.87	0.93	0.93	0.51	0.80
s, saturation flow rate [veh/h]	3311	1770	3534	969	1519
c, Capacity [veh/h]	1509	260	2338	214	335
d1, Uniform Delay [s]	16.87	27.35	7.50	22.87	24.64
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.92	11.91	2.02	6.45	13.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.65	0.73	0.44	0.73
d, Delay for Lane Group [s/veh]	24.79	39.26	9.52	29.32	37.98
Lane Group LOS	C	D	A	C	D
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	16.48	3.65	13.72	1.78	5.42
50th-Percentile Queue Length [ft]	412.11	91.30	343.05	44.47	135.46
95th-Percentile Queue Length [veh]	26.98	7.60	22.84	4.09	10.50
95th-Percentile Queue Length [ft]	674.62	190.05	570.94	102.31	262.57

Generated with PTV VISTRO

Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.79	24.79	24.79	39.26	9.52	9.52	29.32	29.32	29.32	37.98	37.98	37.98
Movement LOS	C	C	C	D	A	A	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	24.79			12.21			29.32			37.98		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	19.19											
Intersection LOS	B											
Intersection V/C	0.802											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	36.6
Analysis Method:	HCM 2000	Level Of Service:	E
Analysis Period:	15 minutes		

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	0	0	21	0	0	0	0	0	0	17	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	275	21	20	298	0	2	10	2	0	4	105	180
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	5	5	77	0	1	3	1	0	1	27	46
Total Analysis Volume [veh/h]	284	22	21	307	0	2	10	2	0	4	108	186
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	15.01	0.09	2.96
95th-Percentile Queue Length [ft]	375.18	2.18	74.04
Approach Delay [s/veh]	56.35	10.50	15.75
Approach LOS	F	B	C
Intersection Delay [s/veh]	36.59		
Intersection LOS	E		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	16	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	117	0	6	0	8	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	30	0	2	0	2	1	0
Total Analysis Volume [veh/h]	164	121	0	6	0	8	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.21	0.08
95th-Percentile Queue Length [ft]	80.23	1.97
Approach Delay [s/veh]	17.33	10.30
Approach LOS	C	B
Intersection Delay [s/veh]	36.59	
Intersection LOS	E	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	37.9
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.914

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	29	1309	954	269	578	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	134	188	31	33	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	37	1495	1180	88	634	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	385	304	23	163	0
Total Analysis Volume [veh/h]	38	1541	1216	91	654	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	10	64	54	54	36	36
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	60	50	50	32	32
g / C, Green / Cycle	0.06	0.60	0.50	0.50	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.43	0.34	0.06	0.37	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	106	2128	1773	792	566	507
d1, Uniform Delay [s]	45.15	14.15	19.02	13.26	34.00	23.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.16	2.18	2.18	0.30	88.40	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.72	0.69	0.11	1.15	0.00
d, Delay for Lane Group [s/veh]	54.31	16.33	21.20	13.56	122.40	23.12
Lane Group LOS	D	B	C	B	F	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.15	19.12	15.89	1.48	33.53	0.00
50th-Percentile Queue Length [ft]	28.86	478.06	397.35	36.91	838.19	0.00
95th-Percentile Queue Length [veh]	2.76	31.01	26.09	3.46	53.68	0.00
95th-Percentile Queue Length [ft]	69.08	775.33	652.30	86.53	1342.12	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.31	16.33	21.20	13.56	122.40	23.12
Movement LOS	D	B	C	B	F	C
d_A, Approach Delay [s/veh]	17.24		20.67		122.40	
Approach LOS	B		C		F	
d_I, Intersection Delay [s/veh]	37.94					
Intersection LOS	D					
Intersection V/C	0.914					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro — Scenario 11: Near Term (2021) PM + Project (Mit)

Report File: C:\...\PM Near Term plus Project Mit.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		15.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type: All-way stop — Delay (sec / veh): 15.1
Analysis Method: HCM 2000 — Level Of Service: C
Analysis Period: 15 minutes

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	0	0	21	0	0	0	0	0	0	17	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	275	21	20	298	0	2	10	2	0	4	105	180
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	5	5	77	0	1	3	1	0	1	27	46
Total Analysis Volume [veh/h]	284	22	21	307	0	2	10	2	0	4	108	186
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.13	3.39	0.09	2.52
95th-Percentile Queue Length [ft]	78.29	84.63	2.19	63.12
Approach Delay [s/veh]	16.00		10.53	13.68
Approach LOS	C		B	B
Intersection Delay [s/veh]	15.10			
Intersection LOS	C			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	16	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	117	0	6	0	8	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	30	0	2	0	2	1	0
Total Analysis Volume [veh/h]	164	121	0	6	0	8	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.75	0.08
95th-Percentile Queue Length [ft]	68.82	1.98
Approach Delay [s/veh]	15.05	10.33
Approach LOS	C	B
Intersection Delay [s/veh]	15.10	
Intersection LOS	C	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro Scenario 5: Cumulative (2040) PM
Report File: C:\...\PM Cumulative.pdf 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.910	29.1	C
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		95.7	F
3	Willow Rd/Bay Rd	Signalized	HCM 2000	EB Left	1.196	83.9	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.910

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		35.00			35.00			25.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	877	80	151	877	40	67	19	0	54	10	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.22	1.22	1.22	1.22	1.00	1.00	1.00	1.00	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	376	8	8	692	0	0	0	1	16	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	1446	106	192	1762	40	67	19	1	82	12	196
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	381	28	51	464	11	18	5	0	22	3	52
Total Analysis Volume [veh/h]	7	1522	112	202	1855	42	71	20	1	86	13	206
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	112
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	65	65	65	18	83	83	29	29	29	29	29	29
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO
Version 4.00-02

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	61	14	79	25	25
g / C, Green / Cycle	0.54	0.13	0.71	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.50	0.11	0.54	0.10	0.20
Total Saturation Flow Adjustment	0.87	0.93	0.93	0.46	0.79
s, saturation flow rate [veh/h]	3309	1770	3535	881	1504
c, Capacity [veh/h]	1802	221	2493	197	336
d1, Uniform Delay [s]	23.03	48.40	10.49	37.73	42.39
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.41	41.51	2.25	7.79	30.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.91	0.76	0.47	0.91
d, Delay for Lane Group [s/veh]	31.44	89.91	12.74	45.52	72.98
Lane Group LOS	C	F	B	D	E
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	31.81	8.63	24.29	2.85	12.56
50th-Percentile Queue Length [ft]	795.33	215.78	607.23	71.18	313.90
95th-Percentile Queue Length [veh]	50.96	15.35	39.05	6.17	21.11
95th-Percentile Queue Length [ft]	1273.91	383.64	976.29	154.16	527.72

Generated with PTV VISTRO
Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.44	31.44	31.44	89.91	12.74	12.74	45.52	45.52	45.52	72.98	72.98	72.98
Movement LOS	C	C	C	F	B	B	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	31.44			20.17			45.52			72.98		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	29.10											
Intersection LOS	C											
Intersection V/C	0.910											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	95.7
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	0	110	0	0	0	0	0	0	10	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	303	21	20	435	0	2	12	2	0	4	114	190
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	5	5	112	0	1	3	1	0	1	29	49
Total Analysis Volume [veh/h]	312	22	21	448	0	2	12	2	0	4	118	196
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	32.07	0.10	3.42
95th-Percentile Queue Length [ft]	801.71	2.59	85.47
Approach Delay [s/veh]	162.10	10.77	17.00
Approach LOS	F	B	C
Intersection Delay [s/veh]	95.72		
Intersection LOS	F		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	18	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	189	136	0	6	0	10	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	35	0	2	0	3	1	0
Total Analysis Volume [veh/h]	195	140	0	6	0	10	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.40	0.09
95th-Percentile Queue Length [ft]	110.09	2.37
Approach Delay [s/veh]	20.55	10.61
Approach LOS	C	B
Intersection Delay [s/veh]	95.72	
Intersection LOS	F	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	83.9
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.196

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	29	1309	954	269	578	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	455	250	30	116	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	40	2052	1414	135	821	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	529	364	35	212	0
Total Analysis Volume [veh/h]	41	2115	1458	139	846	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	118
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	8	65	57	57	53	53
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	61	53	53	49	49
g / C, Green / Cycle	0.03	0.52	0.45	0.45	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.02	0.60	0.41	0.09	0.48	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	60	1833	1593	711	735	657
d1, Uniform Delay [s]	56.37	28.50	30.40	19.63	34.50	20.17
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	48.37	75.83	9.72	0.61	83.31	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

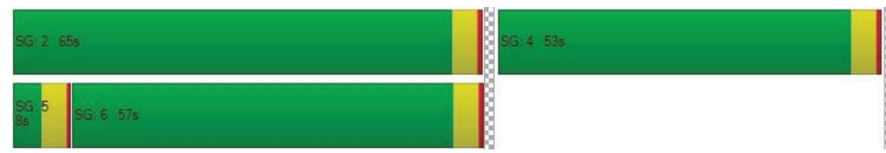
X, volume / capacity	0.68	1.15	0.92	0.20	1.15	0.00
d, Delay for Lane Group [s/veh]	104.74	104.33	40.12	20.24	117.81	20.17
Lane Group LOS	F	F	D	C	F	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.69	62.15	30.72	3.01	47.56	0.00
50th-Percentile Queue Length [ft]	42.25	1553.71	768.01	75.36	1189.00	0.00
95th-Percentile Queue Length [veh]	3.91	99.44	49.22	6.47	76.10	0.00
95th-Percentile Queue Length [ft]	97.74	2485.95	1230.46	161.82	1902.48	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	104.74	104.33	40.12	20.24	117.81	20.17
Movement LOS	F	F	D	C	F	C
d_A, Approach Delay [s/veh]	104.33		38.39		117.81	
Approach LOS	F		D		F	
d_I, Intersection Delay [s/veh]	83.91					
Intersection LOS	F					
Intersection V/C	1.196					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro — Scenario 12: 12: Cumulative (2040) PM (Mit)

Report File: C:\...\PM Cumulative Mit.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		22.4	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type: All-way stop — Delay (sec / veh): 22.4
Analysis Method: HCM 2000 — Level Of Service: C
Analysis Period: 15 minutes

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	0	110	0	0	0	0	0	0	10	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	303	21	20	435	0	2	12	2	0	4	114	190
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	5	5	112	0	1	3	1	0	1	29	49
Total Analysis Volume [veh/h]	312	22	21	448	0	2	12	2	0	4	118	196
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.14	8.36	0.11	3.29
95th-Percentile Queue Length [ft]	103.45	208.95	2.78	82.23
Approach Delay [s/veh]	26.40		11.34	16.40
Approach LOS	D		B	C
Intersection Delay [s/veh]	22.44			
Intersection LOS	C			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	18	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	189	136	0	6	0	10	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	35	0	2	0	3	1	0
Total Analysis Volume [veh/h]	195	140	0	6	0	10	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.24	0.10
95th-Percentile Queue Length [ft]	106.00	2.55
Approach Delay [s/veh]	19.75	11.16
Approach LOS	C	B
Intersection Delay [s/veh]	22.44	
Intersection LOS	C	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB-mit - Copy.vistro Scenario 10: 10:Cumulative (2040) PM (Mitigated)

Report File: C:\...\PM Cumulative Mit-Signal.pdf 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	Signalized	HCM 2010	WB Left	0.835	30.8	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.835

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	41	0	266	0	2	18	7	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	0	110	0	0	0	0	0	0	10	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	303	41	0	435	0	2	22	7	0	4	114	190
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	81	11	0	116	0	1	6	2	0	1	30	51
Total Analysis Volume [veh/h]	322	44	0	463	0	2	23	7	0	4	121	202
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

