2019039053

MITIGATED NEGATIVE DECLARATION / INITIAL STUDY

Davis Townhomes
6737 Sebastopol Avenue

CITY OF SEBASTOPOL
PLANNING DEPARTMENT
CITY HALL
7120 BODEGA AVENUE
SEBASTOPOL, CALIFORNIA 95472

March 7, 2019

I. Environmental Checklist Forms - Mitigated Negative Declaration

1. Project Title	Davis Townhomes
2. Lead Agency Name and Address	City of Sebastopol – Planning Department, 7120 Bodega Avenue, Sebastopol, CA 95472
3. Contact Person and Phone Number	Dana Morrison, Assistant Planner. (707) 823-6167
4. Project Location	6737 Sebastopol Avenue [aka SR12], Sebastopol Ca 95472 (APN 004-063-036)
5. Project Sponsor's Name and Address	Dan Davis – 1051 Todd Road, Santa Rosa Ca 95407
6. General Plan Designation	Central Core
7. Zoning	Downtown Core
8. Description of Project	The Project proposes development of eighteen (18); attached, 1,180 square foot, 2-bedroom, 1.5 bathroom, 2-story townhomes on a 1.74 acre lot. The proposed town homes are clustered around a central open space, in three clusters. Lot sizes vary from ~1250 to ~1800 square feet. The town homes are proposed to have 6-foot-deep front and rear porches (which will have a storage closet). In addition, there will be private rear yards of a minimum 20 feet deep by 20 feet wide with rear gates. Project will include 18 carport spaces along with 18 assigned surface parking spaces and two (2) visitor parking spaces, for a total of 38 parking space. The proposed development also includes gated driveway access to Park Village (to be used in case of emergency), fire and emergency vehicle access, storm water retention areas, and new landscaping including the addition of 56 new trees, trash and recycling enclosure, and one ganged mail box. Four (4) of the parking spaces are proposed to be electric car charging stations.
9. Surrounding Land Uses and Setting	The location of the subject property is south of the end of Morris Street, behind and to the south of commercial properties that face onto Sebastopol Avenue [aka SR12] and an existing parking lot that contains approximately 32 parking spaces. A multipurpose path and the Sebastopol Inn are located to the west. The Railroad Forest is located to the south. A residential property, Park Village, and Tomodachi Park are located to the east.
10. Other public agencies whose approval is required (Permits, financing approval, or participation agreement.)	No outside public agency approval is required for the proposed Project.
11. Have California Native American tribes traditionally	Yes, a referral letter and attachments was sent to Tribal Heritage Preservation Officer for the Federated Indians of

and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?	Graton Racheria on 11.14.2018. Additional information regarding the Project was requested. These additional requested materials were sent on 1.23.2019; no response was received. A follow up email was sent on 2.19.2019; no response has been received as of compiling this study.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

☒	Aesthetics	☐	Agriculture and Forestry	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☐	Geology/Soils
☐	Greenhouse Gas Emissions	☐	Hazards and Hazardous Materials	☒	Hydrology/Water Quality
☐	Land Use/Planning	☐	Mineral Resources	☐	Noise
☐	Population/Housing	☐	Public Services	☐	Recreation
☒	Transportation/Traffic	☐	Tribal Cultural Resources	☐	Utilities/Service Systems
☒	Mandatory Findings of Significance				

DETERMINATION: On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Kari Svanstrom, CEQA Coordinator

3/7/2019

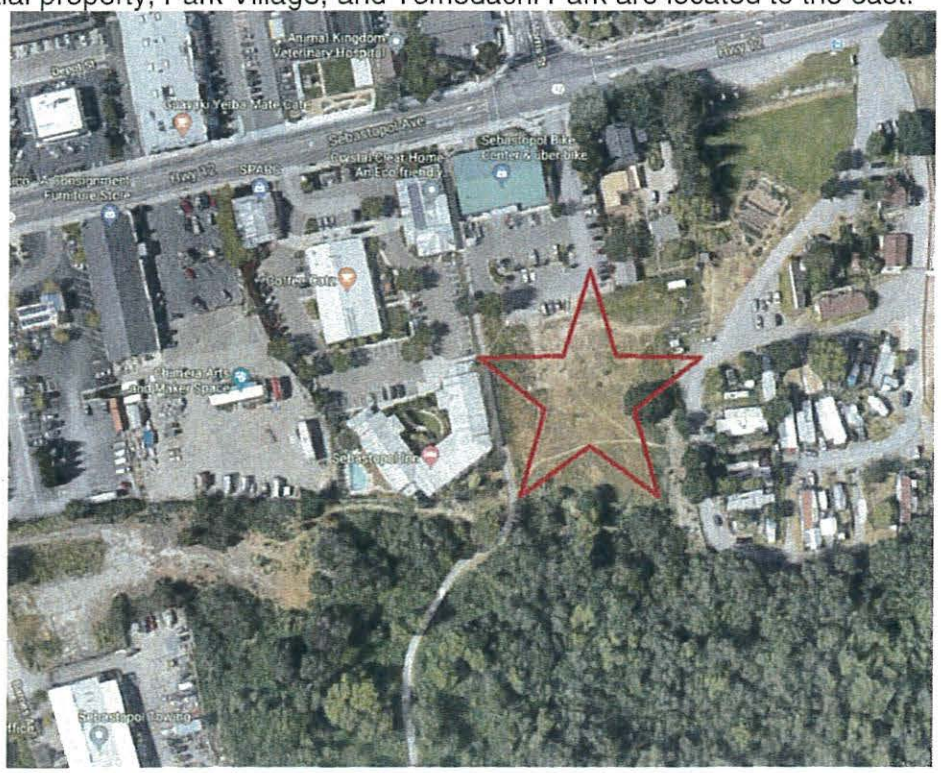
II. Project Description

The Project proposes development of eighteen (18); attached, 1,180 square foot, 2-bedroom, 1.5 bathroom, 2-story townhomes. The proposed town homes are clustered around a central open space, in three clusters. Lot sizes vary from ~1250 to ~1800 square feet. The town homes are proposed to have 6-foot-deep front and rear porches (which will have a storage closet). In addition, there will be private rear yards of a minimum 20 feet deep by 20 feet wide with rear gates.

Project will include 18 carport spaces along with 18 assigned surface parking spaces and two (2) visitor parking spaces, for a total of 38 parking space. The proposed development also includes gated driveway access to Park Village (to be used in case of emergency), fire and emergency vehicle access, storm water retention areas, and new landscaping including the addition of 56 new trees, trash and recycling enclosure, and one ganged mail box. Four (4) of the parking spaces are proposed to be electric car charging stations.

Further information regarding lighting, materials and colors are detailed in the project description submitted by the applicant. The style of the homes are proposed to be farmhouse or late craftsman to compliment much of the architecture found throughout Sebastopol. Roof pitches and front and rear porch roofs will be varied; and all porches will have decorative railings which will be painted to coordinate with the individual color trim of the home.

The location of the subject property is south of the end of Morris Street, behind and to the south of commercial properties that face onto Sebastopol Avenue and an existing parking lot that contains approximately 32 parking spaces. A bike path and the Sebastopol Inn are located to the west. The Railroad Forest is located to the south. A residential property, Park Village, and Tomodachi Park are located to the east.



III. Evaluation of Potential Environmental Impacts

I. AESTHETICS: Would the project:

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

Discussion:

Item a: Less Than Significant with Mitigation Incorporated. A scenic vista is a public view of a valued visual resource. Scenic vistas generally include public views that provide visual access to large panoramic views of natural features, unusual terrain, or unique urban or historic features, for which the field of view can be wide and extend into the distance, and focal views that focus on a particular object, scene, or feature of interest.

As describe above, in the Project Description, the Project Site is undeveloped and relatively flat. The Site is surrounded by existing residential and commercial development to the north, east and west. Visual resources are primarily limited to those located adjacent to the Project Site due to the existing developments in the surrounding areas. To the south of the Project Site is the Railroad Forest property, which is owned by the City and designated as Wetlands/Scenic Open Space. An existing bike connector path is located just to the west of the Project Site, views currently exist (from this path) of the Railroad Forest property. The Project includes a 50' setback from the Railroad Forest and required restoration of vegetation within this setback. While the proposed development may partially block the view from the bike path, the mitigation requiring restoration and further plantings in the 50' abutting the Railroad Forest property will likely increase the scenic value along this section of the path.

The Project Site is not viewable from any panoramic vistas located nearby. The increase in development in the area the Project Site would be difficult to discern within the greater fabric of the surrounding development. The two-story Project would not interfere with the skyline and horizon line that are available from the intersection of Highway 12 and Morris Street. Furthermore, the Project will be subject to a number of Conditions of Approval regarding height, color selection and screening which will reduce potential impacts on any scenic vistas.

Construction activities generally cause a temporary contrast to, and disruption in, the general order and aesthetic character of an area. Although temporary in nature, construction activities may create a visually unappealing look on the Project Site. During construction activities for the Project, the visual appearance of the site would be altered due to the presence of construction equipment and activities. Some of the activity would be visible from the roadway (Highway 12) located to the north of the Project Site, as well as pedestrians and bikers along the bike path located to the west; as well as from viewer from the Hotel nearby. However, temporary construction fencing would be placed along the periphery of the Project Site to screen much of the construction activity from view at the street level.

Overall, while affecting the visual character of the Project area on a short-term basis, Project construction activities would not substantially alter or degrade the existing visual character or quality of the Project Site and surrounding area, for the following reasons: 1) views of construction would be limited in duration and locations; 2) the Project Site appearance would be typical of construction sites in urban areas; 3) construction fencing would be placed along the periphery of the Project Site to screen much of the construction from view at street and bike path level.

Mitigation:

- AES-1: Building height shall be limited to 2 stories.
- AES-2: Exterior colors shall be selected which blend with the natural surroundings. Final colors shall be approved by the Design Review Board.
- AES-3: Plantings shall be included along the eastern property line, in addition to the proposed 6' fence, to provide additional screening.
- AES-4: Construction fencing shall be placed along the periphery of the Project Site on the north, east and west property lines to screen construction activity from view. The southern construction fencing shall run along the required 50 setback buffer from the Railroad Forest property and not from the property line.

Item b: No Impact. The Project Site is not located along a state scenic highway. The nearest officially designated scenic highway (Highway 116) is ~1/5 of mile west of the Project Site, and no City-designated scenic roads are near the Project Site. Views of the Project Site are not available from Highway 116, view from Highway 12 are substantially obscured by existing commercial and residential developments. Therefore, the Project would not substantially damage scenic resources, including those located within a state or City-designated scenic highway. Only one tree on-site is proposed for removal and the Project proposes the addition of 56+ trees (not including required plantings in the 50' setback from the Railroad). As such, the removal of this tree during construction would not substantially alter or degrade the existing visual character of the Project Area. Overall, the Project would not result in an impact to scenic resources within a scenic highway.

Item c: Less Than Significant Impact. The proposed Project will introduce development in residential form on a site that is currently vacant but was historically developed as a cherry processing/packaging plant. This land use transition is in accordance with the City's General Plan and will be conformance with the Zoning Code upon adoption of the Planned Community rezone. The Project will be subject to Conditions of Approval regarding height, color selection and screening which will reduce potential impacts on any scenic vistas. Furthermore, consistency with the General Plan and compliance with the provisions of Zoning Ordinance are in place to guide future development in a manner that will result in less than significant impacts on the visual character of the area.

Item d: Less Than Significant Impact. The proposed Project will include exterior lighting, which will be reviewed by the Design Review Board to ensure that there is no substantial increase in light levels on adjacent properties and to minimize overspill and impacts on the night sky. No substantial light or glare will result. There will be less than significant impacts regarding light or glare.

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion:

Item a: No Impact. The Project Site is located at the edge of an urbanized area (the City of Sebastopol). As discussed in the project description the Project Site is surrounded on three sides by existing commercial and residential development. No agricultural uses or operations occur on the site or in the vicinity of the Project Site. The Project Site and surrounding area are also not mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency Department of Conservation. As such, the Project would not convert farmland to a non-agricultural use. No impacts would occur, and no mitigation measures are required.

Item b: No Impact. The Project Site is zoned by the City of Sebastopol as Downtown Core with an ESOS (Environmental and Scenic Open Space) district overlay. The Project Site is not zoned for agricultural use. Furthermore, none of the surrounding properties are zoned for agricultural use. The Project Site and surrounding area are also not enrolled under a Williamson Act Contract. Therefore, the Project would not conflict with any zoning for agricultural uses or a Williamson Act Contract. No impacts would occur, and no mitigation measures are required.

Item c: No Impact. As previously discussed, the Project Site is located in an urbanized area surrounded by commercial and residential development to the north, east and west; the site was also previously developed as a cherry packing plant, until it burned down in 1995. The Project Site does not include any forest land or timberland but is adjacent to a property zoned as Primary Wetland District and contains a riparian forest. The Project Site is currently zoned for commercial uses and is not zoned and/or use as forest land. Therefore, the Project would not conflict with the existing zoning for, or cause rezoning of, forest land or timberland as defined by the Public Resources Code. No impacts would occur, and no mitigation measures are required.

Item d: No Impact. As previously discussed, the Project Site is located at the edge of an urbanized area, zoned as Downtown Core, and does not include any forest land or timberland. Therefore, the Project would not result in the loss or conversion of forest land to non-forest use. No impacts would occur, and no mitigation measures are required.

Item e: No impact. The Project Site is located at the edge of an urbanized area of the City of Sebastopol and does not include farmland. The Project Site and surrounding area are not mapped as farmland, are not zoned as farmland or agricultural use, and do not contain any agricultural uses. As such, the Project would not result in the conversion of farmland to non-agricultural use. No impacts would occur, and no mitigation measures are required.

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion:

The Project is located in central/southern Sonoma County, where air quality is regulated by the Bay Area Air Quality Management District (BAAQMD). The region is non-attainment for the federal and state ozone standards, the state PM10 standards, and the federal and state PM2.5 standards. The region is in attainment or unclassified for all other ambient air quality standards. BAAQMD prepares air quality plans (AQPs) that include projected emissions inventories and account for emission reductions strategies in order to demonstrate how the region will achieve the ambient air quality standards by the given deadlines.

Item a: Less Than Significant Impact. The Project will not exceed thresholds of significance of the BAAQMD nor will it obstruct air quality plans. There will be no significant impacts.

Item b: Less Than Significant with Mitigation Incorporated. The Project will not violate any BAAQMD standard nor will it contribute substantially to an existing or projected air quality violation. The Project would result in increased air pollutant emissions from the Project Site during construction (short-term) and operation (long-term). Construction-related pollutants would be associated with sources such as construction worker vehicle trips, the operation of construction equipment, site grading and preparation activities, the application of architectural coatings. During Project operation, air pollutants would be minimal and would mainly be associated with pollutants emitted on a daily basis from motor vehicle travel.

Mitigation:

- AQ-1: Basic measures to control dust and exhaust shall be utilized during construction. During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant level. The contractor shall implement the following best management practices that are required of all projects:
    - All haul trucks transporting soil, sand, and other loose material off-site shall be covered.

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per week. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

The Project will have a less than significant impact as it relates to community risk caused by constructions activities, after this mitigation is incorporated.

Item c: Less Than Significant Impact. Operational-period emissions for the Project would be less than significant due to its size and nature. The Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Item d: Less Than Significant Impact. Sensitive receptors are groups of individuals, including children, the elderly, the acutely ill, and the chronically ill, that may be more susceptible to health risks due to chemical exposure, and sensitive-receptor population groups are likely to be located at hospitals, medical clinics, schools, playgrounds, childcare centers, residences, and retirement homes. There are no existing senior residential apartments, schools, day care centers, playgrounds, hospitals or medical clinics located within close proximity to the Project Site. One single-family home and the Park Village Mobile Home Park are located immediately to the north and northeast of the Project site. The proposed Project is a residential development, and there will not be any on-site Toxic Air Contaminant (TAC) emission sources during operation. Because most passenger vehicles are gasoline-combusted, the Project would not generate significant amount of Diesel Particulate Matter (DPM) emissions during operation. Therefore, the Project would not result in significant health impacts on sensitive receptors during operation.

Item e: Less Than Significant Impact. Land uses typically considered associated with odors include wastewater treatment facilities, waste- disposal facilities, or agricultural operations. The Project does not contain land uses typically associated with emitting objectionable odors. During operation of the Project, odors would primarily consist of vehicles traveling to and from the townhomes site. Diesel exhaust and volatile organic compounds would be emitted during construction of the Project, which are objectionable to some; however, emissions would disperse rapidly from the Project Site and therefore would not create objectionable odors affecting a substantial number of people. As such, construction odor impacts would be less

than significant. These occurrences would not produce significant odors; therefore, operational impacts would be less than significant.

IV. BIOLOGICAL RESOURCES: Would the project:

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

Discussion:

Item a,b & d: Less Than Significant Impact with Mitigation Incorporated. The Project Site is unique as it is located on the edge of an urbanized area and is considered part of the City's

Downtown, but abuts an environmentally sensitive habitat, the Laguna de Santa Rosa. The Project site was previously developed and, while it does abut an environmentally sensitive habitat, it does not contain sensitive habitat. The site appears to be used by common domestic and wildlife species adapted to human disturbance, and has a low potential for presence of wildlife species of concern, such as special status or nesting birds, or special status bats. The site currently consists of a paved parking lot on the very northern edge, and then predominantly consists of gravel/sand with a mix of native and non-native grasses and thistles. The Railroad Forest property, which abuts the southern edge of the property is an environmentally sensitive habitat area.

City staff contacted Prunuske Chatham Inc., the environmental consulting firm that developed the Laguna Wetlands Preserve Restoration and Management Plan (adopted January 5, 2016) to understand better any concerns related to this site given its prior development and its proximity to the Railroad Forest site. While this parcel was not part of their Plan study, it was noted there were no delineated wetlands on the site at this time. The main concerns with development of this (or other) proximate sites were the cumulative impacts of development near the Laguna, including new impervious surfaces and water quality of runoff (as well as quantity) and the need to buffer the sensitive habitat located along the southern end of the proposed development.

Mitigation:

In terms of mitigations, a number of measures have been recommended to enhance the protection of sensitive biological habitat located in the neighboring Railroad Forest:

- BIO-1: A 50-foot environmental setback from the south property line shall be maintained in perpetuity as a buffer to the environmental resources of the adjacent Railroad Forest property (APN 004-072-014). An open space restriction for this area shall be included on the Final Map.
- BIO-2: Maintenance of this setback and buffer area shall include the following restrictions and requirements:
    a. The applicant shall develop a plan wherein all Invasive plants shall be removed within this area prior to final inspection.
    b. The buffer area shall be replanted with native species appropriate to provide a buffer to the Railroad Forest area prior to final inspection.
    c. The removal and replanting plan shall be developed by, or reviewed and approved by, a qualified biologist and City Staff prior to issuance of a building permit.
    d. CCR's shall include provisions for post-construction maintenance and control of exotic plant species within this setback area.
    e. CCR's shall include the prohibition of the development of walking paths, hardscapes, play structures, or accessory structures; or the placement of permanent fixtures or furniture within this buffer. Only restoration shall be permitted in the 50' buffer.
- BIO-3: During construction, heavy equipment undercarriages and tires be washed prior to entering the site in order to remove any invasive plant seeds.
- BIO-4: A pre-construction nesting study shall be required if construction commences within the nesting time of special-status species that occur in the Project vicinity.
- BIO-5: Construction mitigations shall include temporary fencing at the 50 foot setback, with no construction staging or travel permitted within this area.

<u>Item c:</u> No Impact. There are no designated wetlands on the site. No grading, separation, fill or removal of wetlands is associated with this Project.

Item e: Less Than Significant Impact. The City has a Tree Protection Ordinance that protects certain types of trees based on size and species. The majority of Project Site trees are anticipated to be retained as part of the development. Native trees protected by the Tree Ordinance will require a Tree Removal Permit, subject to Tree Board approval, if they have diameter(s) at breast height of 10 inches or more. Landscaping improvements at the entire Project Site will be implemented, which will involve the addition of 50 or more trees and landscape plantings, subject to Design Review Board approval. If approved, the Project will be consistent with the City's Tree Ordinance.

Item f: No Impact. The City of Sebastopol has a Laguna Wetlands Preserve Restoration and Management Plan, adopted in January 2016. This Project does not conflict with the Laguna Restoration and Management Plan.

V. CULTURAL RESOURCES: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☒
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Discussion:

A Cultural Resources Evaluation was completed by William Roop, M.A., RPA of Archaeological Resource Service for the proposed townhomes development located at 6737 Sebastopol Avenue, see Exhibits.

Item a: Less Than Significant with Mitigation Incorporated. The evaluation found that no significant or potentially significant artifacts, archaeological deposits or features have been identified within the Project area. Previous evaluations in the vicinity have identified potentially significant historic era features in fill soils associated with former fruit processing operations. As such, it must be concluded that there is a potential for the discovery of historic era artifacts and/or features identified with historic era activities in Sebastopol. There is a potential that previously undisturbed features could be present in the Project area. Although evidence to date is not particularly supportive of this; in the event that any unanticipated artifacts or cultural features are discovered during grading or underground excavations all work in the vicinity of the find shall be stopped until the discovery area can be evaluated by an archaeologist and appropriate actions are taken.