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Version 4.00-02

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	20.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	0	0	8	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	0	5	0	0	0	5	0
Maximum Green [s]	5	30	0	0	0	0	30	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	24	0	0	0	0	15	0	0	0	41	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	Yes	No					No				No	
Maximum Recall	No	No					No				No	
Pedestrian Recall	No	No					No				No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	41	41	32	17
g / C, Green / Cycle	0.51	0.51	0.39	0.21
(v / s)_i Volume / Saturation Flow Rate	0.22	0.32	0.02	0.20
s, saturation flow rate [veh/h]	1443	1604	1634	1662
c, Capacity [veh/h]	462	811	690	393
d1, Uniform Delay [s]	19.58	14.33	15.06	31.19
k, delay calibration	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.46	3.63	0.03	18.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.63	0.05	0.83
d, Delay for Lane Group [s/veh]	28.04	17.96	15.08	49.56
Lane Group LOS	C	B	B	D
Critical Lane Group	No	Yes	No	Yes
50th-Percentile Queue Length [veh]	4.27	6.81	0.36	8.00
50th-Percentile Queue Length [ft]	106.69	170.34	8.94	200.02
95th-Percentile Queue Length [veh]	7.66	11.09	0.64	12.64
95th-Percentile Queue Length [ft]	191.39	277.36	16.09	315.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.04	17.96	0.00	17.96	0.00	15.08	15.08	15.08	0.00	49.56	49.56	49.56
Movement LOS	C	B		B		B	B	B		D	D	D
d_A, Approach Delay [s/veh]	21.87				15.08				49.56			
Approach LOS	C				B				D			
d_I, Intersection Delay [s/veh]	30.76											
Intersection LOS	C											
Intersection V/C	0.835											

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Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	6	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	18	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	189	136	6	0	0	0	0	0
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	36	2	0	0	0	0	0
Total Analysis Volume [veh/h]	201	145	6	0	0	0	0	0
Presence of On-Street Parking	No			No				
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

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Version 4.00-02

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	20.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Protected	Split	Split
Signal group	1	6	0	0	0	7	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	5	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	15	56	0	0	0	9	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No						
Maximum Recall	No	No						
Pedestrian Recall	No	No						
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Version 4.00-02

Lane Group Calculations

Lane Group	L	C	
L, Total Lost Time per Cycle [s]	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	
g_i, Effective Green Time [s]	11	32	
g / C, Green / Cycle	0.14	0.39	
(v / s)_i Volume / Saturation Flow Rate	0.11	0.08	
s, saturation flow rate [veh/h]	1774	1850	
c, Capacity [veh/h]	241	730	
d1, Uniform Delay [s]	33.75	15.99	
k, delay calibration	0.26	0.50	
I, Upstream Filtering Factor	1.00	1.00	
d2, Incremental Delay [s]	16.19	0.64	
d3, Initial Queue Delay [s]	0.00	0.00	
Rp, platoon ratio	1.00	1.00	
PF, progression factor	1.00	1.00	

Lane Group Results

X, volume / capacity	0.83	0.21	
d, Delay for Lane Group [s/veh]	49.94	16.63	
Lane Group LOS	D	B	
Critical Lane Group	Yes	No	
50th-Percentile Queue Length [veh]	4.79	1.87	
50th-Percentile Queue Length [ft]	119.82	46.87	
95th-Percentile Queue Length [veh]	8.38	3.37	
95th-Percentile Queue Length [ft]	209.58	84.36	

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Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.94	16.63	16.63	0.00	0.00	0.00	0.00	0.00
Movement LOS	D	B	B					
d_A, Approach Delay [s/veh]	35.65				0.00			
Approach LOS	D				A			
d_I, Intersection Delay [s/veh]	30.76							
Intersection LOS	C							
Intersection V/C	0.835							

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro | Scenario 6: Cumulative (2040) PM + Project

Report File: C:\...\PM Cumulative plus Project.pdf | 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.919	30.9	C
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		111.3	F
3	Willow Rd/Bay Rd	Signalized	HCM 2000	EB Left	1.198	84.9	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	30.9
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.919

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	877	80	151	877	40	67	19	0	54	10	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.22	1.22	1.22	1.22	1.00	1.00	1.00	1.00	1.22	1.00	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	376	14	12	692	0	0	2	1	22	2	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	1446	112	196	1762	40	67	21	1	88	12	199
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	381	29	52	464	11	18	6	0	23	3	52
Total Analysis Volume [veh/h]	7	1522	118	206	1855	42	71	22	1	93	13	209
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	118
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	68	68	68	19	87	87	31	31	31	31	31	31
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
I1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
I2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	64	15	83	27	27
g / C, Green / Cycle	0.54	0.13	0.70	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.50	0.12	0.54	0.10	0.21
Total Saturation Flow Adjustment	0.87	0.93	0.93	0.48	0.79
s, saturation flow rate [veh/h]	3307	1770	3535	906	1493
c, Capacity [veh/h]	1793	225	2486	207	342
d1, Uniform Delay [s]	24.62	50.88	11.20	39.15	44.47
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.06	41.52	2.28	7.01	32.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.92	0.76	0.45	0.92
d, Delay for Lane Group [s/veh]	33.68	92.39	13.48	46.16	76.92
Lane Group LOS	C	F	B	D	E
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	33.94	9.22	25.67	3.02	13.76
50th-Percentile Queue Length [ft]	848.53	230.41	641.85	75.56	344.01
95th-Percentile Queue Length [veh]	54.34	16.20	41.23	6.49	22.89
95th-Percentile Queue Length [ft]	1358.61	405.12	1030.74	162.17	572.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.68	33.68	33.68	92.39	13.48	13.48	46.16	46.16	46.16	76.92	76.92	76.92
Movement LOS	C	C	C	F	B	B	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	33.68			21.21			46.16			76.92		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	30.93											
Intersection LOS	C											
Intersection V/C	0.919											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	111.3
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	26	0	0	110	0	0	0	0	0	0	20	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	325	21	20	435	0	2	12	2	0	4	124	212
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	5	5	112	0	1	3	1	0	1	32	55
Total Analysis Volume [veh/h]	335	22	21	448	0	2	12	2	0	4	128	219
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	36.10	0.11	4.22
95th-Percentile Queue Length [ft]	902.45	2.66	105.55
Approach Delay [s/veh]	192.33	11.01	19.14
Approach LOS	F	B	C
Intersection Delay [s/veh]	111.33		
Intersection LOS	F		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	28	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	189	146	0	6	0	10	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	38	0	2	0	3	1	0
Total Analysis Volume [veh/h]	195	151	0	6	0	10	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.83	0.10
95th-Percentile Queue Length [ft]	120.82	2.45
Approach Delay [s/veh]	22.03	10.84
Approach LOS	C	B
Intersection Delay [s/veh]	111.33	
Intersection LOS	F	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	84.9
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.198

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	29	1309	954	269	578	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	455	250	36	122	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	42	2052	1414	141	827	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	529	364	36	213	0
Total Analysis Volume [veh/h]	43	2115	1458	145	853	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	8	66	58	58	54	54
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO
Version 4.00-02

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	62	54	54	50	50
g / C, Green / Cycle	0.03	0.52	0.45	0.45	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.02	0.60	0.41	0.09	0.48	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	59	1832	1596	712	737	660
d1, Uniform Delay [s]	57.46	29.00	30.82	19.98	35.00	20.42
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	56.19	76.09	9.56	0.64	85.46	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

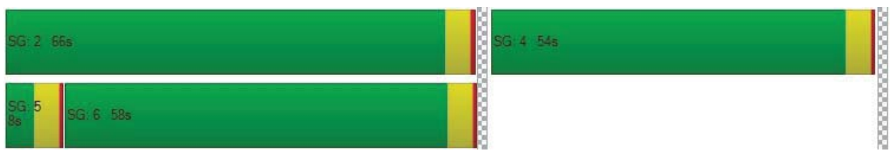
X, volume / capacity	0.73	1.15	0.91	0.20	1.16	0.00
d, Delay for Lane Group [s/veh]	113.65	105.09	40.38	20.62	120.46	20.42
Lane Group LOS	F	F	D	C	F	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.85	62.88	31.09	3.21	48.80	0.00
50th-Percentile Queue Length [ft]	46.17	1572.04	777.15	80.17	1220.00	0.00
95th-Percentile Queue Length [veh]	4.23	100.61	49.80	6.82	78.08	0.00
95th-Percentile Queue Length [ft]	105.79	2515.27	1244.99	170.49	1952.07	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	113.65	105.09	40.38	20.62	120.46	20.42
Movement LOS	F	F	D	C	F	C
d_A, Approach Delay [s/veh]	105.26		38.60		120.46	
Approach LOS	F		D		F	
d_I, Intersection Delay [s/veh]	84.91					
Intersection LOS	F					
Intersection V/C	1.198					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB.vistro — Scenario 13: 13: 13: Cumulative (2040) PM + Project (Mit)

Report File: C:\...\PM Cumulative plus Project Mit.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		24.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	24.7
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	21	20	266	0	2	10	2	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	26	0	0	110	0	0	0	0	0	0	20	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	325	21	20	435	0	2	12	2	0	4	124	212
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	5	5	112	0	1	3	1	0	1	32	55
Total Analysis Volume [veh/h]	335	22	21	448	0	2	12	2	0	4	128	219
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.03	8.89	0.11	4.11
95th-Percentile Queue Length [ft]	125.78	222.16	2.87	102.83
Approach Delay [s/veh]	29.22		11.63	18.63
Approach LOS	D		B	C
Intersection Delay [s/veh]	24.73			
Intersection LOS	C			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	0	6	0	8	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	28	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	189	146	0	6	0	10	5	0
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	38	0	2	0	3	1	0
Total Analysis Volume [veh/h]	195	151	0	6	0	10	5	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.72	0.11
95th-Percentile Queue Length [ft]	117.98	2.64
Approach Delay [s/veh]	21.46	11.45
Approach LOS	C	B
Intersection Delay [s/veh]	24.73	
Intersection LOS	C	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 PM-SCB-mit - Copy.vistro — Scenario 11: 11:Cumulative (2040) PM + Project (Mitigated)

Report File: C:\...\PM Cumulative plus Project Mit-Signal.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	Signalized	HCM 2010	EB Right	0.856	34.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	Signalized	Delay (sec / veh):	34.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.856

Intersection Setup

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name	Ringwood Ave				Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	245	41	0	266	0	2	18	7	0	4	85	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	26	0	0	110	0	0	0	0	0	0	20	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	325	41	0	435	0	2	22	7	0	4	124	212
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	11	0	116	0	1	6	2	0	1	33	56
Total Analysis Volume [veh/h]	346	44	0	463	0	2	23	7	0	4	132	226
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	82
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	20.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	0	0	8	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	0	5	0	0	0	5	0
Maximum Green [s]	5	30	0	0	0	0	30	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	24	0	0	0	0	15	0	0	0	43	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	Yes	No					No				No	
Maximum Recall	No	No					No				No	
Pedestrian Recall	No	No					No				No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	41	41	32	18
g / C, Green / Cycle	0.51	0.51	0.40	0.21
(v / s)_i Volume / Saturation Flow Rate	0.24	0.32	0.02	0.22
s, saturation flow rate [veh/h]	1442	1604	1627	1663
c, Capacity [veh/h]	457	809	688	401
d1, Uniform Delay [s]	21.86	14.77	15.37	32.35
k, delay calibration	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.10	3.66	0.03	26.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.63	0.05	0.90
d, Delay for Lane Group [s/veh]	32.96	18.44	15.40	58.41
Lane Group LOS	C	B	B	E
Critical Lane Group	No	Yes	No	Yes
50th-Percentile Queue Length [veh]	5.02	7.05	0.37	9.86
50th-Percentile Queue Length [ft]	125.50	176.19	9.19	246.55
95th-Percentile Queue Length [veh]	8.69	11.40	0.66	15.01
95th-Percentile Queue Length [ft]	217.36	285.04	16.55	375.30

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.96	18.44	0.00	18.44	0.00	15.40	15.40	15.40	0.00	58.41	58.41	58.41
Movement LOS	C	B		B		B	B	B		E	E	E
d_A, Approach Delay [s/veh]	24.33					15.40				58.41		
Approach LOS	C					B				E		
d_I, Intersection Delay [s/veh]	34.53											
Intersection LOS	C											
Intersection V/C	0.856											

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	141	97	6	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	28	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	189	146	6	0	0	0	0	0
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	39	2	0	0	0	0	0
Total Analysis Volume [veh/h]	201	155	6	0	0	0	0	0
Presence of On-Street Parking	No			No				
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	82
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	20.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Protected	Split	Split
Signal group	1	6	0	0	0	7	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	5	0	0
Maximum Green [s]	30	30	0	0	0	5	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	15	58	0	0	0	9	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	No	No						
Maximum Recall	No	No						
Pedestrian Recall	No	No						
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	
L, Total Lost Time per Cycle [s]	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	
g_i, Effective Green Time [s]	11	33	
g / C, Green / Cycle	0.13	0.40	
(v / s)_i Volume / Saturation Flow Rate	0.11	0.09	
s, saturation flow rate [veh/h]	1774	1851	
c, Capacity [veh/h]	240	738	
d1, Uniform Delay [s]	34.64	16.27	
k, delay calibration	0.28	0.50	
I, Upstream Filtering Factor	1.00	1.00	
d2, Incremental Delay [s]	17.30	0.68	
d3, Initial Queue Delay [s]	0.00	0.00	
Rp, platoon ratio	1.00	1.00	
PF, progression factor	1.00	1.00	

Lane Group Results

X, volume / capacity	0.84	0.22	
d, Delay for Lane Group [s/veh]	51.93	16.95	
Lane Group LOS	D	B	
Critical Lane Group	Yes	No	
50th-Percentile Queue Length [veh]	4.97	2.05	
50th-Percentile Queue Length [ft]	124.32	51.34	
95th-Percentile Queue Length [veh]	8.63	3.70	
95th-Percentile Queue Length [ft]	215.75	92.41	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.93	16.95	16.95	0.00	0.00	0.00	0.00	0.00
Movement LOS	D	B	B					
d_A, Approach Delay [s/veh]	36.37				0.00			
Approach LOS	D				A			
d_I, Intersection Delay [s/veh]	34.53							
Intersection LOS	C							
Intersection V/C	0.856							

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro Scenario 1: 1: SAT Existing
Report File: C:\...\SAT Existing.pdf 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.431	13.7	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		8.8	A
3	Willow Rd/Bay Rd	Signalized	HCM 2000	NB Left	0.442	9.4	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.431

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	623	62	101	673	31	44	5	0	38	6	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	623	62	101	673	31	44	5	0	38	6	101
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	161	16	26	173	8	11	1	0	10	2	26
Total Analysis Volume [veh/h]	1	642	64	104	694	32	45	5	0	39	6	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	43	43	43	15	58	58	22	22	22	22	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO

Version 4.00-02

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	11	54	18	18
g / C, Green / Cycle	0.49	0.14	0.68	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.21	0.06	0.21	0.04	0.10
Total Saturation Flow Adjustment	0.88	0.93	0.93	0.67	0.82
s, saturation flow rate [veh/h]	3340	1770	3523	1271	1551
c, Capacity [veh/h]	1628	243	2378	286	349
d1, Uniform Delay [s]	13.33	31.61	5.32	25.01	26.58
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.85	5.41	0.33	1.33	3.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.43	0.31	0.17	0.43
d, Delay for Lane Group [s/veh]	14.17	37.02	5.65	26.34	30.37
Lane Group LOS	B	D	A	C	C
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	6.08	2.40	4.01	0.99	3.21
50th-Percentile Queue Length [ft]	152.00	60.12	100.15	24.72	80.21
95th-Percentile Queue Length [veh]	11.53	5.33	8.21	2.39	6.82
95th-Percentile Queue Length [ft]	288.25	133.37	205.18	59.84	170.57

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Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.17	14.17	14.17	37.02	5.65	5.65	26.34	26.34	26.34	30.37	30.37	30.37
Movement LOS	B	B	B	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	14.17			9.58			26.34			30.37		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	13.72											
Intersection LOS	B											
Intersection V/C	0.431											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	3	2	22	0	2	3	3	1	2	17	22
Total Analysis Volume [veh/h]	90	11	6	87	1	8	11	11	2	6	70	89
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.97	0.13	0.76
95th-Percentile Queue Length [ft]	24.33	3.24	18.99
Approach Delay [s/veh]	9.09	8.02	8.51
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.82		
Intersection LOS	A		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	55	2	3	0	6	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	17	1	1	0	2	1	0
Total Analysis Volume [veh/h]	87	66	2	4	0	7	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.79	0.04
95th-Percentile Queue Length [ft]	19.86	1.11
Approach Delay [s/veh]	9.05	7.86
Approach LOS	A	A
Intersection Delay [s/veh]	8.82	
Intersection LOS	A	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	9.4
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.442

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	10	1024	1022	126	133	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	10	1024	1022	0	133	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	269	269	0	35	0
Total Analysis Volume [veh/h]	11	1078	1076	0	140	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	8	78	70	70	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Version 4.00-02

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	74	66	66	18	18
g / C, Green / Cycle	0.04	0.74	0.66	0.66	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.30	0.30	0.00	0.08	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	71	2625	2341	1045	319	285
d1, Uniform Delay [s]	46.37	4.86	8.30	5.78	36.51	33.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.62	0.48	0.65	0.00	4.36	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.41	0.46	0.00	0.44	0.00
d, Delay for Lane Group [s/veh]	50.99	5.33	8.95	5.78	40.86	33.62
Lane Group LOS	D	A	A	A	D	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	0.33	6.94	8.85	0.00	3.89	0.00
50th-Percentile Queue Length [ft]	8.26	173.41	221.34	0.00	97.19	0.00
95th-Percentile Queue Length [veh]	0.84	12.83	15.67	0.00	8.01	0.00
95th-Percentile Queue Length [ft]	20.95	320.77	391.81	0.00	200.17	0.00

Generated with PTV VISTRO
Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.99	5.33	8.95	5.78	40.86	33.62
Movement LOS	D	A	A	A	D	C
d_A, Approach Delay [s/veh]	5.79		8.95		40.86	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	9.40					
Intersection LOS	A					
Intersection V/C	0.442					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 2: 2: SAT Existing + Project

Report File: C:\...\SAT Existing plus Project.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.440	13.9	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		9.1	A
3	Willow Rd/Bay Rd	Signalized	HCM 2000	NB Left	0.444	9.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	13.9
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.440

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	623	62	101	673	31	44	5	0	38	6	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	2	0	0	0	1	0	4	1	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	623	66	103	673	31	44	6	0	42	7	103
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	161	17	27	173	8	11	2	0	11	2	27
Total Analysis Volume [veh/h]	1	642	68	106	694	32	45	6	0	43	7	106
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	68
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	43	43	43	15	58	58	22	22	22	22	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
I1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
I2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	11	54	18	18
g / C, Green / Cycle	0.49	0.14	0.68	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.21	0.06	0.21	0.04	0.10
Total Saturation Flow Adjustment	0.88	0.93	0.93	0.66	0.81
s, saturation flow rate [veh/h]	3337	1770	3523	1262	1544
c, Capacity [veh/h]	1627	243	2378	284	347
d1, Uniform Delay [s]	13.35	31.65	5.32	25.04	26.73
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.86	5.59	0.33	1.38	4.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.44	0.31	0.18	0.45
d, Delay for Lane Group [s/veh]	14.21	37.24	5.65	26.42	30.88
Lane Group LOS	B	D	A	C	C
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	6.13	2.46	4.01	1.01	3.39
50th-Percentile Queue Length [ft]	153.18	61.45	100.15	25.26	84.77
95th-Percentile Queue Length [veh]	11.60	5.44	8.21	2.44	7.15
95th-Percentile Queue Length [ft]	290.06	135.90	205.18	61.05	178.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.21	14.21	14.21	37.24	5.65	5.65	26.42	26.42	26.42	30.88	30.88	30.88
Movement LOS	B	B	B	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	14.21			9.68			26.42			30.88		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	13.90											
Intersection LOS	B											
Intersection V/C	0.440											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	0	0	0	0	0	0	0	0	0	5	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	9	5	72	1	7	9	9	2	5	63	85
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	3	2	22	0	2	3	3	1	2	19	26
Total Analysis Volume [veh/h]	104	11	6	87	1	8	11	11	2	6	76	102
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.09	0.13	0.88
95th-Percentile Queue Length [ft]	27.35	3.30	22.04
Approach Delay [s/veh]	9.40	8.12	8.75
Approach LOS	A	A	A
Intersection Delay [s/veh]	9.06		
Intersection LOS	A		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	60	2	3	0	6	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	18	1	1	0	2	1	0
Total Analysis Volume [veh/h]	87	72	2	4	0	7	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.85	0.05
95th-Percentile Queue Length [ft]	21.17	1.13
Approach Delay [s/veh]	9.23	7.95
Approach LOS	A	A
Intersection Delay [s/veh]	9.06	
Intersection LOS	A	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	9.5
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.444

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	┐‖		‖┌		┐┌	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	10	1024	1022	126	133	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	3	3	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	11	1024	1022	0	136	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	269	269	0	36	0
Total Analysis Volume [veh/h]	12	1078	1076	0	143	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	8	78	70	70	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	74	66	66	18	18
g / C, Green / Cycle	0.04	0.74	0.66	0.66	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.30	0.30	0.00	0.08	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	71	2625	2341	1045	319	285
d1, Uniform Delay [s]	46.39	4.86	8.30	5.78	36.58	33.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.12	0.48	0.65	0.00	4.52	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.41	0.46	0.00	0.45	0.00
d, Delay for Lane Group [s/veh]	51.52	5.33	8.95	5.78	41.10	33.62
Lane Group LOS	D	A	A	A	D	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	0.36	6.94	8.85	0.00	3.98	0.00
50th-Percentile Queue Length [ft]	9.03	173.41	221.34	0.00	99.61	0.00
95th-Percentile Queue Length [veh]	0.91	12.83	15.67	0.00	8.17	0.00
95th-Percentile Queue Length [ft]	22.85	320.77	391.81	0.00	204.28	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.52	5.33	8.95	5.78	41.10	33.62
Movement LOS	D	A	A	A	D	C
d_A, Approach Delay [s/veh]	5.84		8.95		41.10	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	9.47					
Intersection LOS	A					
Intersection V/C	0.444					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro Scenario 16: 16: 2: SAT Existing + Project (Mit)

Report File: C:\...\SAT Existing plus Project Mit.pdf 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		9.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	0	0	0	0	0	0	0	0	0	5	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	9	5	72	1	7	9	9	2	5	63	85
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	3	2	22	0	2	3	3	1	2	19	26
Total Analysis Volume [veh/h]	104	11	6	87	1	8	11	11	2	6	76	102
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.62	0.49	0.15	0.89
95th-Percentile Queue Length [ft]	15.38	12.30	3.74	22.23
Approach Delay [s/veh]	9.14		8.81	8.80
Approach LOS	A		A	A
Intersection Delay [s/veh]	9.04			
Intersection LOS	A			

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Version 4.00-02

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	60	2	3	0	6	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	18	1	1	0	2	1	0
Total Analysis Volume [veh/h]	87	72	2	4	0	7	4	0
Pedestrian Volume [ped/h]	0				0			

Generated with PTV VISTRO
Version 4.00-02

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.85	0.05
95th-Percentile Queue Length [ft]	21.33	1.28
Approach Delay [s/veh]	9.27	8.60
Approach LOS	A	A
Intersection Delay [s/veh]	9.04	
Intersection LOS	A	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 3: 3: Near Term (2021) SAT