Item b: No Impact. Site has significant fill from previous development as a cherry packing plant. Per the archeological report conducted by William Coop of Archaeological Resource Service, there are no known archeological resources at the Project Site.

Item c: No Impact. There are no known paleontological or geological resources at the Project Site or within its vicinity.

Item d: No Impact. There are no known human remains at the Project Site or within its vicinity (see response to item a).

Mitigation

- CR-1: In the event that any unanticipated artifacts or cultural features are discovered during grading or underground excavations all work in the vicinity of the find shall be stopped until the discovery area can be evaluated by an archaeologist and appropriate actions are taken.

VI. GEOLOGY AND SOILS: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☒
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion:

Item a: Other than known and Earthquake-related risks (discussed below), the Project development is not expected to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death as it relates to the following:

Item a.i: Less Than Significant Impact. The Project Site is not located within an Earthquake Fault Study Zone and no known fault traces traverse the site. Therefore, the risk of ground rupture within the limits of the Project Site is low. The Uniform Building Code does not require any special structural engineering beyond the code requirements for construction, given that the Project Site is not located within an Earthquake Fault Study Zone. The new buildings will be constructed with the current California Building Code, which is intended to ensure appropriate earthquake safety.

Item a.ii: Less Than Significant Impact. The Healdsburg-Rodgers Creek and the San Andreas Fault, which are the nearest active faults, are located approximately 8 miles northeast and 12 miles southeast of Sebastopol. The Project Site will be subjected to very strong ground-shaking during a major to moderate earthquake along these faults. It is reasonable to assume on the basis of current technology and historical evidence that the Project Site will be subjected to at least one moderate to severe earthquake that could produce potentially damaging ground-shaking. Furthermore, it is anticipated that the Project Site will periodically experience small to moderate magnitude earthquakes. Adherence to the Building Code will reduce potential impacts from seismic activity at the Project Site to a less than significant level.

Item a.iii: Less Than Significant Impact. The Project Site is located in an area with low to moderate susceptibility to liquefaction according to the 'Liquefaction Hazard Map' as published by the Association of Bay Area Governments. The new buildings will be developed to address potential impacts from seismic-related ground failure, including liquefaction, and will be required to comply with current Building Code seismic safety standards.

Item a.iv: No Impact. The Project Site consists of predominantly flat terrain, with some sloping occurring at the southern-most end of the property, with no identified landslide hazards. This sloped area will not be utilized for the development of structures and is required to be maintained in its natural state.

Item b: Less Than Significant Impact. The potential for erosion at the Project Site is considered to be very low due to its flat topography, the Project be designed to mitigate urban runoff and include storm-water control measures consistent with state and local regulations. The applicant will be required to submit an erosion control plan as part of the Improvement Plan submittal, as conditioned by the Engineering Department.

Item c: Less Than Significant Impact. The Project Site is relatively flat, except along the southern end of the property, when it begin to slope towards the Railroad Forest. The Project site is not located in a hazard or landslide area.

Item d: Less Than Significant Impact. The applicant will be required to submit a detailed soils report to the City for its review, which is certified by an engineer, registered in the State of California and qualified to perform soils work, as required by the Engineering Department. The soils report would include a minimum geotechnical investigation with regards to liquefaction, expansive soils, and seismic safety, if it is required. Adherence to the recommendations of the engineer and the Building Code will reduce potential impacts from seismic activity at the Project Site to a less than significant level.

Item e: No Impact. The Project will be connected to the City's wastewater system. Septic tanks and other alternative systems are not permitted so this issue is not applicable to the Project.

VII. GREENHOUSE GAS EMISSIONS: Would the project:

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

Discussion:

Items a & b: Less Than Significant Impact. The proposed Project is consistent with the 2016 City of Sebastopol General Plan. The greenhouse gas (GHG) emissions anticipated by the implementation of the General Plan fall below the Bay Area Air Quality Management District (BAAQMD) thresholds of significance for greenhouse gas emissions.

Additionally, the General Plan incorporates provisions to further reduce greenhouse gas emissions. In 2016, the City of Sebastopol partnered with the Sonoma County Regional Climate Protection Authority (RCPA) to produce personalized goals that will reduce greenhouse gases in each city and town as part of the Climate Action Plan 2020 (CAP). Most of the policies in the CAP are related to transportation, "green building", energy efficiency, and renewable energy. The CAP is not included in the General Plan itself, but integrates the strategies and actions identified in the relevant elements of the General Plan. The Project incorporates many of the elements which are listed as goals for reducing greenhouse gas emissions, such as: provides shade tree plantings; reduces travel demand due to walkability (close to services such as banks, pharmacies and grocery stores); provides bicycle parking for each unit; provides electric vehicle charging stations; and, provides water retention areas. Further mitigations (TRANS-2)

will require the Project to provide pedestrian and bicycle connections to the existing multi-purpose trail located on the west side of the site.

The proposed Project is located within the City's Central Core, which means that residents of the development will have easy access to various services within walking distance, as well as easy access to public transportation. The nearest bus stop is located along Morris Street and is ~ 500 feet from the Project Site.

The proposed Project would comply with Green Building Code requirements, would have a less than significant impact on the environment, and would have no impact on implementation of plans, policies, or regulations adopted for the purpose of reducing greenhouse gas emissions.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing	☐	☐	☐	☒

or working in the project area?				
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion:

Item a: No Impact. The nature of the proposed Project as residential town homes will not involve the transport, use, and disposal of hazardous resources on a commercial scale. Households would use chemically based products and pesticides in small amounts, which may be defined as hazardous. A Condition of Approval has been added which requires the CC&Rs for this development to include details regarding the maintenance of common and/or private open space located on the Project Site; which must also include a prohibition of the use of non-biodegradable and toxic chemicals in maintenance of both common and private open space areas.

Item b: No Impact. The nature of the proposed Project as residential town homes will not create uses would not produce reasonably foreseeable upset and accident conditions that could cause a release of hazardous materials.

Item c: No Impact. The Analy High School and the Laguna High School lie within one-half mile north and south of the Project Site respectively. In the absence of uses associated with the proposed Project that produce, use, or transport hazardous materials, no impact upon these schools would result.

Item d: No Impact. Site is not so listed.

Item e: No Impact. The Project Site is not located within an area subject to an airport land use plan or within 2 miles of an airport. The closest airport is the Charles M. Schulz – Sonoma County Airport, located ~23.3 miles from the Project Site. Given the distance between the Project Site and the Sonoma County Airport, the Project would not have the potential to result in a safety hazard. Therefore, no impact would occur, and no mitigation measures are required.

Item f: No Impact. The Project Site is not located within the vicinity of a private airstrip. No impact would occur, and no mitigation measures are required.

Item g: Less Than Significant Impact. The Project includes an easement that is utilized for an emergency egress route from the neighboring Park Village Mobile Home Park. Currently Park Village (a mobile home park, located in the flood plain) has an emergency evacuation route, which utilizes the Project Site via this easement. The Project includes the redevelopment of the existing fence and gate along the eastern property line of the Project Site, where it abuts the Park Village Property; however, the design will maintain the access necessary to maintain the emergency access evacuation route, in the case of a flood event or other emergency. As such, the Project will not have a significant impact to an established emergency evacuation plan.

Item h: No Impact. The Project Site is not located in a Wildland Urban Interface Zone.

IX. HYDROLOGY AND WATER QUALITY: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☐	☐	☒	☐
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☒	☐	☐
h. Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☐	☐	☒
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or	☐	☐	☒	☐

dam?				
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion:

Item a: Less Than Significant Impact. The Project involves construction of new buildings and a parking lot on a site which was previously developed and filled; and has no existing natural water features. The Project will be required to abide by the City's urban runoff/stormwater standards. The Project will be required to meet all City of Sebastopol storm water requirements as set forth in the Municipal Code and in addition may be required to obtain a Construction General Storm Water Permit from the State Regional Water Quality Control Board to ensure compliance with State requirements.

Item b: Less Than Significant Impact. The Project is within long-term, planned parameters of water use identified by the General Plan. The total annual water production was approximately 27% of maximum potential production in 2017, according to the 2017 Level of Service Report. There is substantial remaining production capacity sufficient to accommodate the proposed Project. The City has determined that there is adequate water system capacity, production and distribution to accommodate this Project. The Project will be required to include on-site water detention and pervious paving where feasible to promote recharge, and will be required to provide low-water use fixtures to reduce impacts of the Project.

Item c: Less Than Significant Impact. The Project Site does not contain any naturally occurring creeks or bodies of water. The Project includes the development of bio retention areas for drainage and stormwater runoff. The Project does not appear to have potential for any substantial erosion in that it will be developed on a site that was previously developed. The residential units and parking lot will also be developed in accordance with City standards which regulate storm water quality. If determined necessary by the City Engineer, a condition of approval will require the applicant to submit an Erosion Control Plan.

Item d: Less Than Significant Impact. The Project development includes the creation of bio retention areas to filter stormwater.

Item e: Less Than Significant Impact. The Project sites bio retention areas will minimize overland runoff before it is dissipated off-site.

Item f: Less Than Significant Impact. See 'Item a' for the response.

Item g: Less Than Significant with Mitigation Incorporated. The Project Site is within the 100-year flood plain, as such, it will require a Floodplain Development Permit. This permit provides a context for appropriate development-specific requirements for construction of operation of the use, and ensures the Project complies with the City's flood hazard requirements. The residential structures will be constructed so that the lowest finished floor is 2 feet above the required base-flood elevation to protect against flooding of structures as part of this requirement. With the Floodplain Development Permit the impact will be less than significant as mitigated.

Item h: Less Than Significant with Mitigation Incorporated. The site is not located within a regulatory flood way.

Item i: Less Than Significant with Mitigation Incorporated. As mentioned before, the Project is subject to the City's flood hazard requirements, which includes the requirement that residential structures be constructed so that the lowest finished floor is 2 feet above the base-flood elevation to protect against flooding of structures. The Project also includes flood vents to allow flow of water under structures.

Item j: No Impact. The Project is not located in an area that is susceptible to inundation by seiche, tsunami, or mudflow.

Mitigation:

- HYDRO-1: A Flood Plain Development Permit shall be required, and the Project shall comply with the City's Floodplain Ordinance (SMC 15.16).

X. LAND USE AND PLANNING: Would the project:

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

Discussion:

Item a: No Impact. The Project Site is presently located within the City of Sebastopol. The Project is an infill development that will not physically divide an established community.

Item b: Less Than Significant Impact. The applicant includes multiple entitlements, which require hearings by different City bodies. The entitlements include: 1) A request to modify the ESOS study requirements and approval of study modification (visual analysis); 2) a Planned Community Zoning designation; 3) a major Use Permit for a fully residential project in a commercial zone; (4) a Tentative Map for subdivision of more than 4 parcels; 5) Design Review for a subdivision of three or more units; and, 6) Environmental Review (California Environmental Quality Act, or CEQA review).

The Project site is located within the CD: Central Core Zoning District and has a General Plan Land Use designation of Central Core. The Planned Community Development (which includes the development of solely residential in a commercial district) is a conditionally permitted use

and requires a Use Permit in this district. With the Planned Community and Use Permit approval the Project will be consistent with the General Plan and Zoning Ordinance in terms of land use.

ESOS. The Project Site has an environmental overlay ESOS: Environmental and Scenic Open Space. The ESOS study may be reduced to a visual resource analysis based on the site characteristic and development history of the site. The Planning Commission approved the reduction on October 23, 2018. Approval of the ESOS visual resource analysis will make the Project consistent with the General Plan and Zoning Ordinance ESOS requirements.

A 50' setback from Railroad Forest property is required as part of the ESOS requirements to provide adequate buffer to the existing sensitive habitat located to the south of the Project Site.

The Project also requires Design Review Board approval, following Planning Commission and City Council review, to ensure that it is consistent with the City's design objectives in terms of architecture and landscape design. Impacts will be less than significant with these approvals.

Item c: No Impact. The City has not adopted a habitat conservation plan or natural community conservation plan applicable to this site.

XI. MINERAL RESOURCES: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion:

Item a: No Impact. There are no known mineral resources at the Project Site.

Item b: No Impact. There are no locally-imported mineral resource recovery sites delineated in the General Plan.

XII. NOISE: Would the project result in:

	Potentially Significant Impact	Less Than Significant with	Less Than Significant Impact	No Impact

		Mitigation Incorporated		
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion:

Item a & b: Less Than Significant Impact. The City's Noise Ordinance calls for daytime levels of 55 dBa, and nighttime levels of 45 dBa or lower in commercial zones. Long term use (residential) are not a significant noise generator and will be subject to these requirements.

Item c: Less Than Significant Impact. In terms of long-term effects, operation of a residential development is not identified as a significant noise generator and therefore the development of this Project will not result in the generation of noise levels that contribute substantially to the noise environment. No operations are anticipated that will generate excessive groundborne vibration or noise levels. Overall, the development would result in typical noise generated by a residential development. Impacts will be less than significant.

Item d: Less Than Significant. Construction activities will result in a temporary increase in noise levels, however construction hours will be subject to City ordinance limits. Impacts will be less than significant.

Item e: No Impact. The proposed Project is not located within an airport land use plan or within two miles of a public airport and would not expose people to excessive noise level. Project will have no impact.

Item f: No Impact. The proposed Project is not located in the vicinity of a private airstrip and would not expose people to excessive noise level. Project will have no impact.

XIII. POPULATION AND HOUSING: Would the project:

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

Discussion:

Item a: Less Than Significant Impact. The Project involves the creation of 18 townhomes. The Project represents incremental residential growth that will not induce substantial growth in the area; will be subject to the City's Growth Management Ordinance.

Item b: No Impact. The proposed Project Site is currently undeveloped and will not displace people or residences. Therefore, it does not generate an impact based on displacements of people or structures.

Item c: No Impact. The proposed Project Site is currently undeveloped and will not displace people or residences. Therefore, it does not generate an impact based on displacements of people or structures.

XIV. PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for				

new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
• Fire protection?	☐	☐	☒	☐
• Police protection?	☐	☐	☒	☐
• Schools?	☐	☐	☒	☐
• Parks?	☐	☐	☒	☐
• Other public facilities?	☐	☐	☒	☐

Discussion:

Item a: Less Than Significant Impact. The Project can be adequately serviced by existing police and fire facilities and services, and would not have a significant effect on acceptable service ratios, response times, or other performance objectives, according to the City's Police Department, and the Fire Department.

Construction of this Project will likely contribute to the addition of school-aged children to the local school population. (Sebastopol West County Schools have adequate capacity student numbers, an increase in school-aged children would probably be a benefit). Additionally, the Project will contribute to school resources via payment of a standard school impact fee, which is paid on net new square footage.

The proposed Project will also pay standard City Impact Fees. Impact fees provides a funding source to construct the police, fire, community amenities, government facilities, and roadway infrastructure necessary to mitigate the impacts of the growth expected in the City of Sebastopol. Therefore, no significant impacts to the environment related to the construction of recreation facilities would result with implementation of the Project, and no additional mitigations are required.

The Project is also subject to payment of the Park In-Lieu fee, and such revenues are used for capital improvements in City parks or expansion of parkland. Impacts to the City parks are expected to be modest in scope in that this is a relatively small residential development. Routine maintenance of City parks and public facilities can be accommodated by existing public facilities and City staff.

The 2016 General Plan requires one (1) acre of parkland for each 200 residents (which equates to five (5) acres for every 1,000 residents). As of the 2017, according to the City's annual Level of Service Report, the total parkland ratio is 6.1 acres for each 1,000 residents. The proposed Project would result in the addition of 18 townhomes (~45 residents) but would this will not result in a significant increase to the use or deterioration of surrounding recreational facilities.

XV. RECREATION

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

Discussion:

Item a: Less Than Significant Impact. The 2016 General Plan requires one (1) acre of parkland for each 200 residents (which equates to five (5) acres for every 1,000 residents). As of the 2017, according to the City's annual Level of Service Report, the total parkland ratio is 6.1 acres for each 1,000 residents. The proposed Project would result in the addition of 18 townhomes and approximately 45 new residents, and will not result in a significant increase to the use or deterioration of surrounding recreational facilities.

Item b: No Impact. The Project is proposing to pay park-in-lieu fees instead of dedicating and constructing park facilities.

XVI. TRANSPORTATION/TRAFFIC: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒

b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e. Result in inadequate emergency access?	☐	☐	☐	☐
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Discussion:

W-Trans, a traffic engineer consultant for the City of Sebastopol, prepared a detailed traffic impact study, which is attached and incorporated into this Initial Study. The study reviews the existing setting and Project impacts related to the roadway network; traffic conditions; transit conditions; pedestrian conditions; bicycle conditions; parking conditions; and site access and circulation. The study evaluated conditions and impacts at intersections in the Project area, including cumulative conditions in future years. The study utilized City standards, policies, and methodologies for its analysis.

Item a: The proposed Davis Townhomes development project would include 18 two-bedroom townhomes and will be served by 38 parking spaces.

The proposed Project is expected to generate an average of 132 daily vehicle trips, including 8 trips during the morning peak hour and 10 trips during the evening peak hour.

The study area includes the following four intersections:
1. Sebastopol Avenue (SR 12)/Morris Street
2. Sebastopol Avenue (SR 12)/Petaluma Avenue (SR116)
3. Bodega Avenue – SR 12/North Main Street – South Main Street (SR116)
4. North Main Street (SR116)/McKinley Street

Analysis indicates that all study intersections, under Existing Conditions, are operating acceptably at LOS D or better during both peak periods. These service levels would remain unchanged with the addition of the Project-related traffic generated by the townhome development, and the Project's short-term impact would be considered less than significant.

However, due to the particular sensitivity of the Sebastopol Ave (SR 12)/Morris Street intersection to congestion, the study has recommended the following mitigation measure to address the issues:

Mitigation:

- TRANS- 1: Project shall restripe the southbound Morris Street approach to create two 15-foot lanes (one inbound and one outbound), and if needed, re-install the traffic signal detector position.

Existing pedestrian, bicycle, and transit facilities to and from the Project Site are adequate to serve the Project. The Project proposes to include bicycle hooks for each unit for bicycle parking. However, pedestrian facilities between the Railroad Forest Park Trail and the project site is lacking. To mitigate this, the project shall provide a pedestrian and bicycle connection to the existing trail system located to the west. This connector will also provide a safe pedestrian access from the site to the sidewalk network at Sebastopol Avenue. This should formalize the current pedestrian and bicycle access trail to the adjacent parking lot as well.

Mitigation:

- TRANS-2: Project shall include a walkway/sidewalk connection between the Project Site and the existing multi-purpose trail on the west side of the Project Site.

Item c: No Impact. The Project Site is not located near any public or private airstrips. Project scope will not result in a change to air traffic patterns.

Item d: No Impact. Project scope will not result in the construction of any public roads.

Item e: Less Than Significant with Mitigation Incorporated. The Project Site currently has an access easement for emergency egress for the neighboring Park Village Mobile Home Park. A locked access gate between the two properties is proposed for the Project and this would be unlocked in case of emergencies to allow for residents of the Mobile Home Park to evacuate their properties. This access could also be used, if needed, to evacuate the Davis Townhomes Project.

Mitigation:

- TRANS-3: The locked access gate between the Village Park Mobile Home Park and the Davis Townhomes properties shall be unlocked and opened in case of emergencies to allow for emergency evacuation.

Item f: Less Than Significant Impact. The Project will not conflict with adopted City of Sebastopol policies, plans, or programs supporting alternative transportation.

XVII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, as 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:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Listed or eligible for a listing in the California Register of Historic Resources, or in a local register of historic resources as defined in Public Resources Code Section 5020.1(k)?	☐	☐	☐	☒
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 as set forth in this Section, the lead agency shall consider the significance of the resource to a California Native American Tribe)?	☐	☐	☐	☒

Discussion:
A Cultural Resources Evaluation was completed by William Roop, M.A., RPA of Archaeological Resource Service for the proposed townhomes development located at 6737 Sebastopol Avenue, see Exhibits.

Item a: No Impact. Per the Cultural Resources Evaluation completed by William Roop, M.A., the site is not listed or eligible for a listing in the California Register of Historic Resources, or in a local register. Furthermore, the evaluation found that no significant or potentially significant artifacts, archaeological deposits or features have been identified within the Project area.

Item b: No Impact. A referral letter and attachments detailing the Project scope was sent to Tribal Heritage Preservation Officer for the Federated Indians of Graton Racheria on 11.14.2018. Additional information regarding the Project were requested. The additional requested materials were sent on 1.23.2019; no response was received. A follow up email was sent on 2.19.2019; no response has been received as of the publication date (3.7.2019) of this study.