Report File: C:\...\SAT Near Term.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.520	14.2	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		9.1	A
3	Willow Rd/Bay Rd	Signalized	HCM 2000	NB Left	0.489	9.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	14.2
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	┤╟			┐║├			┼			┼		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	623	62	101	673	31	44	5	0	38	6	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.04	1.00	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	184	6	0	165	0	0	0	0	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	832	70	105	865	31	44	5	0	43	6	105
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	214	18	27	223	8	11	1	0	11	2	27
Total Analysis Volume [veh/h]	1	858	72	108	892	32	45	5	0	44	6	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	68
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	43	43	43	15	58	58	22	22	22	22	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	11	54	18	18
g / C, Green / Cycle	0.49	0.14	0.68	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.28	0.06	0.26	0.04	0.10
Total Saturation Flow Adjustment	0.88	0.93	0.93	0.66	0.81
s, saturation flow rate [veh/h]	3346	1770	3528	1251	1541
c, Capacity [veh/h]	1631	243	2382	281	347
d1, Uniform Delay [s]	14.56	31.69	5.72	25.03	26.77
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	5.77	0.48	1.38	4.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.44	0.39	0.18	0.46
d, Delay for Lane Group [s/veh]	16.01	37.46	6.20	26.40	31.04
Lane Group LOS	B	D	A	C	C
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	8.94	2.51	5.52	0.99	3.44
50th-Percentile Queue Length [ft]	223.45	62.78	138.05	24.76	86.11
95th-Percentile Queue Length [veh]	15.80	5.54	10.67	2.40	7.24
95th-Percentile Queue Length [ft]	394.91	138.44	266.63	59.92	181.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.01	16.01	16.01	37.46	6.20	6.20	26.40	26.40	26.40	31.04	31.04	31.04
Movement LOS	B	B	B	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.01			9.47			26.40			31.04		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	14.24											
Intersection LOS	B											
Intersection V/C	0.520											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	0	0	0	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	9	5	82	1	7	9	9	2	5	66	77
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	3	2	25	0	2	3	3	1	2	20	23
Total Analysis Volume [veh/h]	94	11	6	99	1	8	11	11	2	6	80	93
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.10	0.13	0.86
95th-Percentile Queue Length [ft]	27.43	3.31	21.48
Approach Delay [s/veh]	9.36	8.13	8.75
Approach LOS	A	A	A
Intersection Delay [s/veh]	9.07		
Intersection LOS	A		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	60	2	3	0	6	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	18	1	1	0	2	1	0
Total Analysis Volume [veh/h]	94	72	2	4	0	7	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.89	0.05
95th-Percentile Queue Length [ft]	22.33	1.14
Approach Delay [s/veh]	9.30	7.96
Approach LOS	A	A
Intersection Delay [s/veh]	9.07	
Intersection LOS	A	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	9.9
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	10	1024	1022	126	133	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	83	57	5	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	11	1148	1120	0	151	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	302	295	0	40	0
Total Analysis Volume [veh/h]	12	1208	1179	0	159	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	8	78	70	70	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
I1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	74	66	66	18	18
g / C, Green / Cycle	0.04	0.74	0.66	0.66	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.34	0.33	0.00	0.09	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	71	2625	2341	1045	319	285
d1, Uniform Delay [s]	46.39	5.13	8.66	5.78	36.94	33.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.12	0.58	0.78	0.00	5.50	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.46	0.50	0.00	0.50	0.00
d, Delay for Lane Group [s/veh]	51.52	5.71	9.44	5.78	42.44	33.62
Lane Group LOS	D	A	A	A	D	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.36	8.24	10.18	0.00	4.52	0.00
50th-Percentile Queue Length [ft]	9.03	206.09	254.40	0.00	112.88	0.00
95th-Percentile Queue Length [veh]	0.91	14.78	17.61	0.00	9.05	0.00
95th-Percentile Queue Length [ft]	22.85	369.38	440.28	0.00	226.35	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.52	5.71	9.44	5.78	42.44	33.62
Movement LOS	D	A	A	A	D	C
d_A, Approach Delay [s/veh]	6.16		9.44		42.44	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	9.92					
Intersection LOS	A					
Intersection V/C	0.489					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 12: 12: Near Term (2021) SAT (Mit)

Report File: C:\...\SAT Near Term Mit.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		9.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	0	0	0	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	9	5	82	1	7	9	9	2	5	66	77
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	3	2	25	0	2	3	3	1	2	20	23
Total Analysis Volume [veh/h]	94	11	6	99	1	8	11	11	2	6	80	93
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.55	0.56	0.15	0.87
95th-Percentile Queue Length [ft]	13.67	13.94	3.75	21.65
Approach Delay [s/veh]	9.06		8.81	8.80
Approach LOS	A		A	A
Intersection Delay [s/veh]	9.04			
Intersection LOS	A			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	60	2	3	0	6	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	18	1	1	0	2	1	0
Total Analysis Volume [veh/h]	94	72	2	4	0	7	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.90	0.05
95th-Percentile Queue Length [ft]	22.49	1.29
Approach Delay [s/veh]	9.35	8.61
Approach LOS	A	A
Intersection Delay [s/veh]	9.04	
Intersection LOS	A	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 9: 9: Near Term (2021) SAT + Project

Report File: C:\...\SAT Near Term plus Project.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.524	14.3	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		9.3	A
3	Willow Rd/Bay Rd	Signalized	HCM 2000	NB Left	0.491	10.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	14.3
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.524

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	623	62	101	673	31	44	5	0	38	6	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.04	1.00	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	184	7	2	165	0	0	0	0	4	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	832	71	107	865	31	44	5	0	44	6	107
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	214	18	28	223	8	11	1	0	11	2	28
Total Analysis Volume [veh/h]	1	858	73	110	892	32	45	5	0	45	6	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	68
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	43	43	43	15	58	58	22	22	22	22	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	11	54	18	18
g / C, Green / Cycle	0.49	0.14	0.68	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.28	0.06	0.26	0.04	0.10
Total Saturation Flow Adjustment	0.88	0.93	0.93	0.65	0.81
s, saturation flow rate [veh/h]	3346	1770	3528	1243	1540
c, Capacity [veh/h]	1631	243	2382	280	346
d1, Uniform Delay [s]	14.56	31.73	5.72	25.03	26.83
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	5.96	0.48	1.39	4.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.45	0.39	0.18	0.46
d, Delay for Lane Group [s/veh]	16.02	37.69	6.20	26.43	31.26
Lane Group LOS	B	D	A	C	C
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	8.95	2.56	5.52	0.99	3.52
50th-Percentile Queue Length [ft]	223.83	64.12	138.05	24.77	88.09
95th-Percentile Queue Length [veh]	15.82	5.64	10.67	2.40	7.38
95th-Percentile Queue Length [ft]	395.47	140.98	266.63	59.94	184.48

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Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.02	16.02	16.02	37.69	6.20	6.20	26.43	26.43	26.43	31.26	31.26	31.26
Movement LOS	B	B	B	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.02			9.55			26.43			31.26		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	14.32											
Intersection LOS	B											
Intersection V/C	0.524											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Version 4.00-02

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	7	0	0	0	0	0	0	11	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	9	5	82	1	7	9	9	2	5	71	85
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	3	2	25	0	2	3	3	1	2	21	26
Total Analysis Volume [veh/h]	104	11	6	99	1	8	11	11	2	6	86	102
Pedestrian Volume [ped/h]	0				0				0			

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Version 4.00-02

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.19	0.13	0.96
95th-Percentile Queue Length [ft]	29.82	3.36	24.08
Approach Delay [s/veh]	9.61	8.21	8.97
Approach LOS	A	A	A
Intersection Delay [s/veh]	9.27		
Intersection LOS	A		

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Version 4.00-02

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	8	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	65	2	3	0	6	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	20	1	1	0	2	1	0
Total Analysis Volume [veh/h]	94	78	2	4	0	7	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.95	0.05
95th-Percentile Queue Length [ft]	23.66	1.15
Approach Delay [s/veh]	9.46	8.04
Approach LOS	A	A
Intersection Delay [s/veh]	9.27	
Intersection LOS	A	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	10.0
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.491

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	10	1024	1022	126	133	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	83	57	8	16	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	12	1148	1120	0	154	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	302	295	0	41	0
Total Analysis Volume [veh/h]	13	1208	1179	0	162	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	8	78	70	70	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	74	66	66	18	18
g / C, Green / Cycle	0.04	0.74	0.66	0.66	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.34	0.33	0.00	0.09	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	71	2625	2341	1045	319	285
d1, Uniform Delay [s]	46.42	5.13	8.66	5.78	37.01	33.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.63	0.58	0.78	0.00	5.70	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.46	0.50	0.00	0.51	0.00
d, Delay for Lane Group [s/veh]	52.06	5.71	9.44	5.78	42.71	33.62
Lane Group LOS	D	A	A	A	D	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.39	8.24	10.18	0.00	4.62	0.00
50th-Percentile Queue Length [ft]	9.81	206.09	254.40	0.00	115.44	0.00
95th-Percentile Queue Length [veh]	0.99	14.78	17.61	0.00	9.22	0.00
95th-Percentile Queue Length [ft]	24.76	369.38	440.28	0.00	230.54	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.06	5.71	9.44	5.78	42.71	33.62
Movement LOS	D	A	A	A	D	C
d_A, Approach Delay [s/veh]	6.20		9.44		42.71	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	10.00					
Intersection LOS	A					
Intersection V/C	0.491					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro Scenario 13: 13: Near Term (2021) SAT + Project (Mit)
Report File: C:\...\SAT Near Term Mit.pdf 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		9.2	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	7	0	0	0	0	0	0	11	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	9	5	82	1	7	9	9	2	5	71	85
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	3	2	25	0	2	3	3	1	2	21	26
Total Analysis Volume [veh/h]	104	11	6	99	1	8	11	11	2	6	86	102
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.62	0.56	0.15	0.97
95th-Percentile Queue Length [ft]	15.57	14.11	3.80	24.26
Approach Delay [s/veh]	9.23		8.90	9.01
Approach LOS	A		A	A
Intersection Delay [s/veh]	9.21			
Intersection LOS	A			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.00	1.00	1.00	1.04	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	8	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	65	2	3	0	6	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	20	1	1	0	2	1	0
Total Analysis Volume [veh/h]	94	78	2	4	0	7	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.95	0.05
95th-Percentile Queue Length [ft]	23.82	1.30
Approach Delay [s/veh]	9.50	8.69
Approach LOS	A	A
Intersection Delay [s/veh]	9.21	
Intersection LOS	A	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 10: 10: Cumulative (2040) SAT

Report File: C:\...\SAT Cumulative.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.583	16.0	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NB Right		9.7	A
3	Willow Rd/Bay Rd	Signalized	HCM 2000	NB Left	0.572	10.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	16.0
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.583

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	623	62	101	673	31	44	5	0	38	6	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.22	1.22	1.22	1.22	1.00	1.00	1.00	1.00	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	188	6	0	170	0	0	0	0	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	948	82	123	991	31	44	5	0	49	7	123
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	244	21	32	255	8	11	1	0	13	2	32
Total Analysis Volume [veh/h]	1	977	85	127	1022	32	45	5	0	51	7	127
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	96
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	56	56	56	16	72	72	24	24	24	24	24	24
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	52	12	68	20	20
g / C, Green / Cycle	0.54	0.13	0.71	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.32	0.07	0.30	0.04	0.12
Total Saturation Flow Adjustment	0.88	0.93	0.93	0.59	0.81
s, saturation flow rate [veh/h]	3345	1770	3531	1124	1532
c, Capacity [veh/h]	1812	221	2501	234	319
d1, Uniform Delay [s]	14.78	39.59	5.82	31.48	34.22
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.40	10.41	0.52	2.07	7.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.57	0.42	0.21	0.58
d, Delay for Lane Group [s/veh]	16.18	50.00	6.34	33.56	41.70
Lane Group LOS	B	D	A	C	D
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	11.59	3.73	7.18	1.22	5.15
50th-Percentile Queue Length [ft]	289.73	93.21	179.50	30.54	128.82
95th-Percentile Queue Length [veh]	19.68	7.73	13.20	2.91	10.08
95th-Percentile Queue Length [ft]	492.11	193.36	329.91	72.78	252.08

Generated with PTV VISTRO
Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.18	16.18	16.18	50.00	6.34	6.34	33.56	33.56	33.56	41.70	41.70	41.70
Movement LOS	B	B	B	D	A	A	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	16.18			11.04			33.56			41.70		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	15.99											
Intersection LOS	B											
Intersection V/C	0.583											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Generated with PTV VISTRO
Version 4.00-02

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	0	0	0	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	9	5	95	1	7	11	9	2	5	77	90
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	3	2	29	0	2	3	3	1	2	23	27
Total Analysis Volume [veh/h]	111	11	6	114	1	8	13	11	2	6	93	108
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.40	0.15	1.08
95th-Percentile Queue Length [ft]	34.97	3.71	27.08
Approach Delay [s/veh]	10.07	8.40	9.31
Approach LOS	B	A	A
Intersection Delay [s/veh]	9.69		
Intersection LOS	A		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	70	2	3	0	7	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	21	1	1	0	2	1	0
Total Analysis Volume [veh/h]	110	84	2	4	0	8	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.14	0.05
95th-Percentile Queue Length [ft]	28.41	1.31
Approach Delay [s/veh]	9.93	8.23
Approach LOS	A	A
Intersection Delay [s/veh]	9.69	
Intersection LOS	A	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	10.9
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.572

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	10	1024	1022	126	133	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	95	68	5	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	13	1344	1315	0	175	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	354	346	0	46	0
Total Analysis Volume [veh/h]	14	1415	1384	0	184	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	8	78	70	70	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	74	66	66	18	18
g / C, Green / Cycle	0.04	0.74	0.66	0.66	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.40	0.39	0.00	0.10	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	71	2625	2341	1045	319	285
d1, Uniform Delay [s]	46.45	5.62	9.48	5.78	37.52	33.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.16	0.80	1.11	0.00	7.44	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.54	0.59	0.00	0.58	0.00
d, Delay for Lane Group [s/veh]	52.61	6.42	10.58	5.78	44.96	33.62
Lane Group LOS	D	A	B	A	D	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.42	10.69	13.25	0.00	5.40	0.00
50th-Percentile Queue Length [ft]	10.59	267.30	331.26	0.00	135.03	0.00
95th-Percentile Queue Length [veh]	1.07	18.37	22.14	0.00	10.48	0.00
95th-Percentile Queue Length [ft]	26.67	459.18	553.42	0.00	261.90	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.61	6.42	10.58	5.78	44.96	33.62
Movement LOS	D	A	B	A	D	C
d_A, Approach Delay [s/veh]	6.88		10.58		44.96	
Approach LOS	A		B		D	
d_I, Intersection Delay [s/veh]	10.93					
Intersection LOS	B					
Intersection V/C	0.572					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 14: 14: Cumulative (2040) SAT (Mit)

Report File: C:\...\SAT Cumulative Mit.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		9.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.5
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	0	0	0	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	9	5	95	1	7	11	9	2	5	77	90
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	3	2	29	0	2	3	3	1	2	23	27
Total Analysis Volume [veh/h]	111	11	6	114	1	8	13	11	2	6	93	108
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.69	0.67	0.17	1.09
95th-Percentile Queue Length [ft]	17.19	16.66	4.18	27.24
Approach Delay [s/veh]	9.48		9.09	9.34
Approach LOS	A		A	A
Intersection Delay [s/veh]	9.55			
Intersection LOS	A			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	70	2	3	0	7	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	21	1	1	0	2	1	0
Total Analysis Volume [veh/h]	110	84	2	4	0	8	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.14	0.06
95th-Percentile Queue Length [ft]	28.54	1.47
Approach Delay [s/veh]	9.96	8.87
Approach LOS	A	A
Intersection Delay [s/veh]	9.55	
Intersection LOS	A	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 17: 17: Cumulative (2040) SAT (Mit - Signal)

Report File: C:\...\SAT Cumulative Mit Signal.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	Signalized	HCM 2010	SB Thru	5.397	12.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	5.397

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	14	9	72	1	7	15	12	2	7	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	0	0	0	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	14	9	95	1	7	18	12	2	7	77	90
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	4	3	29	0	2	5	4	1	2	23	27
Total Analysis Volume [veh/h]	111	17	11	114	1	8	22	14	2	8	93	108
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	20.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	0	0	8	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	0	5	0	0	0	5	0
Maximum Green [s]	30	30	0	0	0	0	30	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	24	0	0	0	0	15	0	0	0	15	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No					No				No	
Maximum Recall	No	No					No				No	
Pedestrian Recall	No	No					No				No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	9	2	5
g / C, Green / Cycle	0.10	0.30	0.06	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	1.39	0.13
s, saturation flow rate [veh/h]	1774	1615	32	1573
c, Capacity [veh/h]	185	486	149	411
d1, Uniform Delay [s]	12.34	7.66	14.42	11.17
k, delay calibration	0.11	0.11	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.11	0.29	4.95	0.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.27	0.29	0.51
d, Delay for Lane Group [s/veh]	15.45	7.95	19.37	12.15
Lane Group LOS	B	A	B	B
Critical Lane Group	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh]	0.67	0.42	0.45	0.99
50th-Percentile Queue Length [ft]	16.68	10.58	11.14	24.77
95th-Percentile Queue Length [veh]	1.20	0.76	0.80	1.78
95th-Percentile Queue Length [ft]	30.02	19.04	20.06	44.58

Generated with PTV VISTRO
Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.45	7.95	0.00	7.95	0.00	19.37	19.37	19.37	0.00	12.15	12.15	12.15
Movement LOS	B	A		A		B	B	B		B	B	B
d_A, Approach Delay [s/veh]	11.39					19.37				12.15		
Approach LOS	B					B				B		
d_I, Intersection Delay [s/veh]	11.96											
Intersection LOS	B											
Intersection V/C	5.397											

Generated with PTV VISTRO
Version 4.00-02

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0
Pocket Length [ft]	175.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	5	2	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	70	5	2	0	7	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	21	2	1	0	2	1	0
Total Analysis Volume [veh/h]	110	84	6	2	0	8	4	0
Presence of On-Street Parking	No			No				
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	20.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Protected	Permissive	Permissive
Signal group	1	6	0	0	0	0	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	0	0	0
Maximum Green [s]	30	30	0	0	0	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	41	56	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	No						
Maximum Recall	No	No						
Pedestrian Recall	No	No						
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	
L, Total Lost Time per Cycle [s]	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	
g_i, Effective Green Time [s]	3	12	
g / C, Green / Cycle	0.10	0.42	
(v / s)_i Volume / Saturation Flow Rate	0.06	0.05	
s, saturation flow rate [veh/h]	1774	1841	
c, Capacity [veh/h]	184	776	
d1, Uniform Delay [s]	12.35	5.08	
k, delay calibration	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	
d2, Incremental Delay [s]	3.10	0.07	
d3, Initial Queue Delay [s]	0.00	0.00	
Rp, platoon ratio	1.00	1.00	
PF, progression factor	1.00	1.00	

Lane Group Results

X, volume / capacity	0.60	0.12	
d, Delay for Lane Group [s/veh]	15.45	5.14	
Lane Group LOS	B	A	
Critical Lane Group	Yes	No	
50th-Percentile Queue Length [veh]	0.66	0.18	
50th-Percentile Queue Length [ft]	16.53	4.52	
95th-Percentile Queue Length [veh]	1.19	0.33	
95th-Percentile Queue Length [ft]	29.76	8.13	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.45	5.14	5.14	0.00	0.00	0.00	0.00	0.00
Movement LOS	B	A	A					
d_A, Approach Delay [s/veh]	10.81				0.00			
Approach LOS	B				A			
d_I, Intersection Delay [s/veh]	11.96							
Intersection LOS	B							
Intersection V/C	5.397							

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 11: 11 Cumulative (2040) SAT + Project

Report File: C:\...\SAT Cumulative plus Project.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd/Bay Rd	Signalized	HCM 2000	SB Left	0.592	16.5	B
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		10.0	A
3	Willow Rd/Bay Rd	Signalized	HCM 2000	NB Left	0.573	11.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.592

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	623	62	101	673	31	44	5	0	38	6	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.22	1.22	1.22	1.22	1.00	1.00	1.00	1.00	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	188	10	2	170	0	0	1	0	7	1	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	948	86	125	991	31	44	6	0	53	8	125
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	244	22	32	255	8	11	2	0	14	2	32
Total Analysis Volume [veh/h]	1	977	89	129	1022	32	45	6	0	55	8	129
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	96
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	18	18	18	15	29	29	19	19	19	19	19	19
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	55	55	55	16	71	71	25	25	25	25	25	25
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	1	1	1	0	1	1	1	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	6.0	6.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO
Version 4.00-02

Lane Group Calculations

Lane Group	C	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	51	12	67	21	21
g / C, Green / Cycle	0.53	0.13	0.70	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.32	0.07	0.30	0.04	0.13
Total Saturation Flow Adjustment	0.88	0.93	0.93	0.61	0.80
s, saturation flow rate [veh/h]	3343	1770	3531	1152	1528
c, Capacity [veh/h]	1776	221	2464	252	334
d1, Uniform Delay [s]	15.49	39.64	6.24	30.65	33.51
k, delay calibration	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.51	10.77	0.54	1.80	7.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.58	0.43	0.20	0.57
d, Delay for Lane Group [s/veh]	17.00	50.41	6.79	32.46	40.53
Lane Group LOS	B	D	A	C	D
Critical Lane Group	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	11.94	3.80	7.42	1.23	5.30
50th-Percentile Queue Length [ft]	298.56	95.04	185.38	30.67	132.38
95th-Percentile Queue Length [veh]	20.20	7.86	13.55	2.92	10.31
95th-Percentile Queue Length [ft]	505.10	196.49	338.67	73.07	257.72

Generated with PTV VISTRO
Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.00	17.00	17.00	50.41	6.79	6.79	32.46	32.46	32.46	40.53	40.53	40.53
Movement LOS	B	B	B	D	A	A	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	17.00			11.55			32.46			40.53		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	16.54											
Intersection LOS	B											
Intersection V/C	0.592											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	0	0	7	0	0	0	0	0	0	11	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	9	5	95	1	7	11	9	2	5	82	101
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	3	2	29	0	2	3	3	1	2	25	30
Total Analysis Volume [veh/h]	124	11	6	114	1	8	13	11	2	6	99	122
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.55	0.15	1.25
95th-Percentile Queue Length [ft]	38.73	3.79	31.13
Approach Delay [s/veh]	10.46	8.52	9.63
Approach LOS	B	A	A
Intersection Delay [s/veh]	9.99		
Intersection LOS	A		

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	8	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	75	2	3	0	7	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	23	1	1	0	2	1	0
Total Analysis Volume [veh/h]	110	90	2	4	0	8	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.21	0.05
95th-Percentile Queue Length [ft]	30.17	1.33
Approach Delay [s/veh]	10.15	8.33
Approach LOS	B	A
Intersection Delay [s/veh]	9.99	
Intersection LOS	A	

Intersection Level Of Service Report
Intersection 3: Willow Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	11.0
Analysis Method:	HCM 2000	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name	Willow Road		Willow Road		Bay Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	175.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

volumes

Name	Willow Road		Willow Road		Bay Road	
Base Volume Input [veh/h]	10	1024	1022	126	133	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	95	68	8	16	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	223	0	47
Total Hourly Volume [veh/h]	14	1344	1315	0	178	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	354	346	0	47	0
Total Analysis Volume [veh/h]	15	1415	1384	0	187	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4
Maximum Green [s]	4	24	16	16	16	16
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5
Split [s]	8	78	70	70	22	22
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	1	1	1	1	1
Pedestrian Clearance [s]	0	0	0	0	0	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	6.0	6.0	6.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Version 4.00-02

Lane Group Calculations

Lane Group	L	C	C	R	L	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	74	66	66	18	18
g / C, Green / Cycle	0.04	0.74	0.66	0.66	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.40	0.39	0.00	0.11	0.00
Total Saturation Flow Adjustment	0.93	0.93	0.93	0.83	0.93	0.83
s, saturation flow rate [veh/h]	1770	3547	3547	1583	1770	1583
c, Capacity [veh/h]	71	2625	2341	1045	319	285
d1, Uniform Delay [s]	46.47	5.62	9.48	5.78	37.59	33.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.71	0.80	1.11	0.00	7.71	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.54	0.59	0.00	0.59	0.00
d, Delay for Lane Group [s/veh]	53.18	6.42	10.58	5.78	45.31	33.62
Lane Group LOS	D	A	B	A	D	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.45	10.69	13.25	0.00	5.51	0.00
50th-Percentile Queue Length [ft]	11.37	267.30	331.26	0.00	137.83	0.00
95th-Percentile Queue Length [veh]	1.14	18.37	22.14	0.00	10.65	0.00
95th-Percentile Queue Length [ft]	28.58	459.18	553.42	0.00	266.29	0.00