XVIII. UTILITIES AND SERVICE SYSTEMS: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable	☐	☐	☒	☐

Regional Water Quality Control Board?				
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project' s projected demand in addition to the provider' s existing commitments?	☐	☐	☒	☐
f. Be served by a landfill with sufficient permitted capacity to accommodate the project' s solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion:

Item a: Less Than Significant Impact. Based on the 2017 annual Level of Service Report provided to the City Council (incorporated by reference), ample capacity remains in the City of Sebastopol's waste water treatment allocation to serve this development and meet applicable requirements of the Regional Water Quality Control Board. The Level of Service report indicates that 2017 City-wide wastewater flows were at approximately 41% of treatment capacity. That figure includes allowances for known undeveloped projects. The Project is within the planned growth identified in the General Plan.

Item b: Less Than Significant Impact. The site is currently improved with water and sewer connections. New connections may be necessary, given the scope of the Project. The Project will be required to inspect existing connections and evaluate any specific water or sewer line improvements needed to meet current code requirements, and to provide such improvements as part of an Improvement Plan. Once connected, per the 2017 Level of Service report, there is ample capacity in the City of Sebastopol's water and sewer systems to accommodate this Project.

Item c: Less Than Significant Impact. An Engineering Department condition of approval will require the applicant to submit to the City of Sebastopol for review and approval by the City Engineer, a hydrology study, hydraulic calculations and drainage plans prepared by a Registered Civil Engineer licensed in the State of California, in accord with applicable City

standards. In addition, a Regional Water Quality Board Construction General stormwater permit may be required to ensure compliance with State storm water requirements.

Item d: Less Than Significant Impact. *See 'Item b' for the response.* Based on the 2017 annual Level of Service Report provided to the City Council (incorporated by reference), ample capacity remains in the City of Sebastopol's water system to serve the proposed development. The Level of Service report indicates that 2017 water production was at approximately 27% of pumping capacity.

Item e: Less Than Significant Impact. *See 'Item a' for the response.*

Item f: Less Than Significant Impact. The solid waste from the development will be collected and disposed of by the City's franchise hauler Recology. There is sufficient capacity in the disposal system to accommodate the additional solid waste that will be generated by this Project.

Item g: Less Than Significant Impact. The solid waste generated by the development will be handled in compliance with federal, state, and local statutes.

XIX. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings,	☐	☐	☒	☐

either directly or indirectly?				

Discussion:

Item a: Less Than Significant Impact. Please refer to all sections of the Initial Study, including but not limited to Section II - Agriculture and Forest Resources, Section VI – Geology and Soils, Section VII –Greenhouse Gas Emissions, Section X – Land Use and Planning, Section XIV – Public Services. The Project will not create significant agricultural, air quality, cultural or other effects referenced by this question.

Item b: Less Than Significant with Mitigation Incorporated. This Initial Study identifies potential cumulative adverse impacts associated with the construction of the Project in regards to the following; Aesthetics, Air Quality, Biological Resources, Cultural Resources, Hydrology/Water Quality, and Transportation/Traffic. Mitigation measures will reduce impacts to less-than-significant levels. Mitigation Measures include the following:

Aesthetics –

- AES-1: Building height shall be limited to 2 stories.
- AES-2: Exterior colors shall be selected which blend with the natural surroundings. Final colors shall be approved by the Design Review Board.
- AES-3: Plantings shall be included along the eastern property line, in addition to the proposed 6' fence, to provide additional screening.
- AES-4: Construction fencing shall be placed along the periphery of the Project Site on the north, east and west property lines to screen construction activity from view. The southern construction fencing shall run along the required 50 setback buffer from the Railroad Forest property and not from the property line.

Air Quality -

- AQ-1: Include basic measures to control dust and exhaust during construction. During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant level. The contractor shall implement the following best management practices that are required of all projects:
  - All haul trucks transporting soil, sand, and other loose material off-site shall be covered.
  - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per week. The use of dry power sweeping is prohibited.
  - All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
  - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Biological Resources –

- BIO-1: A 50-foot environmental setback from the south property line shall be maintained in perpetuity as a buffer to the environmental resources of the adjacent Railroad Forest property (APN 004-072-014). An open space restriction for this area shall be included on the Final Map.
- BIO-2: Maintenance of this setback and buffer area shall include the following restrictions and requirements:
  - The applicant shall develop a plan wherein all Invasive plants shall be removed within this area prior to final inspection.
  - The buffer area shall be replanted with native species appropriate to provide a buffer to the Railroad Forest area prior to final inspection.
  - The removal and replanting plan shall be developed by, or reviewed and approved by, a qualified biologist and City Staff prior to issuance of a building permit.
  - CCR's shall include provisions for post-construction maintenance and control of exotic plant species within this setback area.
  - CCR's shall include the prohibition of the development of walking paths, hardscapes, play structures, or accessory structures; or the placement of permanent fixtures or furniture within this buffer. Only restoration shall be permitted in the 50' buffer.
- BIO-3: During construction, heavy equipment undercarriages and tires be washed prior to entering the site in order to remove any invasive plant seeds.
- BIO-4: A pre-construction nesting study shall be required if construction commences within the nesting time of special-status species that occur in the Project vicinity. BIO-5: Construction mitigations shall include temporary fencing at the 50 foot setback, with no construction staging or travel permitted within this area.

Cultural Resources -

- CR-1: In the event that any unanticipated artifacts or cultural features are discovered during grading or underground excavations all work in the vicinity of the find shall be stopped until the discovery area can be evaluated by an archaeologist and appropriate actions are taken.

Hydrology/Water Quality –

- HYDRO-1: A Flood Plain Development Permit shall be required, and the Project shall comply with the City's Floodplain Ordinance (SMC 15.16).

Transportation/Traffic –

- TRANS-1: Project shall restripe the southbound Morris Street approach to create two 15-foot lanes (one outbound and one inbound), and if needed, re-install the traffic signal detector position.
- TRANS-2: Project shall include a walkway/sidewalk connection between the Project Site and the existing multi-purpose trail on the west side of the Project Site.
- TRANS-3: The locked access gate between the Village Park Mobile Home Park and the Davis Townhomes properties shall be unlocked and opened in case of emergencies to allow for emergency evacuation.

Item c: Less Than Significant Impact. This Initial Study does not identify any potential substantial adverse impacts on human beings associated with the Project.

EXHIBITS

- Traffic Study, prepared by W-Trans – March 2019
- Cultural Resources Evaluation, prepared by Archaeological Resource Service – January 2019

DOCUMENTS INCORPORATED BY REFERENCE (references for baseline regulations) -

Documents available for review at the Sebastopol Planning Department
7120 Bodega Avenue, Sebastopol, CA 95472

- City of Sebastopol General Plan and EIR – adopted November, 2016 [State Clearinghouse #2016032001]
- City of Sebastopol Zoning Ordinance
- Laguna Wetlands Preserve Restoration and Management Plan adopted – January 2016
- Climate Action Plan 2020 and Beyond, Sonoma County Regional Climate Protection Authority – July 2016.
- BAAQMP Air Quality Plan – May 2017
- City of Sebastopol Annual Level of Service Report – 2017

A CULTURAL RESOURCES EVALUATION OF THE PROPOSED TOWNHOMES LOCATED AT 6737 SEBASTOPOL AVENUE, SEBASTOPOL, SONOMA COUNTY, CALIFORNIA (APN 004-063-036)

SUBMITTED BY

William Roop, M.A., RPA, ARCHAEOLOGICAL RESOURCE SERVICE

SUBMITTED FOR

Dan Davis, project proponent

January 16, 2019 **A.R.S. Project 18-063**

INTRODUCTION

As requested and authorized, Archaeological Resource Service has conducted an archaeological evaluation of the parcel described below. The following basic tasks are to be accomplished as part of this project:

1. A check of the information on file with our office and the Regional Office of the California Historical Resources Information System, to determine the presence or absence of previously recorded historic or prehistoric cultural resources,
2. A check of appropriate historic references to determine the potential for historic era archaeological deposits, and;
3. Contact with the Native American Heritage Commission to determine the presence or absence of listed Sacred Lands within the project area;
4. Contact with all appropriate Native American organizations or individuals designated by the Native American Heritage Commission as interested parties for the project area;
5. A surface reconnaissance of all accessible parts of the project area to locate any visible signs of potentially significant historic or prehistoric cultural deposits.
6. Preparation of a report describing the work accomplished, the results of the research, and making appropriate recommendations for further action, if warranted.

PROJECT DESCRIPTION

The proposed project would construct eighteen townhomes with associated parking and access within the approximately 1.7 acre property.

PROJECT LOCATION

The project area is located at 6737 Sebastopol Avenue, Sebastopol, Sonoma County, California. The parcel consists of about 1.7 acres of open land bounded by a parking lot to the north, a densely vegetated area to the south, vacant commercial land to the east, and a hotel complex to the west.

The project area lies in the southwest quarter of the southeast quarter within Section 35 of Township 7 North, Range 9 West, Mt. Diablo Base and Meridian, as shown on the USGS 7.5' Sebastopol Quadrangle Map (1954; photorevised 1968). The Universal Transverse Mercator

Grid coordinates to the approximate center of the project area, as determined by measurement from Google Earth are:

4250422 Meters North,

515810 Meters East,

Zone 10

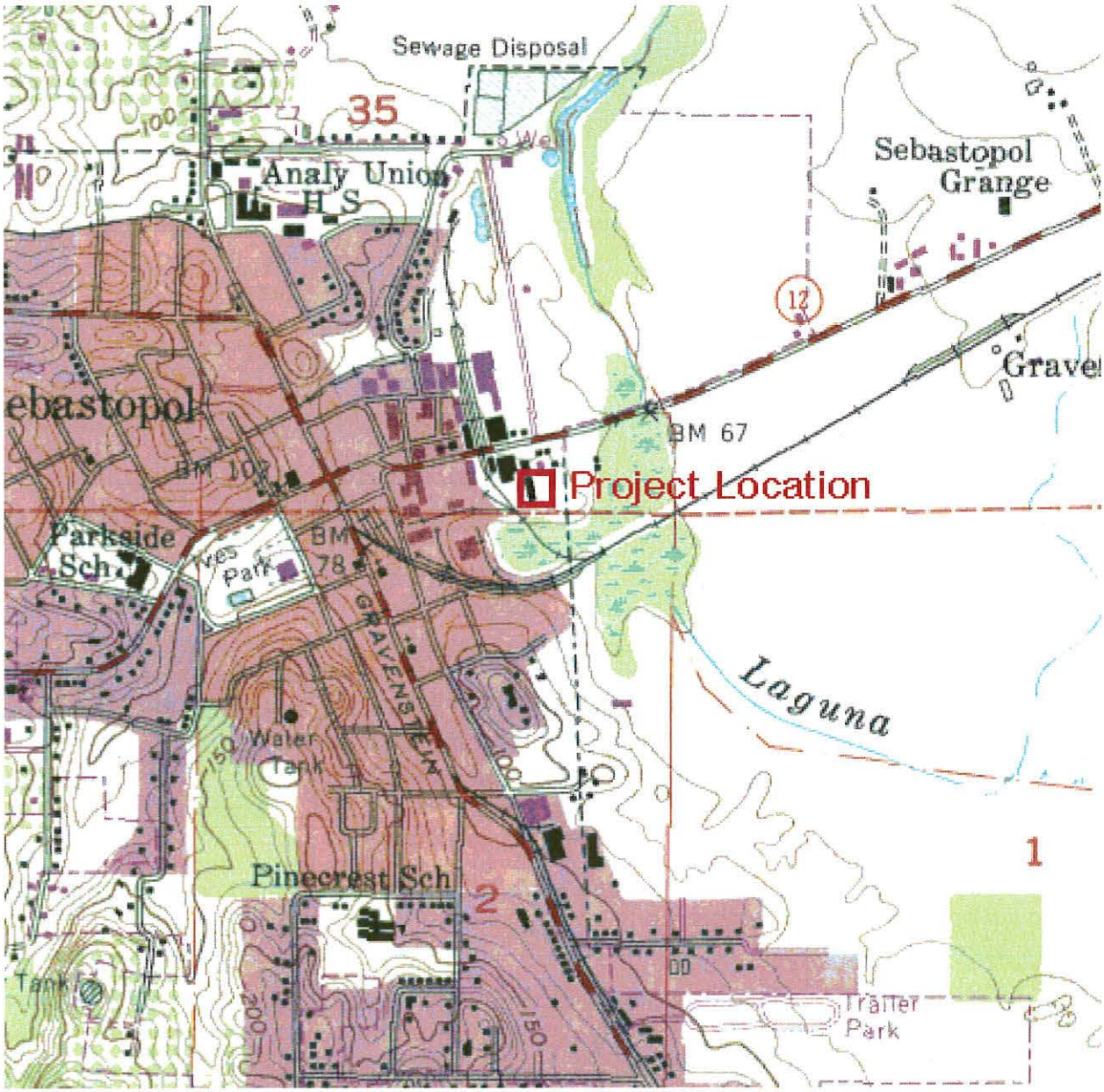


FIGURE 1 -- THE PROJECT LOCATION ON THE USGS SEBASTOPOL QUADRANGLE MAP

The project area lies on the eastern side of the community, bordering the Lagua de Santa Rosa

REGULATORY SETTING

There are no previously recorded prehistoric or historic resources located within the project area. Archaeological resources, once identified, are evaluated using criteria established in the

California Environmental Quality Act (CEQA) (14 CCR 15064.5 and PRC 21084.1). Significant historical resources need to be addressed before environmental mitigation guidelines are developed and approved. A "significant historical resource" (including both a prehistoric and historic resource) is one that is found eligible for listing in the California Register of Historical Resources. As per Title 14, California Code of Regulations Section 15064.5, historical resources are those that are:

- Listed in, or eligible for listing in, the California Register of Historic Resources (Public Resources Code 5024.1, Title 14 CCR, Section 4850 et. seq.);
- Listed in, or eligible for listing in, the National Register of Historic Places (CRHR);
- Included in a local register of historical resources, as defined in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resource Code; or
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

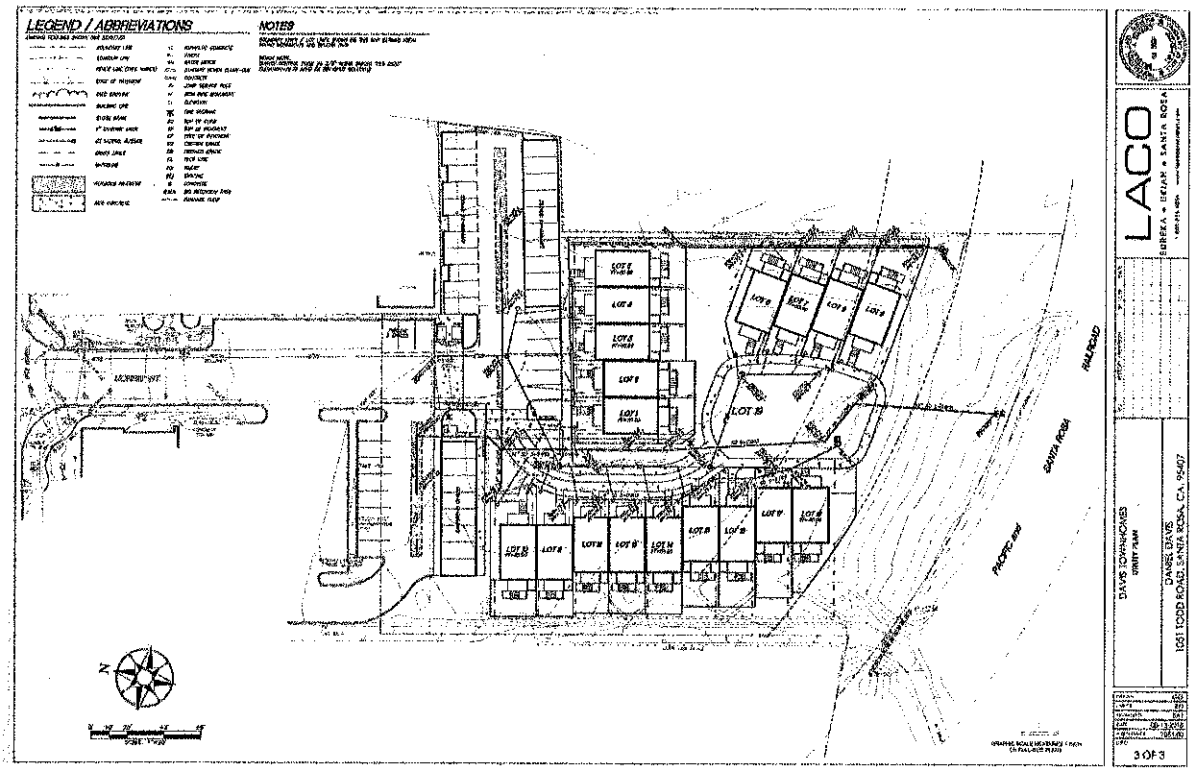


FIGURE 2 -- BUILDING AND UTILITY PLAN FOR THE PROPOSED PROJECT

The 18 individual units and the associated parking and access are shown here. This is the evaluated plan

Additionally, historical resources and historic districts designated or listed as city or county landmarks or historic properties or districts pursuant to any city or county ordinance can also be listed in the California Register, if the criteria for listing under the ordinance have been determined by the Office of Historic Preservation to be consistent with California Register criteria adopted by the commission (pursuant to Section 5024.1(e) of the PRC).

A resource may be listed as an historical resource in the California Register if it has integrity and meets any of the following National Register of Historic Places criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of our history; or
2) Is associated with the lives of persons important in our past; or
3) Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possesses high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
4) Has yielded, or may be likely to yield, information important in prehistory or history.

CEQA (PRC 21083.2) also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource as above, and "unique archaeological resources." A "unique archaeological resource" has been defined in CEQA as an archaeological 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 meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstratable 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.

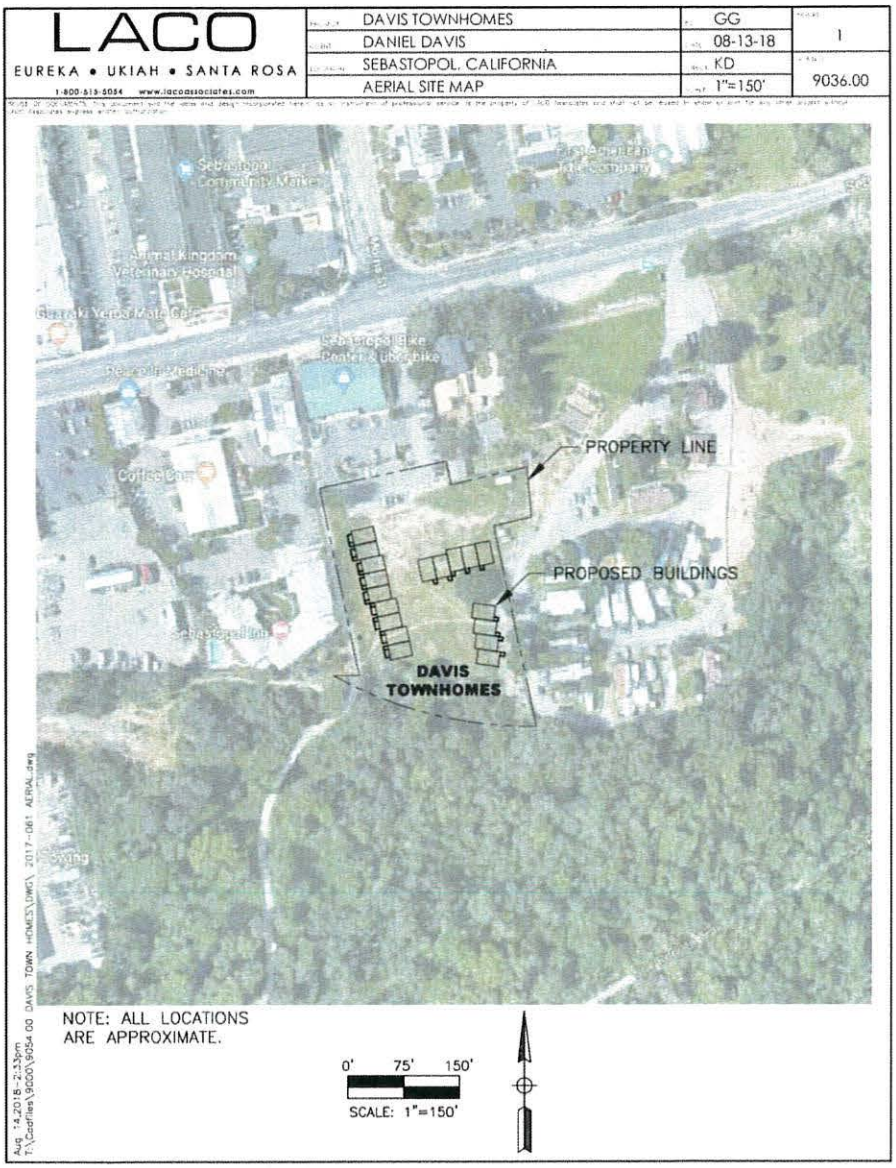


FIGURE 3 -- THE EVALUATED PLAN ON GOOGLE EARTH

Buildings, sites, structures, objects, and districts representative of California and United States history, architecture, archaeology, engineering, and culture convey significance when they also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A resource has integrity if it retains the characteristics that were present during the resource's period of significance. Enough of these characteristics must remain to convey the reasons for its significance.

FIGURE 4 -- ANOTHER VIEW OF THE PROJECT AREA FROM GOOGLE EARTH

This represents the condition of the area during the archaeological inspection.

As of July 2015, two new classes of resources have been defined. Tribal cultural resources and Tribal cultural landscapes can be any of a variety of cultural sites as defined by the individual tribe. These resources, once identified, are treated as significant resources under CEQA.

The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, or included in a local register of historical resources (pursuant to Section 5020.1(k) of the PRC), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the PRC) does not preclude a lead agency from determining that the resource may be an historical resources as defined in PRC sections 5020.1(j) or 5024.1.

SACRED LANDS INVENTORY / NATIVE AMERICAN CONSULTATION

The California Native American Heritage Commission (NAHC) works to identify, catalogue, and protect places of special religious or social significance, graves, and cemeteries of Native Americans per the authority given the Commission in Public Resources Code 5097.9. A check with the NAHC was done to determine if there are sites listed in the Sacred Lands file located within or near to the current project area.

No response has been received from the agency. It is recommended that the lead agency contact any tribes that have indicated a wish to be consulted on planning projects. The Native American Heritage Commission has previously indicated that the Federated Indians of Graton Rancheria are the appropriate group to consult for this location. The December 5 letter to Katherine Austin from the City of Sebastopol Planning Department notes that this consultation has been initiated.

RESULTS OF LITERATURE CHECK

Our search began with an archival review of the computerized listing of archaeological reports maintained by Archaeological Resource Service. This study indicated that archaeological studies in the area around Sebastopol have consisted of mostly small parcels ranging from barely one acre to greater than 150 acres. The majority of the reports were negative, although historic properties have been identified in one or two cases and a few prehistoric sites have been identified in several other parcels. None of the presently recorded prehistoric or historic sites would be affected by the planned project.

A literature check performed at the Northwest Information Center (NWIC) in Rohnert Park (File Number 18-1331) provided additional information on the general area. No significant or potentially significant resources were identified in the subject property.

The literature check indicates that several archaeological evaluations have been undertaken in the general vicinity since these studies were first required in the 1970's. No previous evaluation has included the present project area. The available data indicates that the shoreline of the Laguna de Santa Rosa, a seasonably variable water body, was highly attractive to Native American settlement and/or exploitation. The laguna provided a variety of plant materials, migrating birds and other wildlife, as well as fish and freshwater shell fish. The shore of the laguna is considered to be highly sensitive to the potential presence of Native American artifacts or sites. Two previous evaluations are particularly significant to the current study.

In 1997 the property at 6761 Sebastopol Avenue was evaluated by Tom Origer (Origer 1997). The evaluated area lay between the western property line of the current project area (the existing bicycle path), and the former railroad spur that is now marked by a curved line of vegetation along the western edge of the project area. The Origer project extended north to Sebastopol Avenue and about as far south as the current project being reported here. Origer found no indication of an intact archaeological site in his survey area. He did, however, find an extensive deposit of disturbed midden (culturally modified soil) that had been displaced by the former railroad. Due to the presence of cultural soils, Origer executed a series of backhoe trenhches to determine the presence or absence of subsurface deposits, and the general condition of the encountered soils. After determining the results of the surface and subsurface examinations, Origer determined that:

> *No surface or subsurface evidence of* intact *prehistoric or historic archaeological sites was found. However, the ground surface along the railroad bed is littered with prehistoric midden soils that contain marine shellfish fragments and obsidian flakes. Often such materials indicate the presence of potentially important archaeological sites; however, I performed a*

study in the area in 1976 for the Sebastopol Route "E" Bypass, and it was clear then, when visibility was excellent, that these materials represented a secondary deposit (Origer 1976). My April 16, 1997, re-examination of the place where these materials are distributed resulted in the same conclusion that they were redeposited from elsewhere. Although these midden soils do not represent an intact archaeological site, Recommendation #2 (below) addresses the potential that they could contain important materials.

Origer made the following recommendations regarding the deposits (Recommendation 1 involves architectural resources):

2. *The midden soils along the railroad tracks that border the south and southwestern portion of the property should only be disturbed with a qualified archaeologist present. Although the soils do not mark an intact archaeological deposit, there is a possibility that human skeletal remains could be present. I recall when conducting the 1976 Route "E" Bypass study accounts that human graves were disturbed by early railroad construction that passed through nearby archaeological sites, sites from which these soils could have originated. Three archaeological sites (CA-SON-873, CA-SON-874, and CA-SON-1347) are known to exist between Petaluma Avenue and the Laguna de Santa Rosa, and at least two (CA-SON-874 and CA-SON-874) were cut by the railroad.*
3. *If any buried archaeological remains are discovered during construction work (e.g., grading, utilities trenching), work should stop at the place of discovery until a qualified archaeologist is contacted and has completed an evaluation of their importance. Buildings that formerly stood on the parcel no longer are visible; however, archaeological remains could be present. Potentially important archaeological site indicators can include but not necessarily be limited to locally darkened soil (midden) that could contain a combination of shellfish and bone fragments, chipped or ground stone tools (e.g., arrow or spear tips, mortars and pestles), chipping debris (e.g., obsidian or chert flakes/pieces), fire-affected stone pieces (often fist sized and with angular edges), old bottles, ceramic and metal (e.g., square nails) objects.*

Also in 1997, Archaeological Resource Service evaluated the property between 6691 and 6721 Sebastopol Avenue (Roop 1997), including at least part of the present project area. Fill soil was noted covering most of the evaluated area, generating a recommendation for a subsurface examination using a backhoe. The results of the surface examination were reported as:

In summary, the surface reconnaissance has revealed the presence of a fill soil over the parcel that hides any potential for subsurface prehistoric deposits. The fill soil could contain significant historic era deposits associated with the commercial endeavors that have been practiced there. The remaining building, a large residential structure, is clearly over fifty years of age. A potential exists for buried deposits associated with the past uses of this building. Such deposits, if of sufficient age and integrity, would be considered historically significant Roop 1997:8).

The remaining potential for significant archaeological features led to a recommendation for a backhoe test, similar to that proposed by Origer earlier the same year. A total of four trenches were excavated. No indication of prehistoric archaeological features or artifacts was observed during the test procedure, although disturbed historic era materials were observed. The following conclusions were drawn:

No prehistoric deposits are apparent within the project area. A potential exists for discovery of buried prehistoric deposits beneath the fill soils of the parcel. The test excavation has demonstrated that this potential is low within the area to be impacted by the proposed building.

Some of the fill layers may consist of large amounts of historic debris which, if of sufficient age and integrity, would constitute significant archaeological deposits. Where they are encountered in the construction process, steps should be taken to insure the preservation of the information contained in them. Historic deposits could be associated with any of the past uses of the parcel, or its neighboring areas. Expected deposits could come from any or all of the following sources:

1. *The Chinese settlement that existed along the Laguna de Santa Rosa up to the 1930's;*
2. *The rail yard that extended into Sebastopol from just south of the parcel after the early 1890's, and its associated hobo settlement;*
3. *The fruit processing operation that existed through much of the 20th century; or,*
4. *It is not uncommon to find wetlands, and the land bordering them, used as dumping areas by 19th century settlements. Given the close proximity to the settlement of Sebastopol and lack of formal land use until this century, the parcel may have served as an informal, early, Sebastopol dump.*

The two reports discussed above, as well as several other studies conducted in the project vicinity speak to the generally high sensitivity to archaeological resources on the eastern side of Sebastopol, where the resources of the Laguna de Santa Rosa attracted Native settlement.

Several large prehistoric and/or ethnographic habitation sites are located above the flood plain and near the shore of the Laguna de Santa Rosa or on tributary streams that flow into the Laguna. At least one of these recognized village locations is thought to be the ethnographic *Konhomtara* village of *Kacintui*. According to the archival research conducted by Adrian and Mary Praetzellis of the Anthropological Studies Center at Sonoma State University in 1977, this apparent ethnographically named village seems to have been formally recorded as one or two separately identified prehistoric archaeological sites that were designated as either CA-SON-490 or CA-Son-722 (Praetzellis and Praetzellis 1977).

According to research conducted in this same general area by archaeologist Suzanne Stewart, there are several lithic scatter sites that are located below the 200-foot contour (S. Stewart 1982:2). These sites consist mainly of artifactual material that is related to manufacture and/or repair of basic tools such as projectile points, scrapers, and similar chipped stone tools types and appear to contain little else in the way of modified soil deposits or items such as specialized artifacts made of shell or bone (beads, pendants, or awls) that seem to be unrelated to basic subsistence activities (such as hunting or gathering foodstuffs or material like native stone used in tool manufacture.. The prehistoric site known as CA-SON-1102 is yet another example of the tool and flake scatter type of site often found in the highlands away from the old, aboriginal shore of the Laguna. Although some of these sites are located over 1 mile south of the current project area and thus would not be possibly affected by the proposed development, the Son-1102 site was found along Atascadero Creek (that once flowed into the Laguna) (Eisenmann 1978). Rather than being a tool scatter that is well-developed and exposed on the present ground surface, the site was found to have been buried underneath 1 meter of alluvium (Eisenmann 1978).

PREHISTORIC SETTING

The area surrounding the project property has been inhabited for thousands of years by Native American populations. The earliest people occupying this area were probably speakers of the *Yukian* language (S. Stewart 1985). Around 7000 years ago *Hokan* speakers began to migrate from the southern California and Great Basin areas northward (Stewart 1985). Some of these people settled in the Clear Lake region where the Proto-Pomo language developed (Stewart 1985). About four to five thousand years ago, these Pomo-speaking people began to migrate

into the Russian River Valley and the valleys along it as far south as Cotati (Origer and Fredrickson 1980).

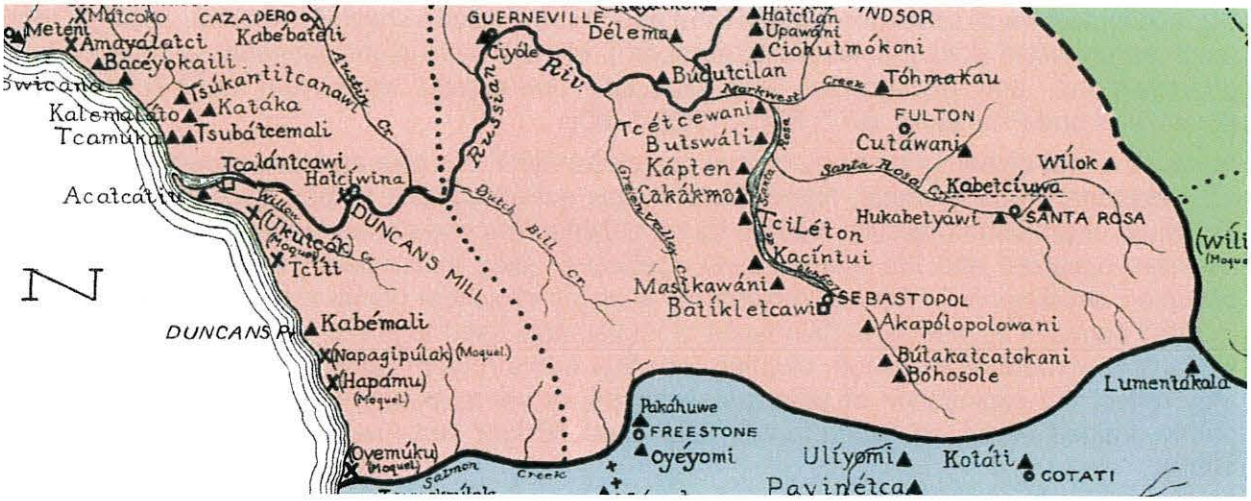


FIGURE 5 – ETHNOGRAPHIC VILLAGES NEAR SEBASTOPOL (BARRETT 1908)

Filled triangles indicate old village sites, hollow squares indicate inhabited (1908) modern village sites. Pink areas were in Pomo territory, green in Yukian (Wappo) territory, and purple indicates Moquelumnan or Coast Miwok territory.

The habitation sites representative of early prehistoric settlement often consist of small mounds of cultural soil (midden) containing a moderate to dense scatter of obsidian and Franciscan chert flakes and tools and sporadic ground stone tools such as mortars, pestles, manos, and other functional categories (Flynn 1990:3). Such sites also might contain the remains of foodstuffs such as marine or terrestrial mollusks (from such taxa as clams, mussels, oysters, abalone, chiton, or snails), butchered animal and bird bone, fire-cracked rock, and baked clay, as well as organic materials like charcoal, ash, and plant fibers.

The general project area lies on the western edge of the former Laguna de Santa Rosa, a large semi-permanent lake and surrounding seasonal wetland in prehistoric time. Today the area is characterized by as a low, seasonally filled basin with small ponds and pools (called vernal pools since they usually form in the spring due to poor drainage) within the surrounding upland areas. The Santa Rosa Plain today is principally covered by introduced European grasses and forbs that have replaced the native, annual grasses and plant species that once were found in the basin and along the banks of the intermittent streams that fed into the lake. The Santa Rosa flood control channel now cuts in an east/west direction through the northern part of the Laguna.

The Laguna de Santa Rosa was a valuable resource to prehistoric residents of this region. Numerous archaeological sites are located within it and around its periphery (Praetzellis and Praetzellis 1977; Origer and Fredrickson 1977, 1980). The Praetzellis and Praetzellis archaeo-environmental study of the *Konhomtara* Pomo, an ethnographic group who lived around a portion of the Laguna, including the present project area, indicates that sites of varying sizes and presumably varying activities are located in and around the Laguna (Praetzellis and Praetzellis 1977). Many of the larger prehistoric sites mentioned in this study and those that were possibly correlated with ethnographically occupied villages (those occupied through the mid to late 1800s and known to historians) were located on the edges of the Laguna, including the hilly land that comprised the historic center of Sebastopol.

Research indicates that few ethnographically named Pomo villages have been identified through archaeological fieldwork, although certain types of artifacts such as very small projectile

points (often exclusively used to hunt small birds) and clam shell beads are associated with protohistoric and ethnographic time periods in the Pomo region (Origer and Fredrickson 1980).

Surface indicators of sites found within the Laguna may include shellfish remains, obsidian tools (such as projectile points, knives, and scrapers), obsidian and chert debitage, various kinds of ground stone, and midden soil with charcoal, fire-affected rock, and other constituents (Praetzellis and Praetzellis 1977; Flynn 1986, 1990).

Because of the diverse natural resources contained within the lake and its surrounding marshes and seasonal wetland areas, Native subsistence activities were spread over the entire area. Evidence of prehistoric activity may be found between the open areas where basic subsistence activities occurred and the more upland position of sites that reflect their more permanently occupied settlements. Hunting implements such as projectile points are often found in these isolated contexts as well as certain types of implements used to procure and/or process various kinds of raw material into food, clothing, or other items (Flynn 1990). Some isolated artifacts may reflect the exploitation of seasonal wetlands, or vernal pools, that tend to develop In the poorly drained areas within the former lake basin (Origer and Fredrickson 1977, 1980; Flynn 1990).

ETHNOGRAPHIC SETTING

The project area is situated in the uplands on the western edge of the Santa Rosa Plain. In the ethnographic and prehistoric period this area was mostly marshland surrounding the shoreline of a former lake known as the Laguna de Santa Rosa. This area, as shown on Barrett's 1908 map of Pomo dialects and village sites, lies between several ethnographically known villages including Batikletcawi to the south (probably at Palm Hospital) (Barrett 1908). This site, believed to be recorded as Son-959, is the closest ethnographically named village to the project area.

The Laguna de Santa Rosa, provided ready access to a rich and varied environment from which people could have gathered abundant plant and animal resources. Archival research indicates that the general project area was controlled by the *Konmhomtara* subgroup of the Southern Pomo language group (Barrett 1908; O. Stewart 1943; McClendon and Oswalt 1978).). Peter Kunkel, another ethnographer of the Pomo, estimated that the territory of this tribelet was about 150 square miles and its population was approximately 600 to 960 persons in the early part of the Nineteenth century when ethnographic population estimates were being calculated (Kunkel 1962; Praetzellis and Praetzellis 1977).

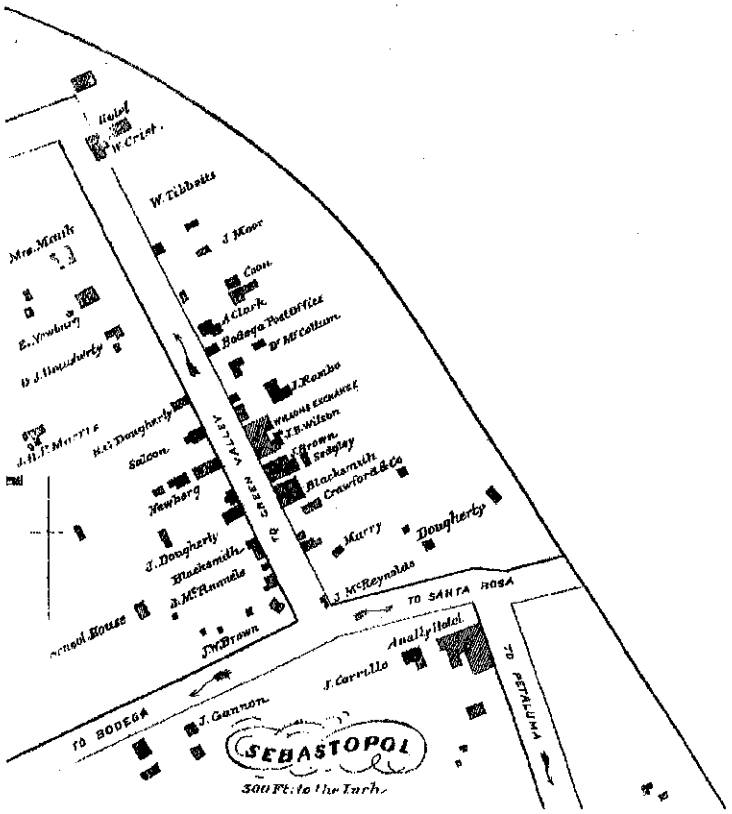


FIGURE 6 – SEBASTOPOL IN 1867

The Santa Rosa Plain was a diverse environment where native peoples in both the ethnographic and prehistoric periods could have gathered abundant plant and animal resources (Praetzellis and Praetzellis 1977; Flynn 1990). Short term gathering forays could have been made from these upland village sites into the grass-covered lower plain and marsh/vernal pool areas to collect seasonally available plants or to hunt various game animals and birds. Accordingly being situated in a slightly more upland setting, the project area might contain hunting trails or temporary campsites marked by concentrations of lithic materials or other kinds of artifacts related to basic subsistence activities.

Barrett (19078) described the village of *Batikletcawi* or *Batinkletcawi* as an inhabited modern village site in Sebastopol. His description of the community is as follows:

> *Bati'kletcawi or batiñkletca'wi, from bati', alder, Alnus rhombifolia, Kale', tree, and tca'wi, house, or totolagotca (Western Moquelumnan dialect name), from to'tola, elderberry, and go'tcha, house, in the southern part of the town of Sebastopol. There is at present but a single house with about seven inhabitants here, but this was once a populous village. This house is located on the site of the old village which also bore the name Bati'kletcawi. At a point about a mile east of the town of Sebastopol there is another family of about 10 individuals, and there are several other places within the limits of the dialectic area where Indians may be found at times, as on the ranches near the towns of Windsor, Healdsburg and Cloverdale; but the sites at Sebastopol were the only ones found which are inhabited regularly and permanently. The total number of Indians, excluding those at the town of Sebastopol, regularly residing within this dialectic area, is not greater than twenty-five* (Barrett 1908:213-214).

FIGURE 7 – SEBASTOPOL IN 1876

HISTORIC SETTING

The town of Sebastopol began as the community of Pine Grove in 1855 (Thompson 1877). Settlement of the general area began about 1846 with Joaquin Carillo, owner of the Rancho Llano de Santa Rosa. James M. Miller and John Walker opened a store about a mile south of the intersection of the Petaluma Road and the Santa Rosa Road (Highway 116 at Highway 12) in 1850. In 1855, J.H.P. Morris procured a building from Miller and Walker and moved it onto a tract of government land where Sebastopol is now, and opened a saloon and grocery store. He then deeded a lot to John Dougherty on condition that a store be erected on it. The town of Pine Grove apparently achieved its present name during the siege of Sebastopol on the Crimean Peninsula. A fight between two locals, Jeff Stevens and a man named Hibbs, ended when Hibbs sought refuge in Dougherty's store. Dougherty forbade Stevens to enter the store and the locals referred to the place as "Hibbs Sebastopol." The name apparently stuck and

Pine Grove was left to history. The next business established in town was a blacksmith shop and wagon manufactory run by George Jacobs. A hotel was the next business in town, followed by several more enterprises, raising the local population to about 300 by 1877 ((Munro-Fraser 1877). In 1877 the town supported "three stores, one hotel, one blacksmith shop, one shoe shop, one saloon, one livery stable, one meat market, and three physicians, one of whom is a lady." (Munro-Fraser 1877:176).