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Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.18	6.42	10.58	5.78	45.31	33.62
Movement LOS	D	A	B	A	D	C
d_A, Approach Delay [s/veh]	6.91		10.58		45.31	
Approach LOS	A		B		D	
d_I, Intersection Delay [s/veh]	11.00					
Intersection LOS	B					
Intersection V/C	0.573					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro — Scenario 15: 15: Cumulative (2040) SAT + Project (Mit)

Report File: C:\...\SAT Cumulative plus Project Mit.pdf — 12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 2000	NBL2		9.8	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	All-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	9	5	72	1	7	9	9	2	5	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	0	0	7	0	0	0	0	0	0	11	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	9	5	95	1	7	11	9	2	5	82	101
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	3	2	29	0	2	3	3	1	2	25	30
Total Analysis Volume [veh/h]	124	11	6	114	1	8	13	11	2	6	99	122
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.80	0.68	0.17	1.26
95th-Percentile Queue Length [ft]	20.04	17.00	4.27	31.40
Approach Delay [s/veh]	9.75		9.23	9.69
Approach LOS	A		A	A
Intersection Delay [s/veh]	9.82			
Intersection LOS	A			

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	2	3	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	8	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	75	2	3	0	7	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	23	1	1	0	2	1	0
Total Analysis Volume [veh/h]	110	90	2	4	0	8	4	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.22	0.06
95th-Percentile Queue Length [ft]	30.40	1.50
Approach Delay [s/veh]	10.21	9.00
Approach LOS	B	A
Intersection Delay [s/veh]	9.82	
Intersection LOS	A	

Flood County Park Traffic Impact Study

Vistro File: C:\...\SMX013 SAT-SCB.vistro   Scenario 18: 18: Cumulative (2040) SAT + Project (Mit - Signal)

Report File: C:\...\SAT Cumulative plus Project Mit Signal.pdf   12/13/2016

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Bay Rd/Ringwood Ave/Sonoma Ave	Signalized	HCM 2010	SB Thru	5.097	12.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

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Version 4.00-02

Intersection Level Of Service Report
Intersection 2: Bay Rd/Ringwood Ave/Sonoma Ave

Control Type:	Signalized	Delay (sec / veh):	12.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	5.097

Intersection Setup

Name					Sonoma Avenue				Bay Road			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Thru	Right	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00				30.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

volumes

Name					Sonoma Avenue				Bay Road			
Base Volume Input [veh/h]	75	14	9	72	1	7	15	12	2	7	58	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.00	1.00	1.22	1.00	1.00	1.22	1.00	1.00	1.00	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	0	0	7	0	0	0	0	0	0	11	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	14	9	95	1	7	18	12	2	7	82	101
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	4	3	29	0	2	5	4	1	2	25	30
Total Analysis Volume [veh/h]	130	17	11	114	1	8	22	14	2	8	99	122
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

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Version 4.00-02

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	20.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	7	4	0	0	0	0	8	0	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	0	5	0	0	0	5	0
Maximum Green [s]	30	30	0	0	0	0	30	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	24	0	0	0	0	15	0	0	0	15	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	10	0	0	0	10	0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No					No				No	
Maximum Recall	No	No					No				No	
Pedestrian Recall	No	No					No				No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO
Version 4.00-02

Lane Group Calculations

Lane Group	L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	9	2	5
g / C, Green / Cycle	0.11	0.31	0.06	0.19
(v / s)_i Volume / Saturation Flow Rate	0.07	0.08	1.38	0.14
s, saturation flow rate [veh/h]	1774	1615	32	1665
c, Capacity [veh/h]	200	493	145	438
d1, Uniform Delay [s]	12.60	7.78	14.83	11.34
k, delay calibration	0.11	0.11	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.53	0.28	5.29	0.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.27	0.30	0.52
d, Delay for Lane Group [s/veh]	16.13	8.07	20.13	12.31
Lane Group LOS	B	A	C	B
Critical Lane Group	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh]	0.82	0.44	0.46	1.13
50th-Percentile Queue Length [ft]	20.40	10.99	11.60	28.17
95th-Percentile Queue Length [veh]	1.47	0.79	0.84	2.03
95th-Percentile Queue Length [ft]	36.73	19.79	20.88	50.71

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Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.13	8.07	0.00	8.07	0.00	20.13	20.13	20.13	0.00	12.31	12.31	12.31
Movement LOS	B	A		A		C	C	C		B	B	B
d_A, Approach Delay [s/veh]	12.09				20.13				12.31			
Approach LOS	B				C				B			
d_I, Intersection Delay [s/veh]	12.38											
Intersection LOS	B											
Intersection V/C	5.097											

Intersection Setup

Name	Bay Road				Ringwood Avenue			
Approach	Westbound				Southwestbound			
Lane Configuration	┓┣							
Turning Movement	Left	Thru	Right	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	0	0
Pocket Length [ft]	175.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	No				No			

volumes

Name	Bay Road				Ringwood Avenue			
Base Volume Input [veh/h]	72	55	5	2	0	6	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.22	1.22	1.00	1.00	1.00	1.22	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	70	5	2	0	7	3	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	21	2	1	0	2	1	0
Total Analysis Volume [veh/h]	110	84	6	2	0	8	4	0
Presence of On-Street Parking	No			No				
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	20.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Protected	Permissive	Permissive
Signal group	1	6	0	0	0	0	0	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	0	0	0	0
Maximum Green [s]	30	30	0	0	0	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	41	56	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	No						
Maximum Recall	No	No						
Pedestrian Recall	No	No						
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Version 4.00-02

Lane Group Calculations

Lane Group	L	C	
L, Total Lost Time per Cycle [s]	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	
g_i, Effective Green Time [s]	3	13	
g / C, Green / Cycle	0.10	0.42	
(v / s)_i Volume / Saturation Flow Rate	0.06	0.05	
s, saturation flow rate [veh/h]	1774	1841	
c, Capacity [veh/h]	182	782	
d1, Uniform Delay [s]	12.74	5.16	
k, delay calibration	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	
d2, Incremental Delay [s]	3.23	0.06	
d3, Initial Queue Delay [s]	0.00	0.00	
Rp, platoon ratio	1.00	1.00	
PF, progression factor	1.00	1.00	

Lane Group Results

X, volume / capacity	0.61	0.12	
d, Delay for Lane Group [s/veh]	15.97	5.23	
Lane Group LOS	B	A	
Critical Lane Group	Yes	No	
50th-Percentile Queue Length [veh]	0.69	0.19	
50th-Percentile Queue Length [ft]	17.28	4.77	
95th-Percentile Queue Length [veh]	1.24	0.34	
95th-Percentile Queue Length [ft]	31.10	8.58	

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Version 4.00-02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.97	5.23	5.23	0.00	0.00	0.00	0.00	0.00
Movement LOS	B	A	A					
d_A, Approach Delay [s/veh]	11.14				0.00			
Approach LOS	B				A			
d_I, Intersection Delay [s/veh]	12.38							
Intersection LOS	B							
Intersection V/C	5.097							

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B

Menlo Park Approved/Pending Projects

List of Development Projects Based on Applications Received before or near November 2016

PROJECT ADDRESS	TYPE OF USE	SIZE	UNITS OF MEASURE	APPROVED OR PENDING	OCCUPIED AS OF NOVEMBER 2016 TRAFFIC COUNTS	STATUS AS OF NOVEMBER 2016	TRAFFIC STUDY PREPARED	TRAFFIC CONSULTANT	PLANNER	PROJECT LOCATION
Commonwealth Corp. Center (151 Commonwealth - Sobrato) 162 & 164 Jefferson Dr	Office Office Warehouse Manufacturing	259,920 -19,173 -55,627 -163,058	sf sf sf sf	Approved	No No No No	Under Construction Proposed Demolition Proposed Demolition Proposed Demolition	Yes	DKS	David Hogan	East of U.S. 101
Mermaid Inn 727 El Camino Real	Hotel Hotel Hotel	8 3,497 39	rooms sf rooms	Approved Existing	Yes Yes	Under Construction (Temporary Occupancy) Hotel sf for reference only Existing	No	n/a	Kyle Perata	West Menlo/Downtown/El Camino Real
Police/City Service Center 1283 Willow Rd	Office Retail	3,800 5,096	sf sf	Approved	No No	Under Construction (Expired building permit) Under Construction (Expired building permit)	No	n/a	Justin Murphy	East of U.S. 101
Anton Menlo 3639 Haven Ave	Residential Manufacturing Warehousing	394 -36,471 -40,837	du sf sf	Approved	No No No	Under Construction Demolished Demolished	Housing Element	TJKM	Deanna Chow	East of U.S. 101
Greanheart 777 Hamilton Ave	Residential Manufacturing	195 -47,999	du sf	Approved	No No	Under Construction Demolished	Housing Element	TJKM	Deanna Chow	East of U.S. 101
Greystar 3645 Haven Ave	Residential Warehouse	146 -15,000	du sf	Approved	No No	Under Construction Demolished	Housing Element	TJKM	Deanna Chow	East of U.S. 101
Sequoia Belle Haven - MidPen 1221 Willow Rd	Residential Residential	90 -48	du du	Approved	No No	Under Construction Demolished	Housing Element	TJKM	Deanna Chow	East of U.S. 101
Facebook Building 23 300 Constitution Dr	Office Warehouse	180,108 -184,438	sf sf	Approved	No No	Under Construction Demolished	No	n/a	Kyle Perata	East of U.S. 101
Laurel Upper School (former O'Connor/GAIS) 275 Elliott Dr	School School	360 -280	students students	Approved	Yes No	Completed Demolished	Yes	Arch Beach Consulting	Menlo Park City School District	West of U.S. 101
Menlo Gateway 100-190 Independence Dr	Office/R&D Health Club Hotel Hotel Office	200,000 41,000 250 197,000 -63,360	sf sf rooms sf sf	Approved	No No No No No	Under Construction Under Construction Under Construction Hotel sf for reference only Demolished	Yes	DKS	Tom Smith	East of U.S. 101
Menlo Gateway 100-155 Constitution Drive	Office Restaurant Office	487,244 7,420 -133,690	sf sf sf	Approved	No No Yes	Approved New Construction Approved New Construction Proposed Demolition	Yes	DKS	Tom Smith	East of U.S. 101