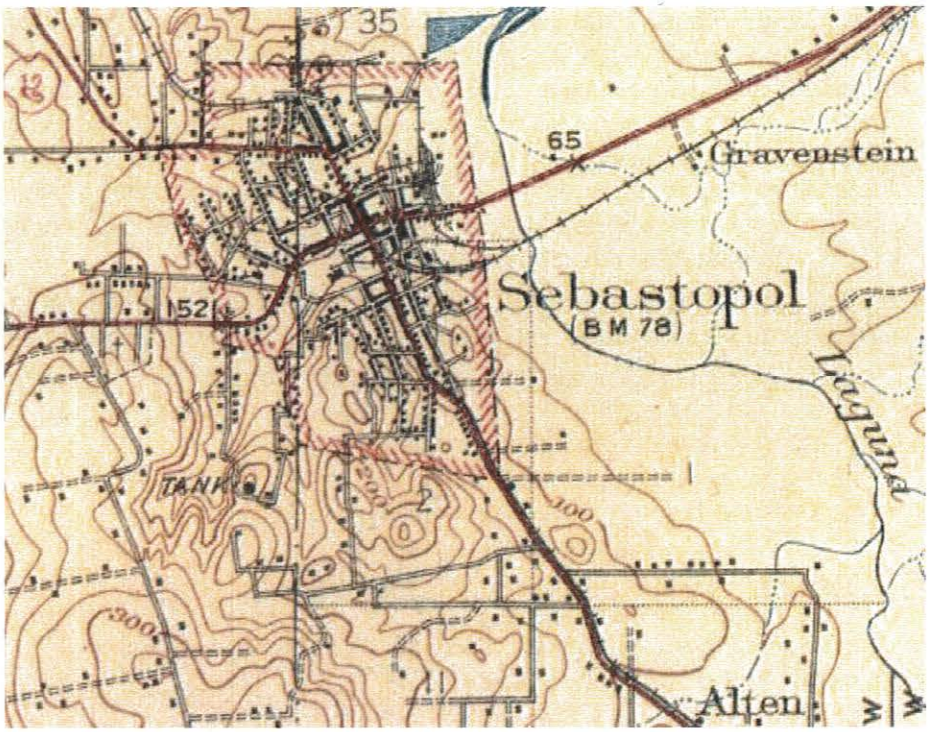


FIGURE 8 – SEBASTOPOL ON THE 1942 15' QUADRANGLE MAP

Examination of several early maps indicates that the project area was outside of the Sebastopol business district up to the cusp of the 20th century. The opening of the Northwest Pacific branch line in 1890 and the electrically powered Petaluma and Santa Rosa rail line in 1903 introduced new activities on and near the project area. An impromptu community of Chinese, presumably railroad workers, developed on the southern edge of the present parcel. The Chinese community slowly died out, to be

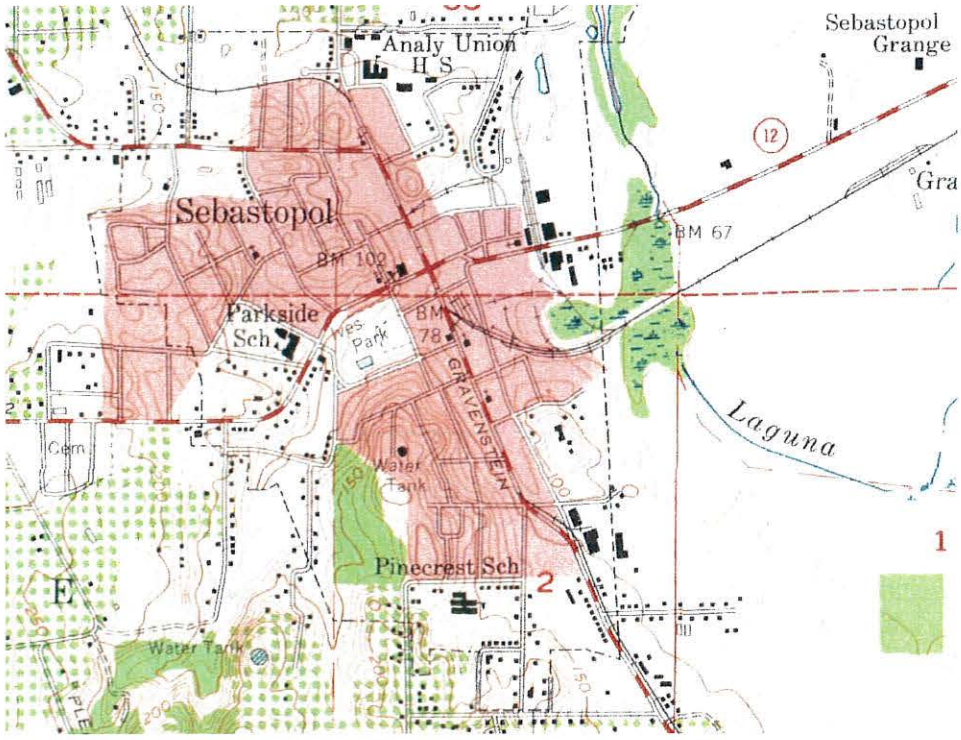


FIGURE 9 -- SEBASTOPOL IN 1954

replaced in the area by a later hobo camp. A homeless camp continues to be active. These uses are related by local tradition, although I have found no written record. One description of 20th century Chinese experience in Sebastopol does not mention the property, but gives a feeling for the condition of the Chinese American community in the first and early second quarters of the 20th century. The following quote is part of the story of John Wall, a Chinese American from Sebastopol. His father, Ginn Wall, was a tenant farmer on an apple orchard near Sebastopol:

> *There were about three hundred Chinese farmworkers up there, and they were old men. I asked my dad about it and he told me they had come over here about the same time he did and they were working on the railroad. Then he began to talk a little about the railroad, something happened after they were through building it, but I didn't listen to him carefully enough then. I just knew that after the railroad was over, these guys worked on a lumber mill for a while doing shingle work, and then when the lumber mill shut down, they went from there to farming. Naturally they've been doing this type of stuff most of their lives anyway* (Ginn in Brett and Nee 1973:26).

Ginn Wall spent his life savings to bring his wife, Johnny's mother, from China. She lived there for many years, the only woman in the Chinese community of Sebastopol, until she died in May 1929:

> *Well, there they were, with three hundred Chinese workers, and except for my mother, not a single woman. That was the whole Chinese settlement in Sebastopol. All those old guys*

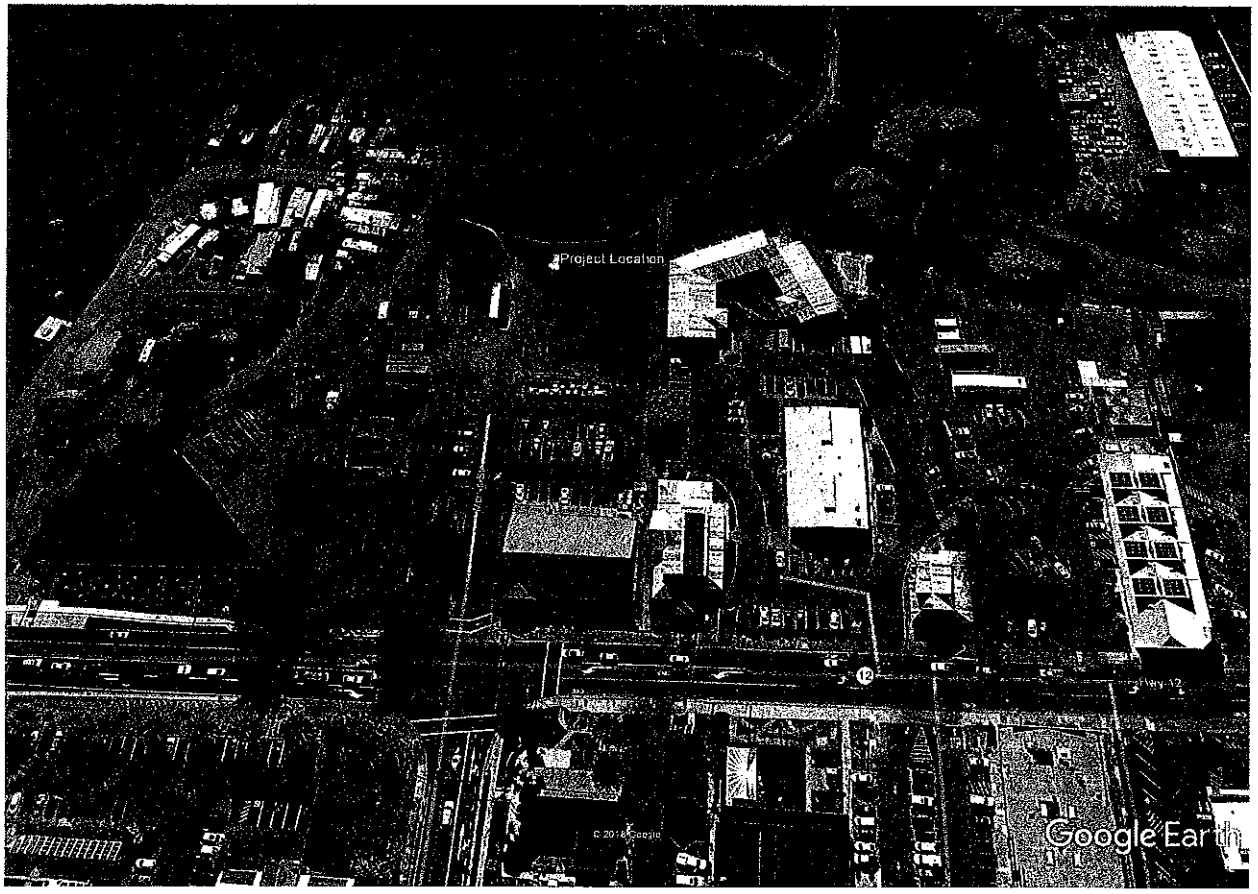


FIGURE 10 -- THE PROJECT AREA FROM GOOGLE EARTH, LOOKING SOUTH

This is the appearance of the project area when the evaluation was undertaken.

thought about was how they wanted to go back to China. But there's only about six months work in the year on apples, so they never saved a thing. And the only other thing besides work was gambling. Gambling was the social life, and gambling was the pastime. Everybody hoped to make a few bucks so they could go home in the easy way. The others lost their money and got stuck from year to year. And the reason there's no Chinese in Sebastopol today (1973) *is that eventually they all died off because there was no reproduction* (Ginn in Brett and Nee 1973:26-27).

RESULTS OF SURFACE EXAMINATION

The cultural resource evaluation has resulted in a negative finding. A negative result indicates that no artifacts or potentially significant cultural features were observed.

The entire project area was examined in a series of pedestrian transects running north-south between the parking area and the southern edge of the property. It was observed that a layer of fill soil appears to cover most of the examined area.

Recent trash mixed with some older material was observed over the property. Fragments of white ceramic, apparently from broken sinks and other fixtures were observed in the fill material toward the northern side of the property. These materials demonstrate no distinct pattern or deposit and do not constitute significant or potentially significant cultural resources.

FIGURE 11 -- LOOKING SOUTHWEST ACROSS THE PROPERTY

The bycicle\pedestrian path that marks the parcel boundary on the west can be seen in front of the neighbor's building. The white flecks in the foreground are largely fragments of ceramic fixtures.

A hand trowel was used to scrape up a soil sample and examine the material for any signs of Native American settlement or use. No shell or bone fragments, flakes of knappable stone, burned rock, or other indicators of the presence of a Native American settlement were observed at any location within the examined area.

Historic materials, including some modern trash, were more densely distributed toward the northern part of the property than toward the Laguna to the south. As discussed in the 1997 report that partially included the present project area (Roop 1997), this material is potentially associated with railroad construction and use, apple processing, Chinese settlement in the area, hobo camps in the area and possibly casual dumping by local residents in a relatively unused area. Any of these deposits is likely to have been disturbed by subsequent human activity, and is not likely to retain the integrity of deposit that is required to identify potential significance in the archaeological record.

FIGURE 12 -- LOOKING SOUTHEAST ACROSS THE PROPERTY

The mobile home community is on the neighboring property.

CONCLUSIONS

No significant or potentially significant artifacts, archaeological deposits or features have been identified within the project area. Previous evaluations in the vicinity have identified potentially significant historic era features in fill soils associated with former fruit processing operations. Such deposits have a potential to be classified as significant if they retain integrity of place, composition and condition. Badly disturbed deposits lose integrity and value in the

interpretation of past events. Previously identified historic era deposits in the area are associatred with either the railroad or fruit processing. Both of these are considered significant in the development of Sebastopol as a community. The previously identified deposits have been badly disturbed and retained little interpretive value. A similar situation is likely to prevail in the current project area.

It must be concluded that there is a potential for the discovery of historic era artifacts and/or features identified with historic era activities in Sebastopol. Previously discovered features have been disturbed to the point of destruction by later activities in the same place. Such features are not significant and do not require further attention from the permitting agency or the project proponent. Potentially, previously undisturbed features could be present in the project area, although the evidence to date is not particularly supportive of this. Should such features be encountered, they would represent a significant contribution to the history of Sebastopol and should be treated accordingly.

FIGURE 13 -- TYPICAL SURFACE SOILS OF THE PROJECT AREA

The white flecks are ceramic fragments. These appear to be fill soils and not the native soils of the area.

RECOMMENDATIONS

In the unlikely event that any unanticipated artifacts or cultural features are discovered during future grading or underground excavation for foundations or utility lines, Archaeological Resource Service recommends that all work in the vicinity of the find be stopped until the discovery area can be evaluated by an archaeologist. Depending on the extent and cultural

composition of the discovered materials, it may be advisable to have subsequent excavation monitored by an archaeologist, who should be ready to record, recover, and/or protect significant cultural materials from further damage. If the observed artifacts are historic and determined to be potentially significant as a deposit, the feature can be removed by archaeological field technicians, or the project can be modified to leave the feature in place. Historic era features tend to occupy less space than prehistoric features, making them more economical to recover, if necessary.

According to California Health and Safety Code 7050.5, the discovery of human skeletal remains anywhere within a project area requires that work be discontinued in the vicinity of the discovery, while the county coroner is contacted. If the skeletal remains are found to be prehistoric, Native American and not modern, then the coroner must call the Native American Heritage Commission (NAHC) in Sacramento within 24 hours. The NAHC will designate the "Most Likely Descendant" of the remains and the Most Likely Descendant will be responsible for recommending the disposition and treatment of the remains. Although the likelihood of encountering human skeletal remains in the project area seems very slight, it is important to have a procedure for alternate tasks that can be put into effect quickly in the event that human remains are discovered. This allows construction work to continue while the remains are investigated.

REFERENCES CONSULTED

Barrett, S. A.

1908 The Ethno-Geography of the Pomo and Neighboring Indians. In **University of California Publications in American Archaeology and Ethnology**, Volume 6, No. 1, pp. 1-332. The University Press, Berkeley.

Bowers, A.

1865 Map of Sonoma County, California. Second Edition. Published by A. B. Bowers in accordance with an Act of the Legislature, approved March 28, 1863.

Brett, victor G. and Brett De Bary Nee

1973 Longtime Californ': A documentary study of an American Chinatown. Pantheon Books. New York.

California State Library

1900 Official Map of Sonoma County, California. California Map Collection.

Flynn, Katherine S.

1986 Archaeological Survey of a 1.5 Acre Parcel Located at 2190 Gravenstein Highway North, Sebastopol, Sonoma County, California. Letter report to Marvel Goff. Ms on file with ARS and the Northwest Information Center of the California Historical Resources Information System

1991 Archaeological survey of the Meadow Estates subdivision, 695 DuFranc Road, Sebastopol, Sonoma County, California.

Jordan, Leigh

1990 Archaeological Archival Study for the City of Santa Rosa Wastewater Project Alternatives: Bloomfield Reservoir Site, Laguna Wetland Restoration Study Areas, Ocean Pipeline Alignment, and South County Alternative – Lakeville Pipeline Alignment and Reservoir Site, Sonoma County, California.

McClendon, Sally and Robert L. Oswalt
1978 Pomo: Introduction. In **Handbook of North American Indians**, William Sturtevant (editor), Volume 8, **California**, Robert F. Heizer (volume editor), pp. 274-288. Smithsonian Institution, Washington.

McClure, Evelyn S.
1995 Sebastopol, California; History, Homes and People. Belle View Press. Sebastopol.

Miller, Vernon
1972 Soil Survey of Sonoma County, California. U. S. Department of Agriculture in cooperation with the University of California Agricultural Experimental Station.

Munro-Fraser, J. P.
1880 History of Sonoma County, California. Illustrated. Alley, Bowen & Co., Washington D.C. Republished 1973 by Charmaine Burdell Veronda, Petaluma.

Mutual Life Insurance Co. of New York
1867 Official map of Sonoma County, California. California Map Collection.

Origer, Thomas
1976 Letter: Thomas Origer to Walt Smith, Don Laidlaw & Associates, regarding Sebastopol Bypass route "E", and its relation to Son-873, a prehistoric midden deposit. Ms on file with the Northwest Information Center of the California Historical Resources Information System

1980 A Cultural Resources Study for Proposed Wastewater Treatment Facilities North of Sebastopol, Sonoma County, California. Unpublished report on file at NWIC, HRIS under S-02375 and site record form on Son-1315.

Origer, Thomas and David Fredrickson
1977 An Archaeological Survey of the Proposed Santa Rosa Wastewater Disposal System, Sonoma County, California. Unpublished report on file at NWIC, HRIS under S-00477.

1980 The Laguna Archaeological Research Project, Sonoma County, California. A report submitted to the Public Works Department, City of Santa Rosa. Volumes I and II. Prepared by the Cultural Resources Facility, Anthropological Studies Center, Sonoma State University.

1997 A cultural Resources Study of the Property at 6761 Sebastopol Avenue, Sebastopol, Sonoma County, California. Ms on filw with the NWIC (S-19182).

Praetzellis, Adrian and Mary Praetzellis
1977 An Archaeo-Environmental Synthesis: The Konhomtara Pomo. Anthropology Laboratory, Sonoma State College. On file, NWIC, HRIS under S-00658.

Roop, William G
1997 A cultural Resources Evaluation of the Property At 6691-6721 Sebastopol Avel, Sebastopol, Sonoma County, California. Ms on file at the NWIC (S-20364), and with Archaeological Resource Service.

Stewart, Omer C.
1943 Notes on Pomo Ethnogeography. In **University of California Publications in American Archaeology and Ethnology**, A. L. Kroeber (editor), Volume 40, No. 2, pp. 29-62. University of California Press Berkeley and Los Angeles.

Thompson, Thomas H.
1877 **Historical Atlas Map of Sonoma County, California**. Thos. H. Thompson & Co. Oakland.

APPENDIX 1— SIGNIFICANCE IN THE EVALUATION OF CULTURAL RESOURCES AS HISTORIC PROPERTIES

To be significant an archaeological site must qualify for registration as an "historic resource" the following criteria must be met for this listing:

> *An archeological site may be considered an historical resource if it is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California (PRC § 5020.1(j)) or if it meets the criteria for listing on the California Register (14 CCR § 4850). CEQA provides somewhat conflicting direction regarding the evaluation and treatment of archeological sites. The most recent amendments to the CEQA Guidelines try to resolve this ambiguity by directing that lead agencies should first evaluate an archeological site to determine if it meets the criteria for listing in the California Register. If an archeological site is an historical resource (i.e., listed or eligible for listing in the California Register) potential adverse impacts to it must be considered, just as for any other historical resource (PRC § 21084.1 and 21083.2(l)). If an archeological site is not an historical resource, but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section.*

If an archaeological site does not qualify for listing, the directive is clear. The Public Resources Code states:

> *(4) If an archaeological resource is neither a unique archaeological nor an historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.*

APPENDIX 2 – PROFESSIONAL STANDARDS FOR CONSULTANTS

Secretary of the Interior's Standards

The minimum professional qualifications in archeology are a graduate degree in archeology, anthropology, or closely related field plus:

1. At least one year of full-time professional experience or equivalent specialized training in archeological research, administration or management;

2. At least four months of supervised field and analytic experience in general North American archeology; and

3. Demonstrated ability to carry research to completion.

In addition to these minimum qualifications, a professional in prehistoric archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the prehistoric period. A professional in historic archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the historic period.

Traffic Impact Study for the Davis Townhomes

Prepared for the City of Sebastopol

Submitted by
W-Trans

March 5, 2019

TRAFFIC ENGINEERING
TRANSPORTATION PLANNING
Balancing Functionality and Livability since 1995
w-trans.com

Table of Contents

Executive Summary 1

Introduction 2

Transportation Setting 4

Capacity Analysis 8

Alternative Modes 15

Conclusions and Recommendations 16

Study Participants and References 17

Figures

1. Study Area, Lane Configurations, and Existing Traffic Volumes 3
2. Site Plan 11
3. Project and Existing plus Project Traffic Volumes 13

Tables

1. Collision Rates at the Study Intersections 5
2. Bicycle Facility Summary 6
3. Signalized Intersection Level of Service Criteria 8
4. Existing Peak Hour Intersection Levels of Service 10
5. Trip Generation Summary 10
6. Trip Distribution Assumptions 12
7. Existing and Existing plus Project Peak Hour Intersection Levels of Service 12

Appendices

A. Collision Rate Calculations
B. Intersection Level of Service Calculations

Executive Summary

The Davis Townhomes proposed project will build 18 two-bedroom townhomes on an existing vacant lot at the terminated end of Morris Street, south of Sebastopol Avenue in the City of Sebastopol. The proposed project is expected to generate an average of 132 daily vehicle trips, including 8 trips during the morning peak hour and 10 trips during the evening peak hour.

The study area includes the intersections of Sebastopol Avenue (SR 12)/Morris Street, Sebastopol Avenue (SR 12)/Petaluma Avenue (SR 116), Bodega Avenue-SR 12/North Main Street-South Main Street (SR 116), and North Main Street/McKinley Street. Analysis indicates that under Existing Conditions the study intersections are all operating acceptably at LOS D or better during both peak periods. These service levels would remain unchanged upon the addition of project-related traffic, and the project's short-term impact would be considered less-than-significant.

However, because delay generated by the southern leg could impact delay and congestion during the peak congestion periods, it would be appropriate to provide measures to reduce this impact. Recommended signal timing and resulting simulations with the updated timing plan, the intersection of Sebastopol Avenue (SR 12)/Morris Street will experience a decreased delay of approximately 5 seconds which would offset the delay created by the project. In order to provide an additional layer of reduced traffic impact, the southbound approach should be restriped from the current to allow southbound right-turn traffic to make a right on red when there is one car queued up waiting to make a left turn.

Existing pedestrian, bicycle, and transit facilities are generally adequate to serve the project site. According to the site plan, bicycle hooks are provided for each unit for bicycle parking. Pedestrian facilities between the Forest Park Trail and the project site is lacking and should be considered for design enhancements. It is recommended that the project include plans for walkway/sidewalk connection between the project site to the Forest Park Trail.

Introduction

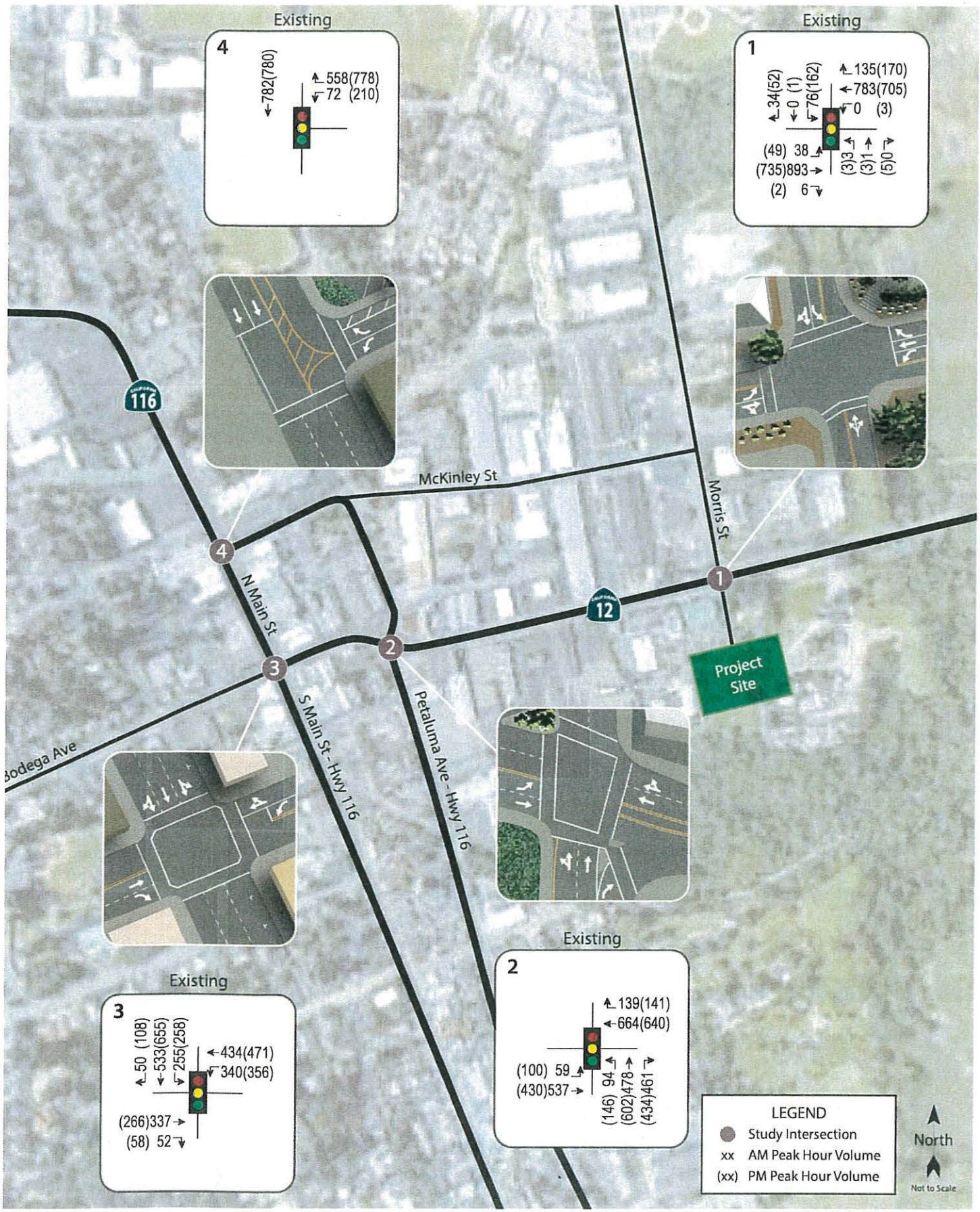
This report presents an analysis of the potential traffic impacts that would be associated with development of a proposed residential project to be located where Morris Street terminates south of Sebastopol Avenue (SR 12) in the City of Sebastopol. The traffic study was completed in accordance with the criteria established by the City of Sebastopol, and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential traffic 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's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use 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 proposed project includes 18 two-story townhomes to be constructed on a currently vacant lot in the City of Sebastopol. The project site is located at the south end of Morris Street, as shown in Figure 1.



seb065.ai 2/19

Traffic Impact Study for the Davis Townhomes

Figure 1 – Study Area, Lane Configurations, and Existing Traffic Volumes

W-Trans

Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the following intersections:

1. Sebastopol Avenue (SR 12)/Morris Street
2. Sebastopol Avenue (SR 12)/Petaluma Avenue (SR 116)
3. Bodega Avenue-SR 12/North Main Street-South Main Street (SR 116)
4. North Main Street (SR 116)/McKinley Street

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

Study Intersections

Sebastopol Avenue (SR 12)/Morris Street is a signalized intersection with protected left-turn phasing on the eastbound and westbound Sebastopol Avenue approaches and split phasing on the northbound and southbound Morris Street approaches. There are marked crosswalks on the north, south, and west legs of the intersection.

Sebastopol Avenue (SR 12)/Petaluma Avenue (SR 116) is a signalized intersection with Petaluma Avenue flowing one-way northbound. Left-turns have protected phasing on the eastbound Sebastopol Avenue approach. There are marked crosswalks on all four legs of the intersection.

Bodega Avenue-SR 12/North Main Street-South Main Street (SR 116) is a signalized intersection with Main Street flowing one-way southbound. The westbound Sebastopol Avenue approach has protected left-turn phasing. There are marked crosswalks on all four legs of the intersection.

North Main Street (SR 116)/McKinley Street is a signalized tee-intersection with McKinley Street terminating. McKinley Street is a one-way westbound street and North Main Street becomes a one-way southbound street just south of the intersection. There are marked crosswalks on the south and east legs.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is January 1, 2014 through December 31, 2018.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2014 Collision Data on California State Highways,*

California Department of Transportation (Caltrans). All four study intersections had collision rates lower than the Statewide average for similar intersections. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates at the Study Intersections

Study Intersection	Number of Collisions (2014-2018)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Sebastopol Ave (SR 12)/Morris St	5	0.14	0.27
2. Sebastopol Ave (SR 12)/Petaluma Ave (SR 116)	12	0.26	0.27
3. Bodega Ave-SR 12/N Main St-S Main St (SR 116)	6	0.15	0.27
4. N Main St/McKinley St	1	0.03	0.21

Note: c/mve = collisions per million vehicles entering

While Sebastopol Avenue (SR 12)/Petaluma Avenue (SR 116) had a lower average collision rate than the statewide average, it had an injury rate of 50.0 percent, which exceeds the statewide average of 41.9 percent on similar facilities. There were two separate pedestrian-involved collisions with vehicles making a northbound left turn and a pedestrian in the crosswalk on the west leg. The City is studying several intersections, including this one, to improve the signal timing and possible coordination within the downtown core. Both reported collisions involving a pedestrian had a primary collision factor of pedestrian right-of-way violation. With the planned signal timing improvements, an emphasis should be placed on considering pedestrian safety.

Alternative Modes

Pedestrian Facilities

Pedestrian facilities generally 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, traffic signals, and curb ramps provide access for pedestrians in the vicinity of the project site. The Forest Park Trail is located along the western border of the project property, and provides a connection to the Joe Rodota Trail south of project site.

- **Sebastopol Avenue (SR 12)** – Sebastopol Avenue is the main connector between the City's eastern edge and the Barlow area and the downtown with nearby neighborhoods and schools. Along the project frontage there is sidewalk coverage on both sides of Sebastopol Avenue between Nelson Way and approximately one-quarter mile east of Morris Street.

- **Morris Street** – Complete sidewalk coverage is provided on the eastern side of Morris Street between Sebastopol Avenue and Eddie Lane. Partial sidewalk coverage is provided on the western side of Morris Street, with gaps in sidewalk coverage between Laguna Park Way and Eddie Lane. There are continuous sidewalk connections on both sides of the street between the project and Laguna Park Way.

Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four 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.
- **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 there are several Class I multi-use bike/pedestrian paths, including the Joe Rodota Trail, which connects Petaluma Avenue with Santa Rosa; the Railroad Forest Path, which connects Sebastopol Avenue/Morris Street with the Joe Rodota Trail; and the West County Trail, which runs between Eddie Lane and Occidental Road to the north. There are existing bicycle lanes along Morris Street between Sebastopol Avenue and Eddie Lane, and along SR 116 between Mill Station Road and Lynch Road. According to the *City of Sebastopol Bicycle and Pedestrian Master Plan* (2011), a bike route is planned along Sebastopol Avenue-Bodega Avenue between Petaluma Avenue and Dutton Avenue and bike lanes are planned on Bodega Avenue between Dutton Avenue and Ragle Road. 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 *City of Sebastopol Bicycle and Pedestrian Master Plan*.

Table 2 – Bicycle Facility Summary

Status Facility	Class	Length (miles)	Begin Point	End Point
Existing				
Railroad Forest Bike path	I	0.20	Sebastopol Ave	Joe Rodota Trail
West County Trail*	I	5.70	Eddie Ln	Forestville
Joe Rodota Trail*	I	6.30	Petaluma Ave	Santa Rosa Trail
Morris St	II	0.42	Sebastopol Ave	Eddie Ln
Gravenstein Hwy N-Healdsburg Ave-Main St-Petaluma Ave-Gravenstein Hwy S	II	2.43	Mill Station Rd	Lynch Rd
Sebastopol Ave (SR 12)	III	0.19	Morris St	Petaluma Ave
Planned				
Bodega Ave	II	0.87	Dutton Ave	Ragle Rd
Sebastopol Ave	III	0.32	Petaluma Ave	Dutton Ave

Notes: * All or portions of these bikeways are located with adjacent jurisdictions
Source: *City of Sebastopol Bicycle and Pedestrian Master Plan*, Sonoma County Transportation Authority, 2011

Transit Facilities

Sonoma County Transit (SCT) provides fixed route bus service in Sonoma County. Routes 20, 22, 24 and 52 provide regional service between the project site and surrounding communities. Each route stops on Laguna Park Way at the Sebastopol Transit Hub about one-quarter mile northwest of the project site.

Route 20 runs between the Russian River area and Santa Rosa and operates Monday through Friday, serving regional commuters to Santa Rosa with one-and-one-half to two-hour headways between 6:00 a.m. and 9:30 p.m. On the weekends, Route 20 runs from 8:00 a.m.to 8:15 p.m. with approximately three-hour headways.

Route 22 provides service between Sebastopol and Santa Rosa and operates Monday through Friday with two departures during the morning commute period and two departures during the evening commute period.

Route 24 provides service within Sebastopol, operating on weekdays with headways of about 45 minutes between 9:00 a.m. and 3:30 p.m., and on Saturdays with headways of about 45 minutes between 9:00 a.m. and 3:00 p.m.

Route 52 operates Monday through Friday between Sebastopol and Rohnert Park/Cotati. There is an approximate headway of one-and-one-half hours between buses, which run from 6:10 am to 6:20 p.m.

Two bicycles can be carried on most SCT buses. Bike rack space is on a first-come, first-served basis. Additional bicycles are allowed on SCT buses at the discretion of the driver.

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. Volunteer Wheels, the Americans with Disabilities Act (ADA) paratransit operator for Sonoma County Transit, is designed to serve the needs of individuals with disabilities within the incorporated areas of Sonoma County and between the County's nine incorporated cities.

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 the "Signalized" methodology published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2000. All four of the study intersections were analyzed using the HCM 2000 signalized methodology since the HCM 2010 methodologies are not compatible with the signal phasing in use. 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 signalized methodology uses factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, 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 – Signalized Intersection Level of Service Criteria

LOS A	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
LOS B	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
LOS C	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
LOS D	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
LOS E	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
LOS F	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

All study intersections are located within the City of Sebastopol's city limits and are therefore subject to the City's LOS standards. The *City of Sebastopol General Plan*, last updated in 2016, adopted Level of Service standards in Program 16.1 and as implemented by the City as follows:

- **At signalized intersections:** At signalized intersections, levels of service shall be determined for the overall intersection.
- Intersection queuing shall be evaluated in tandem with LOS. Projected queues at signalized intersections shall not extend through upstream signalized intersections.
- In evaluating circulation improvement needs at downtown intersections, mitigations should be avoided which increase capacity by widening that causes impacts to right-of-way and/or historical structures.

- Allow a minimum operation of LOS D for signalized intersections within the Downtown; a LOS C for all signalized intersections outside of the Downtown; and LOS D for all side street movements at unsignalized intersections.

The following significance criteria which the City has used in other traffic studies was also considered in this analysis:

A project would normally have a significant adverse impact on the environment if it would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., results in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads or delays at intersections), or change the condition of an existing street (i.e., street closures, changing direction of travel) in a manner that would substantially affect access or traffic load and capacity of the street system. The specific City of Sebastopol criteria utilized for this analysis are as follows:

A project-related or cumulative traffic impact is considered to be significant if the proposed project would do any of the following:

- *Cause the existing baseline LOS to degrade to worse than LOS D at any signalized intersection within the Downtown; or,*
- *Cause the existing baseline LOS to degrade to worse than LOS C at any signalized intersection outside of the Downtown.*

The City of Sebastopol does not have an adopted threshold of significance for project-related impacts at intersections that are already operating, or projected to operate, at unacceptable LOS under Existing or Cumulative Conditions without the addition of any project-related traffic.

Therefore, for the purpose of such studies to determine whether a project-related impact would be significant, the following criteria have been utilized in other studies in the City of Sebastopol. Similar criteria are utilized within other jurisdictions such as the City of Napa, City of Santa Rosa, City of San Francisco, and the City of Oakland:

- *A project impact is considered significant if the proposed project would cause the average control delay at any signalized intersections to increase by five (5.0) seconds or more for intersections already operating at unacceptable LOS E or LOS F under the no project conditions.*

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Volume data was collected in December 2018 while local schools were in session.

Intersection Levels of Service

Under existing conditions, all study intersections are operating at LOS D or better. The existing traffic volumes are shown in Figure 1. A summary of the intersection level of service calculations is contained in Table 4, and copies are provided in Appendix B.

Table 4 – Existing Peak Hour Intersection Levels of Service				
Study Intersection	**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Sebastopol Ave (SR 12)/Morris St	16.7	B	25.0	C
2. Sebastopol Ave (SR 12)/Petaluma Ave (SR 116)	24.8	C	26.1	C
3. Bodega Ave-SR 12/N Main St-S Main St (SR 116)	52.2	D	53.3	D
4. N Main St (SR 116)/McKinley St	6.2	A	8.4	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Future Conditions

The City of Sebastopol is working with Caltrans to improve signal timing at multiple intersections along SR 12 and SR 116 within the downtown core. Signal coordination at several of the studied intersections is being considered as an improvement, along with re-evaluating the existing cycle lengths. All four of the intersections included in this analysis are part of the signal improvement study. Since the planned improvements to signal timing at these locations have yet to be determined and the planned project is consistent with the site's land use designation and zoning, so reasonably anticipated in planning studies for future conditions, a future conditions scenario was not analyzed.

Project Description

The proposed project includes18 two-bedroom townhomes to be built on a currently vacant lot, with one carport and one visitor parking space per unit. The site would be accessible where Morris Street terminates south of Sebastopol Avenue, with an additional emergency access point via Village Park. The project site plan is shown in Figure 2.

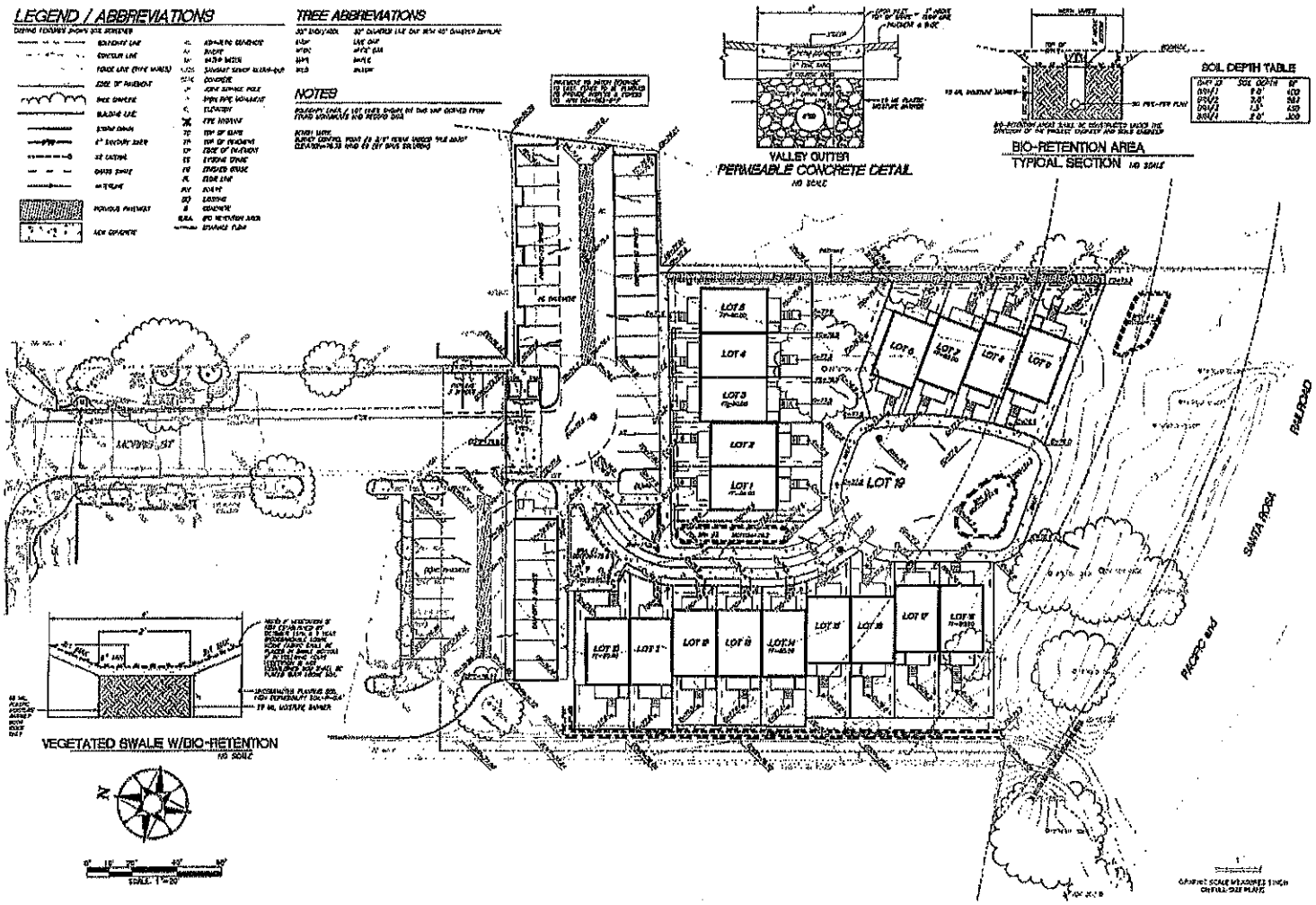
Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017, for Multifamily Housing Low-Rise (ITE LU #220), as the description most closely matches the proposed project. The proposed project is expected to generate an average of 132 vehicle trips per day, including 8 trips during the a.m. peak hour and 10 during the p.m. peak hour. These results are summarized in Table 5.