1283-1295 El Camino Real	Residential Office/Retail/Service Office/Retail/Service	15 1,997 -6,471	du sf sf	Approved	No No No	Approved New Construction Approved New Construction Demolished	No	n/a	Thomas Rogers	West Menlo/Downtown/El Camino Real
Roger Reynolds 133 Encinal Ave	Residential Retail	24 -6,166	du sf	Approved	No No	Approved New Construction Proposed Demolition	No	n/a	Jean Lin	West Menlo/Downtown/El Camino Real
1010-1026 Alma St	Office Retail Retail	25,156 324 -10,272	sf sf sf	Approved	No No No	Approved New Construction Approved New Construction Demolished	No	n/a	Jean Lin	West Menlo/Downtown/El Camino Real
1315 O'Brien Dr	R&D Warehouse Manufacturing Office Warehouse Warehouse	113,382 61,338 45,796 -56,002 -162,839 -32,197	sf sf sf sf sf sf	Approved	No No No No No No	Under Construction Under Construction Under Construction Proposed Demolition (Conversion) Proposed Demolition (Conversion) Proposed Demolition	No (TDM Plan)	n/a	Kyle Perata Tom Smith	East of U.S. 101
Pollock Group 1400 El Camino Real	Hotel Hotel Gas Station	61 33,657 -1,932	rooms sf sf	Approved	No No No	Approved New Construction Hotel sf for reference only Demolished	No	n/a	Jean Lin	West Menlo/Downtown/El Camino Real
Minkoff Group 650-660 Live Oak Ave	Office Residential Residential Office	16,854 17 -2 -5,996	sf du du sf	Approved	No No Yes Yes	Approved New Construction Approved New Construction Proposed Demolition Proposed Demolition	No	n/a	Thomas Rogers	West Menlo/Downtown/El Camino Real
1275 El Camino Real	Residential Office Retail	3 9,334 589	du sf sf	Approved	No No No	Approved New Construction Approved New Construction Approved New Construction	No	n/a	Corinna Sandmeier	West Menlo/Downtown/El Camino Real
Facebook Expansion Project 301-309 Constitution Dr	Office Hotel Hotel Manufacturing R&D Office	962,400 200 174,800 -308,142 -76,533 -127,012	sf rooms sf sf sf sf	Approved	No No No No No No	Proposed Construction Proposed Construction Hotel sf for reference only Demolished Demolished Demolished	In progress	TJKM	Kyle Perata	East of U.S. 101
Facebook TE Campus 307-309 Constitution Drive Bldgs 307-309 Demolition	Office R&D Manufacturing	-123,556 -9,588 -191,007	sf sf sf	Approved	No No No	Demolished Demolished Demolished	No	n/a	Kyle Perata	East of U.S. 101
Stanford 500 El Camino Real	Residential Office Retail Temporary Art Gallery Auto Dealer (Vacant)	215 143,900 10,000 -35,275 -35,270	du sf sf sf sf	Pending	No No No Yes No	Proposed Construction Proposed Construction Proposed Construction Proposed Demolition Proposed Demolition	In progress	W-Trans	Jean Lin	West Menlo/Downtown/El Camino Real
SRI 333 Ravenswood Ave	R&D Campus R&D Campus	3,000 1,780	employees employees	Pending Existing	No Yes	Proposed Construction Existing (1500+280)	In progress	W-Trans	Kyle Perata	West Menlo/Downtown/El Camino Real

New Magnet High School 150 Jefferson Dr	School School Light Industrial	40,000 400 -43,986	sf students sf	Pending?	No No ?	Proposed Construction Proposed Construction Proposed Demolition	In progress	Hexagon	Sequoia Union High School District	East of U.S. 101
Greenheart 1300 El Camino Real	Residential Office Retail Dance Studio Fast Food Restaurant Hardware Storage	202 210,000 7,000 -3,800 -1,200 -5,000	du sf sf sf sf sf	Pending	No No No Yes No Yes	Proposed Construction Proposed Construction Proposed Construction Proposed Demolition Proposed Demolition Proposed Demolition	Yes	W-Trans	Thomas Rogers	West Menlo/Downtown/El Camino Real
840 Menlo Ave	Residential Office	3 6,662	du sf	Pending	No No	Proposed Construction Proposed Construction	No	n/a	Yesenia Jimenez	West Menlo/Downtown/El Camino Real
Stanford 2111-2121 Sand Hill Road	Office Office Residence	39,010 48,024 1	sf sf du	Pending Existing Existing	No Yes Yes	Proposed Construction Existing Existing	In progress	Hexagon	Tom Smith	Sharon Heights/Sand Hill
1080 O'Brien Dr	R&D/Office Office	29,040 -20,454	sf sf	Pending	No Yes	Proposed Construction Proposed Demolition	No (TDM Plan)	n/a	Tom Smith	East of U.S. 101
1704 El Camino Real Hampton Inn	Hotel Hotel Hotel Hotel	70 40,060 -10,776 -28	rooms sf sf rooms	Pending	No No Yes Yes	Proposed Construction Hotel sf for reference only Proposed Demolition Proposed Demolition	No	n/a	Corinna Sandmeier	West Menlo/Downtown/El Camino Real
706-716 Santa Cruz Avenue	Residential Office Retail Retail/Restaurant/Bank	4 19,111 13,018 -12,758	du sf sf sf	Pending	No No No Yes	Proposed Construction Proposed Construction Proposed Construction Proposed Demolition	No	n/a	Kaitie Meador	West Menlo/Downtown/El Camino Real

Notes:
Table includes all projects in City of Menlo Park that have filed a complete development application for 5 or more NET NEW residential units or 5,000 sf or more of NET NEW commercial.
Table includes pending and approved projects that were not occupied when traffic counts were performed.
For residential projects, occupancy is based on date of final building inspection.
For commercial projects, occupancy is based on date of final building inspection of applicable tenant improvements.
Some projects involve the demolition of existing structures. Demolished buildings are only listed for projects that receive credit for traffic purposes.
Project location corresponds to the four categories in the CSA as follows from west to east: Sharon Heights/Sand Hill; West Menlo/Downtown/El Camino; West of US 101; and East of US 101.
n/a = not applicable

Appendix C

Trip Generation Assumptions

Flood County Park Trip Generation Assumptions

The Park will be utilized by both adult and youth leagues. Travel assumptions are included below.

Baseball/Softball + Soccer Field – Projected Use

- High School/Youth Baseball
  - 32 players per game, 1 spectator per player
  - Two persons per vehicle
  - Assume that all vehicles remained parked during the game
  - Assume that half of all trips (in trips) take place during the p.m./weekend peak hour
  - Trip rate per youth baseball game: 64 total trips per game, 32 in/32 out
- Adult Baseball
  - 15 players per team
  - All players drive themselves to the field
  - Assume that all players remained parked during the game
  - Assume that half of all trips (in trips) take place during the p.m./weekend peak hour
  - Trip rate per adult baseball game: 60 total trips per game, 30 in/30 out
- Adult Soccer
  - 16 players per team
  - All players drive themselves to the field
  - Assume that all players remained parked during the game
  - Assume 2 games per event
  - Half of the games during the week half of the games on the weekend
  - Assume that half of all trips (in trips) take place during the p.m./weekend peak hour
  - Trip rate per adult soccer game: 64 total trips per game, 32 in/32 out
- Camp Activities
  - Assume 1.2 attendees per vehicle
  - Assume 10% of parents remain to volunteer/assist with camp activities
  - Trip rate per camp attendee: 3.2 total trips per attendee, 50% in/50% out
  - Assume that 1.6 trips per attendee occur during the p.m. peak hour (camper pick up)

Appendix C Table 1 – Trip Generation Summary by Month

	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Average
Passive Recreation Daily Trips	180	200	225	127	76	64	77	83	115	188	215	236	149
10% Growth in Passive Recreation	18	20	23	13	8	6	8	8	11	19	22	24	15
Programmed Active Recreation Daily Trips	204	199	118	107	107	131	106	167	118	153	100	211	143
Daily Trips	**402**	**419**	**366**	**247**	**190**	**201**	**191**	**259**	**244**	**360**	**337**	**470**	**307**
PM Peak Hour Passive Recreation	*20*	*22*	*25*	*14*	*8*	*7*	*8*	*9*	*13*	*21*	*24*	*26*	16
PM Peak Hour Active Recreation	*144*	*144*	*58*	*58*	*58*	*36*	*36*	*58*	*58*	*58*	*36*	*144*	74
PM Peak Hour	**164**	**166**	**83**	**72**	**67**	**43**	**44**	**68**	**71**	**79**	**60**	**170**	**91**
Weekend Peak Hour Passive Recreation	*18*	*20*	*22*	*13*	*7*	*6*	*8*	*8*	*11*	*19*	*21*	*23*	15
Weekend Peak Hour Active Recreation	*20*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*20*	33
Weekend Peak Hour	**38**	**56**	**58**	**49**	**43**	**42**	**44**	**44**	**47**	**55**	**57**	**43**	**48**

Appendix D

Turn-Lane Warrants

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Flood County Park Driveway at Bay Road
Study Scenario: SAT Near-Term 2021 plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the North

Bay Road		**Bay Road**	
Westbound Volumes (veh/hr)		Eastbound Volumes (veh/hr)	
Through Volume =	153	183	= Through Volume
Right Turn Volume =	16	8	= Left Turn Volume

Flood County Park

Westbound Speed Limit:	30 mph	Eastbound Speed Limit:	30 mph
Westbound Configuration:	2 Lanes - Undivided	Eastbound Configuration:	2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	930.1
Advancing Volume	Va =	169
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

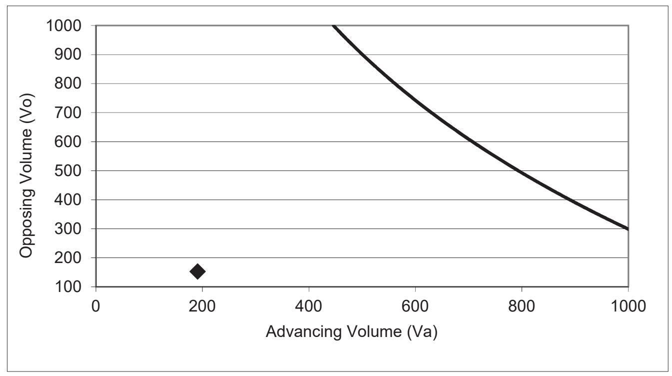
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	169
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt	4.2 %
Advancing Volume Threshold AV	1183 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 30 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Flood County Park Driveway at Bay Road
Study Scenario: PM Near-Term 2021 plus Project

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Bay Road
Westbound Volumes (veh/hr)
Through Volume = 408
Right Turn Volume = 30

Bay Road
Eastbound Volumes (veh/hr)
272 = Through Volume
16 = Left Turn Volume

Westbound Speed Limit: 30 mph
Westbound Configuration: 2 Lanes - Undivided

Flood County Park

Eastbound Speed Limit: 30 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	825.1
Advancing Volume	Va =	438
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

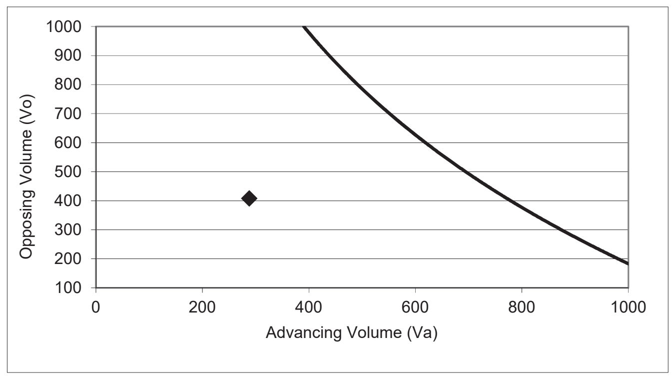
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	600
Advancing Volume	Va =	438
If AV<Va then warrant is met		No

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 5.6 %
Advancing Volume Threshold AV 772 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 30 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Appendix E

Traffic Signal Warrants

Warrant 3: Peak-Hour Volumes and Delay

City of Menlo Park
Ringwood Avenue & Bay Road

Flood County Park TIS

	Major Street	Minor Street
Street Name	Ringwood Avenue	Bay Road
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	25	30

Population less than 10,000? No
Date of Count: Thursday, November 17, 2016
Scenario: PM Existing

Warrant 3 Met?: Met when either Condition A or B is met	**No**
Condition A: Met when conditions A1, A2, and A3 are met	Not Met
Condition A1	Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 1.03 vehicle-hours