Table 5 – Trip Generation Summary											
Land Use	**Units**	**Daily**		**AM Peak Hour**				**PM Peak Hour**			
		Rate	**Trips**	**Rate**	**Trips**	**In**	**Out**	**Rate**	**Trips**	**In**	**Out**
Proposed											
Multifamily Housing	18 units	7.32	132	0.46	8	2	6	0.56	10	6	4

Trip Distribution

The pattern used to allocate new project trips to the street network was determined by reviewing existing turning movements at the study intersections as well as employment patterns for residents of the City of Sebastopol as indicated by the 2010 Census. Since traffic conditions are generally most critical during the weekday p.m. peak



DRAWN	GG	DAVIS TOWNHOMES GRADING, DRAINAGE and STORM WATER TREATMENT	NO.	HISTORY / REVISION	BY	CHK.	DATE
CHECK	KD						
APPROVED	BAT						
DATE	08-13-2015						
JOB NUMBER	9054.00						
SHEET	2 OF 3	DANIEL DAVIS 1051 TODD ROAD, SANTA ROSA, CA. 95407					

LACO
EUREKA • UKIAH • SANTA ROSA
1-800-515-5054 www.lacoassociates.com

seb065.ai 2/19

Traffic Impact Study for the Davis Townhomes
Figure 2 – Site Plan

W-Trans

hour, the distribution assumptions are primarily based on the expected trip routes during that time. The applied distribution assumptions and resulting trips are shown in Table 6.

Table 6 – Trip Distribution Assumptions

Route	Percent	Daily Trips	AM Trips	PM Trips
US 101 (to/from the east)	35%	46	3	4
SR 116 (to/from the north)	15%	20	1	2
SR 116 (to/from the south)	35%	46	3	4
Sonoma Coast (to/from the west)	15%	20	1	2
TOTAL	**100%**	**132**	**8**	**10***

Note: *Trips do not add up to the calculated trip generation due to rounding

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersections are expected to operate at the same service levels as without project-related traffic. These results are summarized in Table 7. Project only traffic volumes and Existing plus Project traffic volumes are shown in Figure 3.

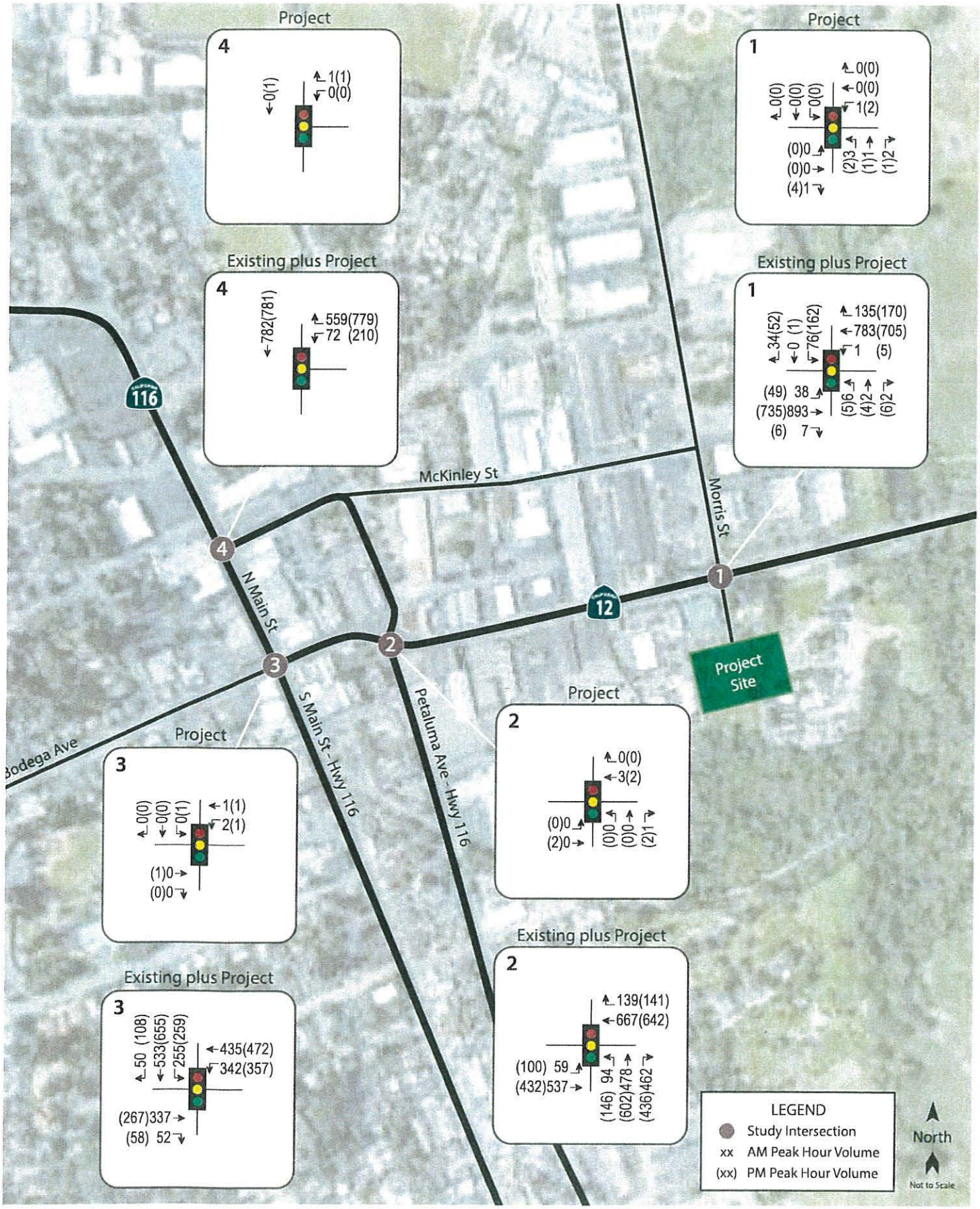
Table 7 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Sebastopol Ave (SR 12)/Morris St	16.7	B	25.0	C	19.9	B	26.7	C
2. Sebastopol Ave (SR 12)/Petaluma Ave (SR 116)	24.8	C	26.1	C	24.9	C	26.2	C
3. Bodega Ave-SR 12/N Main St-S Main St (SR 116)	52.2	D	53.3	D	52.6	D	53.6	D
4. N Main St (SR 116)/McKinley St	6.2	A	8.4	A	6.2	A	8.3	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

It should be noted that the level of service and delay at the intersection of Sebastopol Avenue (SR 12)/Morris Street can fluctuate with periods of more congestion due to heavy east-west traffic. The project only increases the delay by approximately three seconds during the a.m. peak hour and two seconds during the p.m. peak hour. The impact of this level of delay increase is considered less-than-significant. However, because delay generated by the southern leg could impact delay and congestion during the peak congestion periods, it would be appropriate to provide measures to reduce this impact.

As noted earlier in the report, the City is working with Caltrans to improve signal timing at multiple intersections along SR 12 including the Morris Street intersection. Based on the preliminary evaluation, recommended signal timing and resulting simulations with the updated timing plan, the intersection of Sebastopol Avenue (SR 12)/Morris Street will experience a decreased delay of approximately 5 seconds which would offset the delay created by the project. In order to provide an additional layer of reduced traffic impact, the southbound approach should be restriped from the current geometrics (18 ft. inbound lane, 12 ft. outbound lane) to two 15-foot lanes. This restriping which may require re-installation of the traffic signal detector position, will periodically allow southbound right-turn traffic to make a right on red when there is one car queued up waiting to make a left turn.



seb065.ai 2/19

Traffic Impact Study for the Davis Townhomes

Figure 3 – Project and Existing plus Project Traffic Volumes

W-Trans

Finding – The study intersections are expected to continue operating acceptably and at the same Levels of Service upon the addition of project-generated traffic. The project's short-term impact is therefore considered less-than-significant. However, due to the particular sensitivity of the SR 12/Morris Street intersection to congestion, the project should restripe the southbound Morris Street approach.

Recommendation – The project should arrange for restriping of the southbound Morris Street approach to create two 15-foot lanes and, if needed, re-install the traffic signal detector position.

Alternative Modes

Given the proximity to Sebastopol's downtown, the Barlow district, the Laguna open space, and transit stops surrounding the site, it is reasonable to assume that some residents would want to walk, bicycle, and/or use transit to travel to and from the project site.

Pedestrian Facilities

Sebastopol Avenue connects to the Barlow District and the downtown from the east entrance point into the City of Sebastopol. Morris Street connects neighborhoods to the Barlow District, Analy High School, the Community Center, and the Laguna Skate Park. Both roads would serve as the primary path of travel for residential pedestrian activity. Sidewalk connectivity between the project site and destinations surrounding the project site is generally adequate; however, the sidewalk is discontinuous on the west side of Morris Street north of Laguna Park Way.

Based on the proposed site plan, there is not a paved walkway/sidewalk connection between the Forest Park Trail and the townhomes and Morris Street. The Forest Park Trail is adjacent to the project site, which provides connection to the Joe Rodota Trail south of project site.

Finding – Pedestrian facilities surrounding the proposed site are generally adequate to provide connection the downtown and transit stops. There is not an existing or planned connection between the site and the Forest Park Trail.

Recommendation – The proposed project should provide pedestrian facilities between the townhomes and the Forest Park Trail.

Bicycle Facilities

Existing and planned bicycle facilities, per the *City of Sebastopol Bicycle and Pedestrian Master Plan*, will provide access for bicyclists. The City of Sebastopol Ordinance 17.110.030 requires residential uses to provide one-half bicycle parking space per proposed multifamily and attached single-family dwelling unit. Proper bicycle parking facilities are also required; each bicycle parking space shall include a stationary parking device to adequately secure bicycles.

Based on the 18 proposed multifamily dwelling units, the project is required to provide a minimum of nine bicycle parking spaces. According to the proposed project's site plan, each unit is planned to have an exterior rear porch closet with a bicycle hook to provide bicycle parking.

Finding – Bicycle facilities serving the project site are adequate. There are plans for bicycle parking for each unit.

Transit

Existing transit routes are adequate to accommodate project-generated transit trips. Existing stops are within acceptable walking distance of the site.

Finding – Transit facilities serving the project site are expected to be adequate.

Conclusions and Recommendations

Conclusions

- The proposed project is expected to generate an average of 132 daily vehicle trips, including 8 trips during the morning peak hour and 10 trips during the evening peak hour.
- The study intersections are currently operating acceptably at LOS D or better overall during both peak hours. With anticipated project related traffic added, the intersections are expected to continue operating at the same service levels as without project trips.
- With recommended signal timing modifications at the SR 12/Morris Street intersection, the intersection will experience a decreased delay of approximately 5 seconds which would offset the delay created by the project.
- Due to the particular sensitivity of the SR 12/Morris Street intersection to congestion, the project should restripe the southbound Morris Street approach to allow for vehicles to make a right-turn on red.
- Existing pedestrian, bicycle, and transit facilities are generally adequate to serve the project site. Pedestrian connectivity between the Forest Park Trail and the project site is lacking and should be considered for improvement.

Recommendations

- The project should arrange for restriping of the southbound Morris Street approach to create two 15-foot lanes and, if needed, re-install the traffic signal detector position.
- The proposed should provide a pedestrian facility connection between the project site and the Forest Park Trail.

Study Participants and References

Study Participants

Principal in Charge	Steve Weinberger, PE, PTOE
Assistant Planner	Julia Walker
Graphics	Katia Wolfe
Editing/Formatting	Alex Scrobonia
Report Review	Dalene J. Whitlock, PE, PTOE

References

2014 Collision Data on California State Highways, California Department of Transportation, 2017
City of Sebastopol Bicycle and Pedestrian Master Plan, Sonoma County Transportation Authority, 2011
City of Sebastopol General Plan, City of Sebastopol, 2008
Highway Capacity Manual, Transportation Research Board, 2000
Highway Design Manual, 6th Edition, California Department of Transportation, 2017
Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol, 2014-2018
Trip Generation Manual, 10th Edition, Institute of Transportation Engineers, 2017

SEB065

Appendix A

Collision Rate Calculations

Intersection Collision Rate Calculations

Davis Townhomes

Intersection # 1: Sebastopol Ave (SR 12) & Morris St
Date of Count: Wednesday, December 5, 2018

Number of Collisions: 5
Number of Injuries: 3
Number of Fatalities: 0
ADT: 18900
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1\ \text{Million}}{\text{ADT} \times 365\ \text{Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{5 \times 1{,}000{,}000}{18{,}900 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.14 c/mve	0.0%	60.0%
Statewide Average*	0.27 c/mve	0.4%	41.9%

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Intersection # 2: Sebastopol Ave (SR 12) & Petaluma Ave (SR 116)
Date of Count: Wednesday, December 5, 2018

Number of Collisions: 12
Number of Injuries: 6
Number of Fatalities: 0
ADT: 24900
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1\ \text{Million}}{\text{ADT} \times 365\ \text{Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{12 \times 1{,}000{,}000}{24{,}900 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.26 c/mve	0.0%	50.0%
Statewide Average*	0.27 c/mve	0.4%	41.9%

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

Davis Townhomes

Intersection # 3: Bodega Ave-SR 12 & North Main St-South Main St (SR 116)
Date of Count: Wednesday, December 5, 2018

Number of Collisions: 6
Number of Injuries: 2
Number of Fatalities: 0
ADT: 21700
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{6 \times 1{,}000{,}000}{21{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.15 c/mve	0.0%	33.3%
Statewide Average*	0.27 c/mve	0.4%	41.9%

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Intersection # 4: North Main St & McKinley St
Date of Count: Wednesday, December 5, 2018

Number of Collisions: 1
Number of Injuries: 1
Number of Fatalities: 0
ADT: 17700
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{1 \times 1{,}000{,}000}{17{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.03 c/mve	0.0%	100.0%
Statewide Average*	0.21 c/mve	0.3%	42.4%

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Appendix B

Intersection Level of Service Calculations

HCM Signalized Intersection Capacity Analysis
1: Sebastopol Rd & Morris St

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	893	6	0	783	135	3	1	0	76	0	34
Future Volume (vph)	38	893	6	0	783	135	3	1	0	76	0	34
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	5.1			5.1	5.1		4.7		4.7	4.7	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00		1.00	0.95	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85		1.00		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00		0.96		0.95	1.00	
Satd. Flow (prot)	1615	1698			1700	1410		1639		1615	1375	
Flt Permitted	0.95	1.00			1.00	1.00		0.96		0.95	1.00	
Satd. Flow (perm)	1615	1698			1700	1410		1639		1615	1375	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	940	6	0	824	142	3	1	0	80	0	36
RTOR Reduction (vph)	0	0	0	0	0	16	0	0	0	0	0	0
Lane Group Flow (vph)	40	946	0	0	824	126	0	4	0	80	36	0
Confl. Peds. (#/hr)			11			2			3			10
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						
Actuated Green, G (s)	6.0	67.6			56.9	56.9		1.6		9.9	9.9	
Effective Green, g (s)	6.0	67.6			56.9	56.9		1.6		9.9	9.9	
Actuated g/C Ratio	0.06	0.72			0.61	0.61		0.02		0.11	0.11	
Clearance Time (s)	4.7	5.1			5.1	5.1		4.7		4.7	4.7	
Vehicle Extension (s)	3.0	5.0			5.0	5.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	103	1226			1033	857		28		170	145	
v/s Ratio Prot	0.02	c0.56			0.48			c0.00		c0.05	0.03	
v/s Ratio Perm						0.09						
v/c Ratio	0.39	0.77			0.80	0.15		0.14		0.47	0.25	
Uniform Delay, d1	42.0	8.2			14.0	7.9		45.3		39.4	38.4	
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	2.4	3.6			5.0	0.2		2.3		2.1	0.9	
Delay (s)	44.5	11.8			19.0	8.1		47.7		41.4	39.3	
Level of Service	D	B			B	A		D		D	D	
Approach Delay (s)		13.1			17.4			47.7			40.8	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	93.6	Sum of lost time (s)	19.2
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Sebastopol Rd & Petaluma Ave

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	537	0	0	664	139	94	478	461	0	0	0
Future Volume (vph)	59	537	0	0	664	139	94	478	461	0	0	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	5.0			5.0			4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.97			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.97			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1615	1700			3138			3203	1408			
Flt Permitted	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1615	1700			3138			3203	1408			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	61	554	0	0	685	143	97	493	475	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	24	0	0	0
Lane Group Flow (vph)	61	554	0	0	815	0	0	590	451	0	0	0
Confl. Peds. (#/hr)						3	1		2			
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	6.9	43.7			32.1			36.2	36.2			
Effective Green, g (s)	6.9	43.7			32.1			36.2	36.2			
Actuated g/C Ratio	0.08	0.49			0.36			0.40	0.40			
Clearance Time (s)	4.7	5.0			5.0			4.6	4.6			
Vehicle Extension (s)	2.0	3.0			4.0			3.5	3.5			
Lane Grp Cap (vph)	124	830			1125			1295	569			
v/s Ratio Prot	0.04	c0.33			c0.26							
v/s Ratio Perm								0.18	c0.32			
v/c Ratio	0.49	0.67			0.72			0.46	0.79			
Uniform Delay, d1	39.6	17.4			24.9			19.5	23.4			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	1.1	2.0			2.5			0.3	7.7			
Delay (s)	40.7	19.4			27.4			19.8	31.0			
Level of Service	D	B			C			B	C			
Approach Delay (s)		21.5			27.4			24.8			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	14.3
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Bodega Ave/Sebastopol Rd & Main St

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	337	52	340	434	0	0	0	0	255	533	50
Future Volume (vph)	0	337	52	340	434	0	0	0	0	255	533	50
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.7	4.7	11.7	11.7					4.7	4.7	
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	
Frpb, ped/bikes		1.00	0.96	1.00	1.00					1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00					0.99	1.00	
Frt		1.00	0.85	1.00	1.00					1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1700	1391	1615	1700					1596	3167	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1700	1391	1615	1700					1596	3167	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	359	55	362	462	0	0	0	0	271	567	53
RTOR Reduction (vph)	0	0	4	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	359	51	362	462	0	0	0	0	271	613	0
Confl. Peds. (#/hr)			17							5		25
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	2%	2%	2%	0%	0%	0%
Turn Type		NA	Perm	Prot	NA					Perm	NA	
Protected Phases		4		3	8						2	
Permitted Phases			4							2		
Actuated Green, G (s)		16.5	16.5	16.4	37.6					24.5	24.5	
Effective Green, g (s)		16.5	16.5	16.4	37.6					24.5	24.5	
Actuated g/C Ratio		0.20	0.20	0.20	0.46					0.30	0.30	
Clearance Time (s)		4.7	4.7	11.7	11.7					4.7	4.7	
Vehicle Extension (s)		3.0	3.0	3.0	5.0					4.0	4.0	
Lane Grp Cap (vph)		342	279	323	779					476	946	
v/s Ratio Prot		c0.21		c0.22	0.27						c0.19	
v/s Ratio Perm			0.04							0.17		
v/c Ratio		1.05	0.18	1.12	0.59					0.57	0.65	
Uniform Delay, d1		32.8	27.2	32.8	16.5					24.3	25.0	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		62.3	0.3	86.7	1.8					1.9	1.7	
Delay (s)		95.0	27.5	119.5	18.3					26.2	26.7	
Level of Service		F	C	F	B					C	C	
Approach Delay (s)		86.1			62.8			0.0			26.6	
Approach LOS		F			E			A			C	

Intersection Summary			
HCM 2000 Control Delay	52.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	23.1
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Main St & McKinley St

02/05/2019

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	558	0	0	0	782
Future Volume (vph)	72	558	0	0	0	782
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	4.7				4.7
Lane Util. Factor	1.00	1.00				0.95
Frpb, ped/bikes	1.00	1.00				1.00
Flpb, ped/bikes	1.00	1.00				1.00
Frt	1.00	0.85				1.00
Flt Protected	0.95	1.00				1.00
Satd. Flow (prot)	1615	1445				3230
Flt Permitted	0.95	1.00				1.00
Satd. Flow (perm)	1615	1445				3230
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	76	587	0	0	0	823
RTOR Reduction (vph)	58	0	0	0	0	0
Lane Group Flow (vph)	18	587	0	0	0	823
Confl. Peds. (#/hr)	18	6				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	2%	2%	2%	0%
Turn Type	Prot	custom				NA
Protected Phases	7	2 6 7				2
Permitted Phases						
Actuated Green, G (s)	14.5	51.8				32.6
Effective Green, g (s)	14.5	51.8				32.6
Actuated g/C Ratio	0.24	0.86				0.54
Clearance Time (s)	4.7					4.7
Vehicle Extension (s)	2.0					4.0
Lane Grp Cap (vph)	390	1247				1754
v/s Ratio Prot	0.01	c0.41				0.25
v/s Ratio Perm						
v/c Ratio	0.05	0.47				0.47
Uniform Delay, d1	17.5	0.9				8.4
Progression Factor	1.00	1.00				1.00
Incremental Delay, d2	0.0	0.4				0.3
Delay (s)	17.5	1.3				8.7
Level of Service	B	A				A
Approach Delay (s)	3.2		0.0			8.7
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Sebastopol Rd & Morris St