Condition A2 — Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 260 vph

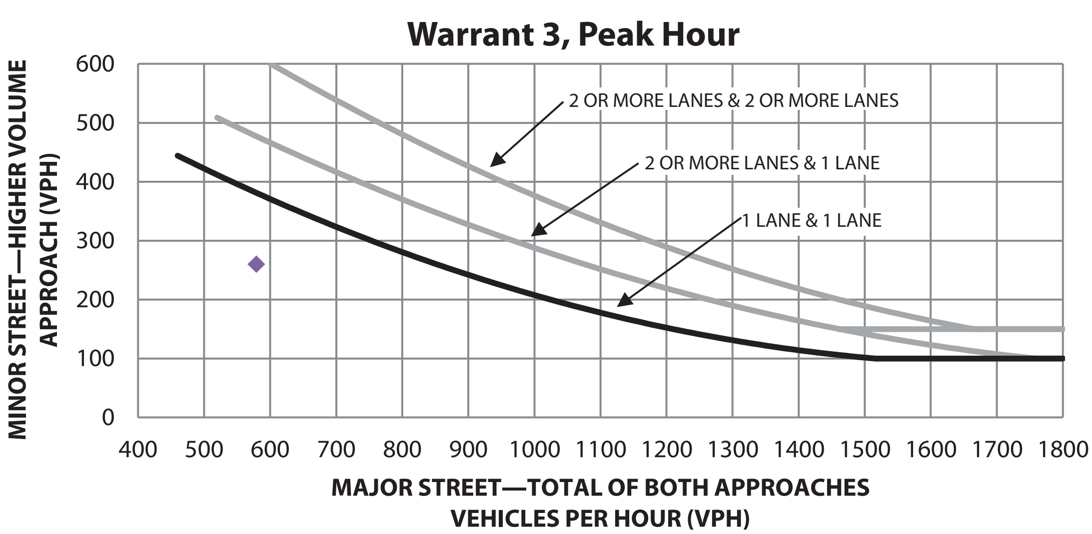
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1082 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

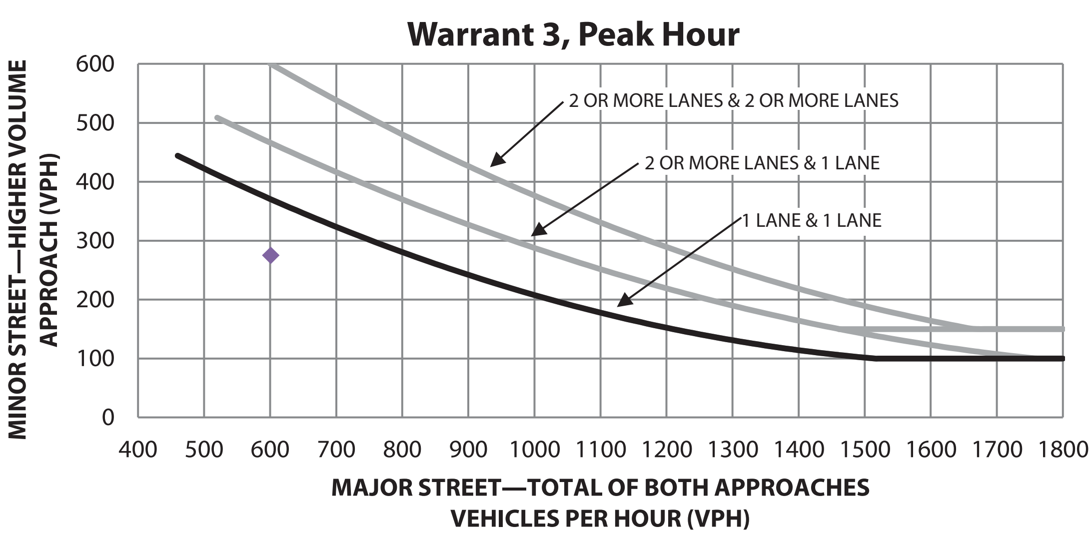
City of Menlo Park
Ringwood Avenue & Bay Road

Flood County Park TIS

	Major Street	Minor Street
Street Name	Ringwood Avenue	Bay Road
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	25	30

Population less than 10,000? No
Date of Count: Thursday, November 17, 2016
Scenario: PM Existing + Project

Warrant 3 Met?: Met when either Condition A or B is met	**No**
Condition A: Met when conditions A1, A2, and A3 are met	Not Met
Condition A1	Not Met
The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach	
Minor Approach Delay: 1.11 vehicle-hours	
Condition A2	Met
The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes	
Minor Approach Volume: 275 vph	
Condition A3	Met
The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches	
Total Entering Volume: 1136 vph	
Condition B	Not Met
The plotted point falls above the curve	



Warrant 3: Peak-Hour Volumes and Delay

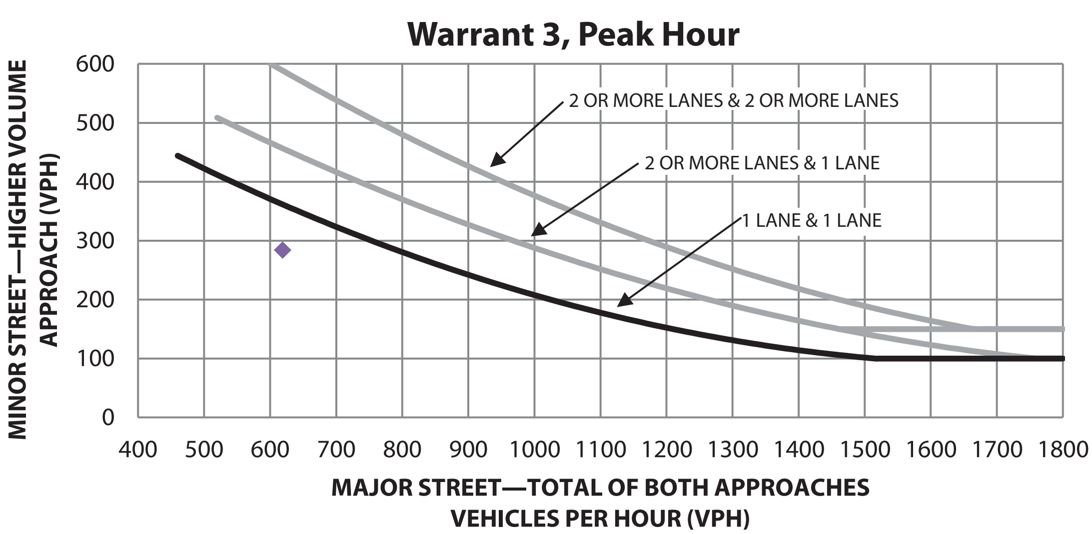
City of Menlo Park
Ringwood Avenue & Bay Road

Flood County Park TIS

	Major Street	Minor Street
Street Name	Ringwood Avenue	Bay Road
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	25	30

Population less than 10,000? No
Date of Count: Thursday, November 17, 2016
Scenario: PM Near Term

Warrant 3 Met?: Met when either Condition A or B is met	**No**
Condition A: Met when conditions A1, A2, and A3 are met	Not Met
Condition A1	Not Met
The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach	
Minor Approach Delay: 1.4 vehicle-hours	
Condition A2	Met
The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes	
Minor Approach Volume: 284 vph	
Condition A3	Met
The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches	
Total Entering Volume: 1163 vph	
Condition B	Not Met
The plotted point falls above the curve	



Warrant 3: Peak-Hour Volumes and Delay

City of Menlo Park
Ringwood Avenue & Bay Road

Flood County Park TIS

	Major Street	Minor Street
Street Name	Ringwood Avenue	Bay Road
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	25	30

Population less than 10,000? No
Date of Count: Thursday, November 17, 2016
Scenario: PM Near Term + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 1.5 vehicle-hours

Condition A2 — Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 294 vph

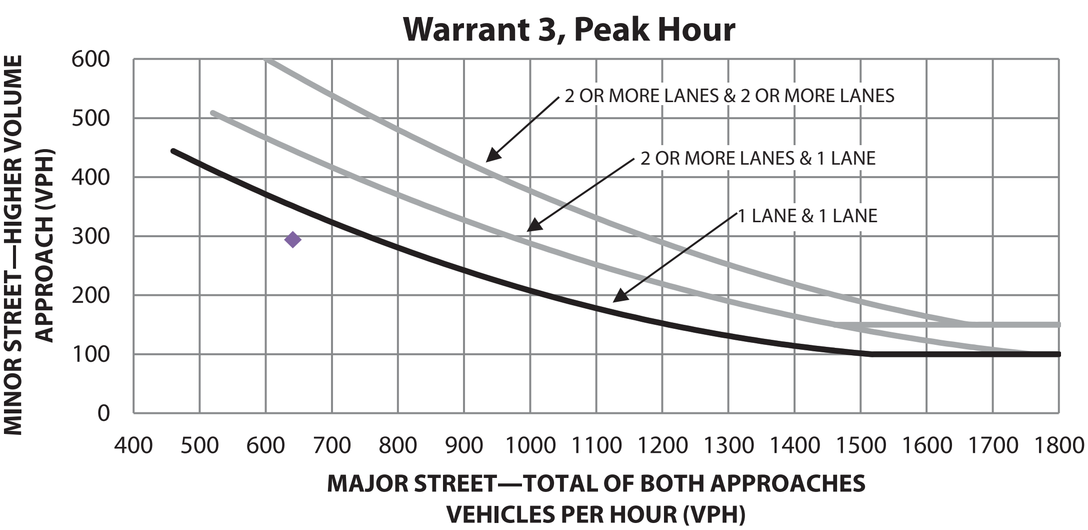
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1227 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

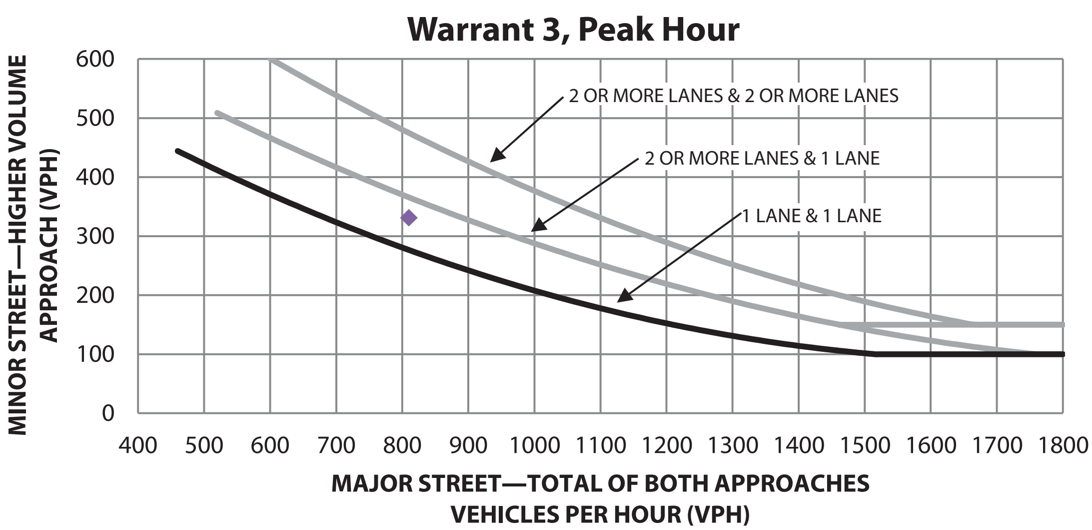
City of Menlo Park
Ringwood Avenue & Bay Road

Flood County Park TIS

	Major Street	Minor Street
Street Name	Ringwood Avenue	Bay Road
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	25	30

Population less than 10,000? No
Date of Count: Thursday, November 17, 2016
Scenario: PM Cumulative

Warrant 3 Met?: Met when either Condition A or B is met	**Yes**
Condition A: Met when conditions A1, A2, and A3 are met	Not Met
Condition A1	Not Met
The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach	
Minor Approach Delay: 2.01 vehicle-hours	
Condition A2	Met
The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes	
Minor Approach Volume: 331 vph	
Condition A3	Met
The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches	
Total Entering Volume: 1449 vph	
Condition B	Met
The plotted point falls above the curve	



Warrant 3: Peak-Hour Volumes and Delay

City of Menlo Park
Ringwood Avenue & Bay Road

Flood County Park TIS

	Major Street	Minor Street
Street Name	Ringwood Avenue	Bay Road
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	25	30

Population less than 10,000? No
Date of Count: Thursday, November 17, 2016
Scenario: PM Cumulative + Project

Warrant 3 Met?: Met when either Condition A or B is met — **Yes**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 2.11 vehicle-hours

Condition A2 — Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 341 vph

Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1513 vph

Condition B — Met

The plotted point falls above the curve