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	735	2	3	705	170	3	3	5	162	1	52
Future Volume (vph)	49	735	2	3	705	170	3	3	5	162	1	52
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	5.1		4.7	5.1	5.1		4.7		4.7	4.7	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.96		1.00	0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.94		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1583	1666		1583	1667	1385		1480		1583	1329	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (perm)	1583	1666		1583	1667	1385		1480		1583	1329	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	799	2	3	766	185	3	3	5	176	1	57
RTOR Reduction (vph)	0	0	0	0	0	9	0	5	0	0	0	0
Lane Group Flow (vph)	53	801	0	3	766	176	0	6	0	176	58	0
Confl. Peds. (#/hr)			20			1						14
Confl. Bikes (#/hr)			2						3			1
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						
Actuated Green, G (s)	8.7	63.3		1.6	56.2	56.2		1.6		16.3	16.3	
Effective Green, g (s)	8.7	63.3		1.6	56.2	56.2		1.6		16.3	16.3	
Actuated g/C Ratio	0.09	0.62		0.02	0.55	0.55		0.02		0.16	0.16	
Clearance Time (s)	4.7	5.1		4.7	5.1	5.1		4.7		4.7	4.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	135	1033		24	918	763		23		252	212	
v/s Ratio Prot	c0.03	c0.48		0.00	c0.46			c0.00		c0.11	0.04	
v/s Ratio Perm						0.13						
v/c Ratio	0.39	0.78		0.12	0.83	0.23		0.26		0.70	0.27	
Uniform Delay, d1	44.1	14.2		49.5	19.0	11.8		49.6		40.5	37.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.9	4.3		2.3	7.3	0.3		6.1		8.2	0.7	
Delay (s)	46.0	18.5		51.9	26.4	12.1		55.7		48.7	38.4	
Level of Service	D	B		D	C	B		E		D	D	
Approach Delay (s)		20.2			23.7			55.7			46.1	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	102.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	430	0	0	640	141	146	602	434	0	0	0
Future Volume (vph)	100	430	0	0	640	141	146	602	434	0	0	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	5.0			5.0			4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.97			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.97			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1583	1667			3070			3134	1368			
Flt Permitted	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1583	1667			3070			3134	1368			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	103	443	0	0	660	145	151	621	447	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	30	0	0	0
Lane Group Flow (vph)	103	443	0	0	792	0	0	772	417	0	0	0
Confl. Peds. (#/hr)						7	3		7			
Confl. Bikes (#/hr)									1			
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	7.9	45.3			32.7			36.5	36.5			
Effective Green, g (s)	7.9	45.3			32.7			36.5	36.5			
Actuated g/C Ratio	0.09	0.50			0.36			0.40	0.40			
Clearance Time (s)	4.7	5.0			5.0			4.6	4.6			
Vehicle Extension (s)	2.0	3.0			4.0			3.5	3.5			
Lane Grp Cap (vph)	136	826			1098			1251	546			
v/s Ratio Prot	c0.07	0.27			c0.26							
v/s Ratio Perm								0.25	c0.30			
v/c Ratio	0.76	0.54			0.72			0.62	0.76			
Uniform Delay, d1	40.8	15.8			25.4			21.9	23.7			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	19.0	0.7			2.5			1.0	6.5			
Delay (s)	59.8	16.5			27.9			22.8	30.2			
Level of Service	E	B			C			C	C			
Approach Delay (s)		24.7			27.9			25.5			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	91.4	Sum of lost time (s)	14.3
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Bodega Ave/Sebastopol Rd & Main St

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	266	58	356	471	0	0	0	0	258	655	108
Future Volume (vph)	0	266	58	356	471	0	0	0	0	258	655	108
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.7	4.7	11.7	11.7					4.7	4.7	
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	
Frpb, ped/bikes		1.00	0.86	1.00	1.00					1.00	0.96	
Flpb, ped/bikes		1.00	1.00	1.00	1.00					0.89	1.00	
Frt		1.00	0.85	1.00	1.00					1.00	0.98	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1667	1212	1583	1667					1412	2979	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1667	1212	1583	1667					1412	2979	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	277	60	371	491	0	0	0	0	269	682	112
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	277	60	371	491	0	0	0	0	269	795	0
Confl. Peds. (#/hr)			82							42		99
Confl. Bikes (#/hr)												2
Turn Type		NA	Perm	Prot	NA					Perm	NA	
Protected Phases		4		3	8						2	
Permitted Phases			4							2		
Actuated Green, G (s)		16.4	16.4	16.9	38.0					29.9	29.9	
Effective Green, g (s)		16.4	16.4	16.9	38.0					29.9	29.9	
Actuated g/C Ratio		0.19	0.19	0.19	0.43					0.34	0.34	
Clearance Time (s)		4.7	4.7	11.7	11.7					4.7	4.7	
Vehicle Extension (s)		3.0	3.0	3.0	5.0					4.0	4.0	
Lane Grp Cap (vph)		311	226	304	721					480	1014	
v/s Ratio Prot		c0.17		c0.23	0.29						c0.27	
v/s Ratio Perm			0.05							0.19		
v/c Ratio		0.89	0.27	1.22	0.68					0.56	0.78	
Uniform Delay, d1		34.8	30.5	35.5	20.0					23.6	26.0	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		25.6	0.6	125.2	3.4					1.8	4.3	
Delay (s)		60.4	31.2	160.6	23.4					25.4	30.3	
Level of Service		E	C	F	C					C	C	
Approach Delay (s)		55.2			82.5			0.0			29.1	
Approach LOS		E			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	53.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	23.1
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	210	778	0	0	0	780
Future Volume (vph)	210	778	0	0	0	780
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	4.7				4.7
Lane Util. Factor	1.00	1.00				0.95
Frpb, ped/bikes	1.00	1.00				1.00
Flpb, ped/bikes	1.00	1.00				1.00
Frt	1.00	0.85				1.00
Flt Protected	0.95	1.00				1.00
Satd. Flow (prot)	1583	1417				3167
Flt Permitted	0.95	1.00				1.00
Satd. Flow (perm)	1583	1417				3167
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	216	802	0	0	0	804
RTOR Reduction (vph)	92	0	0	0	0	0
Lane Group Flow (vph)	124	802	0	0	0	804
Confl. Peds. (#/hr)	116	45				
Confl. Bikes (#/hr)		2				
Turn Type	Prot	custom				NA
Protected Phases	7	2 6 7				2
Permitted Phases		7				
Actuated Green, G (s)	17.7	49.6				27.2
Effective Green, g (s)	17.7	49.6				27.2
Actuated g/C Ratio	0.30	0.85				0.47
Clearance Time (s)	4.7					4.7
Vehicle Extension (s)	2.0					4.0
Lane Grp Cap (vph)	479	1203				1475
v/s Ratio Prot	0.08	c0.57				0.25
v/s Ratio Perm						
v/c Ratio	0.26	0.67				0.55
Uniform Delay, d1	15.4	1.5				11.2
Progression Factor	1.00	1.00				1.00
Incremental Delay, d2	0.1	1.6				0.5
Delay (s)	15.5	3.1				11.7
Level of Service	B	A				B
Approach Delay (s)	5.7		0.0			11.7
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Sebastopol Rd & Morris St

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	893	7	1	783	135	6	2	2	76	0	34
Future Volume (vph)	38	893	7	1	783	135	6	2	2	76	0	34
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	5.1		4.7	5.1	5.1		4.7		4.7	4.7	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.97		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1615	1697		1615	1700	1410		1565		1615	1374	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (perm)	1615	1697		1615	1700	1410		1565		1615	1374	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	940	7	1	824	142	6	2	2	80	0	36
RTOR Reduction (vph)	0	0	0	0	0	15	0	2	0	0	0	0
Lane Group Flow (vph)	40	947	0	1	824	127	0	8	0	80	36	0
Confl. Peds. (#/hr)			11			2			3			10
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						
Actuated Green, G (s)	6.0	63.1		1.6	58.7	58.7		1.6		9.9	9.9	
Effective Green, g (s)	6.0	63.1		1.6	58.7	58.7		1.6		9.9	9.9	
Actuated g/C Ratio	0.06	0.66		0.02	0.62	0.62		0.02		0.10	0.10	
Clearance Time (s)	4.7	5.1		4.7	5.1	5.1		4.7		4.7	4.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	101	1122		27	1046	867		26		167	142	
v/s Ratio Prot	c0.02	c0.56		0.00	0.48			c0.01		c0.05	0.03	
v/s Ratio Perm						0.09						
v/c Ratio	0.40	0.84		0.04	0.79	0.15		0.31		0.48	0.25	
Uniform Delay, d1	43.0	12.4		46.1	13.7	7.8		46.4		40.3	39.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	2.5	6.6		0.6	4.6	0.2		6.7		2.2	0.9	
Delay (s)	45.5	19.0		46.7	18.3	7.9		53.0		42.5	40.3	
Level of Service	D	B		D	B	A		D		D	D	
Approach Delay (s)		20.0			16.8			53.0			41.8	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	19.2
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	537	0	0	667	139	94	478	462	0	0	0
Future Volume (vph)	59	537	0	0	667	139	94	478	462	0	0	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	5.0			5.0			4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.97			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.97			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1615	1700			3138			3203	1408			
Flt Permitted	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1615	1700			3138			3203	1408			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	61	554	0	0	688	143	97	493	476	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	24	0	0	0
Lane Group Flow (vph)	61	554	0	0	818	0	0	590	452	0	0	0
Confl. Peds. (#/hr)						3	1		2			
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	6.9	43.8			32.2			36.3	36.3			
Effective Green, g (s)	6.9	43.8			32.2			36.3	36.3			
Actuated g/C Ratio	0.08	0.49			0.36			0.40	0.40			
Clearance Time (s)	4.7	5.0			5.0			4.6	4.6			
Vehicle Extension (s)	2.0	3.0			4.0			3.5	3.5			
Lane Grp Cap (vph)	124	830			1126			1296	569			
v/s Ratio Prot	0.04	c0.33			c0.26							
v/s Ratio Perm								0.18	c0.32			
v/c Ratio	0.49	0.67			0.73			0.46	0.79			
Uniform Delay, d1	39.7	17.4			24.9			19.5	23.4			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	1.1	2.0			2.5			0.3	7.8			
Delay (s)	40.8	19.5			27.5			19.8	31.2			
Level of Service	D	B			C			B	C			
Approach Delay (s)		21.6			27.5			24.9			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	89.7	Sum of lost time (s)	14.3
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Bodega Ave/Sebastopol Rd & Main St

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	337	52	342	435	0	0	0	0	255	533	50
Future Volume (vph)	0	337	52	342	435	0	0	0	0	255	533	50
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.7	4.7	11.7	11.7					4.7	4.7	
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	
Frpb, ped/bikes		1.00	0.96	1.00	1.00					1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00					0.99	1.00	
Frt		1.00	0.85	1.00	1.00					1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1700	1391	1615	1700					1596	3167	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1700	1391	1615	1700					1596	3167	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	359	55	364	463	0	0	0	0	271	567	53
RTOR Reduction (vph)	0	0	4	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	359	51	364	463	0	0	0	0	271	613	0
Confl. Peds. (#/hr)			17							5		25
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	2%	2%	2%	0%	0%	0%
Turn Type		NA	Perm	Prot	NA					Perm	NA	
Protected Phases		4		3	8						2	
Permitted Phases			4							2		
Actuated Green, G (s)		16.5	16.5	16.4	37.6					24.5	24.5	
Effective Green, g (s)		16.5	16.5	16.4	37.6					24.5	24.5	
Actuated g/C Ratio		0.20	0.20	0.20	0.46					0.30	0.30	
Clearance Time (s)		4.7	4.7	11.7	11.7					4.7	4.7	
Vehicle Extension (s)		3.0	3.0	3.0	5.0					4.0	4.0	
Lane Grp Cap (vph)		342	279	323	779					476	946	
v/s Ratio Prot		c0.21		c0.23	0.27						c0.19	
v/s Ratio Perm			0.04							0.17		
v/c Ratio		1.05	0.18	1.13	0.59					0.57	0.65	
Uniform Delay, d1		32.8	27.2	32.8	16.5					24.3	25.0	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		62.3	0.3	88.9	1.8					1.9	1.7	
Delay (s)		95.0	27.5	121.7	18.4					26.2	26.7	
Level of Service		F	C	F	B					C	C	
Approach Delay (s)		86.1			63.9			0.0			26.6	
Approach LOS		F			E			A			C	

Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	23.1
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	559	0	0	0	782
Future Volume (vph)	72	559	0	0	0	782
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	4.7				4.7
Lane Util. Factor	1.00	1.00				0.95
Frpb, ped/bikes	1.00	1.00				1.00
Flpb, ped/bikes	1.00	1.00				1.00
Frt	1.00	0.85				1.00
Flt Protected	0.95	1.00				1.00
Satd. Flow (prot)	1615	1445				3230
Flt Permitted	0.95	1.00				1.00
Satd. Flow (perm)	1615	1445				3230
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	76	588	0	0	0	823
RTOR Reduction (vph)	58	0	0	0	0	0
Lane Group Flow (vph)	18	588	0	0	0	823
Confl. Peds. (#/hr)	18	6				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	2%	2%	2%	0%
Turn Type	Prot	custom				NA
Protected Phases	7	2 6 7				2
Permitted Phases						
Actuated Green, G (s)	14.5	51.8				32.6
Effective Green, g (s)	14.5	51.8				32.6
Actuated g/C Ratio	0.24	0.86				0.54
Clearance Time (s)	4.7					4.7
Vehicle Extension (s)	2.0					4.0
Lane Grp Cap (vph)	390	1247				1754
v/s Ratio Prot	0.01	c0.41				0.25
v/s Ratio Perm						
v/c Ratio	0.05	0.47				0.47
Uniform Delay, d1	17.5	0.9				8.4
Progression Factor	1.00	1.00				1.00
Incremental Delay, d2	0.0	0.4				0.3
Delay (s)	17.5	1.3				8.7
Level of Service	B	A				A
Approach Delay (s)	3.2		0.0			8.7
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Sebastopol Rd & Morris St

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	735	6	5	705	170	5	4	6	162	1	52
Future Volume (vph)	49	735	6	5	705	170	5	4	6	162	1	52
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	5.1		4.7	5.1	5.1		4.7		4.7	4.7	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.98		1.00	0.93	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.94		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1583	1663		1583	1667	1385		1508		1583	1328	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	1583	1663		1583	1667	1385		1508		1583	1328	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	799	7	5	766	185	5	4	7	176	1	57
RTOR Reduction (vph)	0	0	0	0	0	9	0	7	0	0	0	0
Lane Group Flow (vph)	53	806	0	5	766	176	0	9	0	176	58	0
Confl. Peds. (#/hr)			20			1						14
Confl. Bikes (#/hr)			2						3			1
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						
Actuated Green, G (s)	8.7	63.5		1.6	56.4	56.4		3.4		16.3	16.3	
Effective Green, g (s)	8.7	63.5		1.6	56.4	56.4		3.4		16.3	16.3	
Actuated g/C Ratio	0.08	0.61		0.02	0.54	0.54		0.03		0.16	0.16	
Clearance Time (s)	4.7	5.1		4.7	5.1	5.1		4.7		4.7	4.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	132	1015		24	904	751		49		248	208	
v/s Ratio Prot	c0.03	c0.48		0.00	c0.46			c0.01		c0.11	0.04	
v/s Ratio Perm						0.13						
v/c Ratio	0.40	0.79		0.21	0.85	0.23		0.19		0.71	0.28	
Uniform Delay, d1	45.2	15.3		50.6	20.2	12.5		49.0		41.6	38.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	2.0	5.0		4.3	8.2	0.3		1.9		9.0	0.7	
Delay (s)	47.2	20.3		54.9	28.3	12.8		50.8		50.6	39.4	
Level of Service	D	C		D	C	B		D		D	D	
Approach Delay (s)		22.0			25.5			50.8			47.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Sebastopol Rd & Petaluma Ave

02/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	432	0	0	642	141	146	602	436	0	0	0
Future Volume (vph)	100	432	0	0	642	141	146	602	436	0	0	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	5.0			5.0			4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.97			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.97			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1583	1667			3070			3134	1368			
Flt Permitted	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1583	1667			3070			3134	1368			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	103	445	0	0	662	145	151	621	449	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	30	0	0	0
Lane Group Flow (vph)	103	445	0	0	794	0	0	772	419	0	0	0
Confl. Peds. (#/hr)						7	3		7			
Confl. Bikes (#/hr)									1			
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	8.0	45.5			32.8			36.7	36.7			
Effective Green, g (s)	8.0	45.5			32.8			36.7	36.7			
Actuated g/C Ratio	0.09	0.50			0.36			0.40	0.40			
Clearance Time (s)	4.7	5.0			5.0			4.6	4.6			
Vehicle Extension (s)	2.0	3.0			4.0			3.5	3.5			
Lane Grp Cap (vph)	137	826			1096			1252	546			
v/s Ratio Prot	c0.07	0.27			c0.26							
v/s Ratio Perm								0.25	c0.31			
v/c Ratio	0.75	0.54			0.72			0.62	0.77			
Uniform Delay, d1	40.9	15.9			25.6			21.9	23.9			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	18.4	0.7			2.6			1.0	6.6			
Delay (s)	59.4	16.6			28.2			22.9	30.4			
Level of Service	E	B			C			C	C			
Approach Delay (s)		24.6			28.2			25.7			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	14.3
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	267	58	357	472	0	0	0	0	259	655	108
Future Volume (vph)	0	267	58	357	472	0	0	0	0	259	655	108
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.7	4.7	11.7	11.7					4.7	4.7	
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	
Frpb, ped/bikes		1.00	0.86	1.00	1.00					1.00	0.96	
Flpb, ped/bikes		1.00	1.00	1.00	1.00					0.89	1.00	
Frt		1.00	0.85	1.00	1.00					1.00	0.98	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1667	1212	1583	1667					1412	2979	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1667	1212	1583	1667					1412	2979	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	278	60	372	492	0	0	0	0	270	682	112
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	278	60	372	492	0	0	0	0	270	795	0
Confl. Peds. (#/hr)			82							42		99
Confl. Bikes (#/hr)												2
Turn Type		NA	Perm	Prot	NA					Perm	NA	
Protected Phases		4		3	8						2	
Permitted Phases			4							2		
Actuated Green, G (s)		16.4	16.4	16.9	38.0					29.9	29.9	
Effective Green, g (s)		16.4	16.4	16.9	38.0					29.9	29.9	
Actuated g/C Ratio		0.19	0.19	0.19	0.43					0.34	0.34	
Clearance Time (s)		4.7	4.7	11.7	11.7					4.7	4.7	
Vehicle Extension (s)		3.0	3.0	3.0	5.0					4.0	4.0	
Lane Grp Cap (vph)		311	226	304	721					480	1014	
v/s Ratio Prot		c0.17		c0.23	0.30						c0.27	
v/s Ratio Perm			0.05							0.19		
v/c Ratio		0.89	0.27	1.22	0.68					0.56	0.78	
Uniform Delay, d1		34.9	30.5	35.5	20.0					23.6	26.0	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		26.0	0.6	126.4	3.4					1.8	4.3	
Delay (s)		60.9	31.2	161.9	23.5					25.4	30.3	
Level of Service		E	C	F	C					C	C	
Approach Delay (s)		55.6			83.1			0.0			29.1	
Approach LOS		E			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	53.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	23.1
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	210	779	0	0	1	781
Future Volume (vph)	210	779	0	0	1	781
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.7	4.7				4.7
Lane Util. Factor	1.00	1.00				0.95
Frpb, ped/bikes	1.00	1.00				1.00
Flpb, ped/bikes	1.00	1.00				1.00
Frt	1.00	0.85				1.00
Flt Protected	0.95	1.00				1.00
Satd. Flow (prot)	1583	1417				3166
Flt Permitted	0.95	1.00				1.00
Satd. Flow (perm)	1583	1417				3166
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	216	803	0	0	1	805
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	216	803	0	0	0	806
Confl. Peds. (#/hr)	116	45				
Confl. Bikes (#/hr)		2				
Turn Type	Prot	custom				NA
Protected Phases	7	2 6 7				2
Permitted Phases		7				
Actuated Green, G (s)	17.8	53.3				30.8
Effective Green, g (s)	17.8	53.3				30.8
Actuated g/C Ratio	0.29	0.86				0.50
Clearance Time (s)	4.7					4.7
Vehicle Extension (s)	2.0					4.0
Lane Grp Cap (vph)	454	1218				1572
v/s Ratio Prot	0.14	c0.57				
v/s Ratio Perm						0.25
v/c Ratio	0.48	0.66				0.51
Uniform Delay, d1	18.2	1.4				10.5
Progression Factor	1.00	1.00				1.00
Incremental Delay, d2	0.3	1.4				0.4
Delay (s)	18.5	2.9				10.9
Level of Service	B	A				B
Approach Delay (s)	6.2		0.0			10.9
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group