Analyzing Vehicle Miles Traveled for CEQA Compliance

SB 743 IMPLEMENTATION GUIDELINES FOR THE CITY OF WATSONVILLE

Adopted September 27, 2022

Resolution No. ___-22 (CM)

Community Development Department | Public Works & Utilities Department
250 Main Street
Watsonville, CA 95076

Background

In 2013, SB 743 was signed into law by California Governor Jerry Brown with a goal of reducing Greenhouse Gas (GHG) emissions, promoting the development of infill land use projects and multimodal transportation networks, and to promote a diversity of land uses within developments. One significant outcome resulting from this statute is that automobile delay, as measured by "level of service" (LOS) and other similar metrics, generally no longer constitutes a significant environmental effect under the California Environmental Quality Act (CEQA). (Pub. Resources Code, § 21099(b)(2)). This change in the analysis of transportation impacts went into effect when the CEQA Guidelines were updated to make the revisions called for in SB 743 and were certified by the Natural Resources Agency in December, 2018.

The Governor's Office of Planning and Research (OPR) selected Vehicle Miles Traveled (VMT) as the principal measure to replace LOS for determining significant transportation impacts. VMT is a measure of total vehicular travel that accounts for the number of vehicle trips and the length of those trips. OPR selected VMT, in part, because jurisdictions are already familiar with this metric. VMT is already used in CEQA to study other potential impacts such as GHG, air quality, and energy impacts and is used in planning for regional Sustainable Communities Strategies (SCS). As of July 1, 2020, agencies analyzing the transportation impacts of new projects must look at VMT as a metric known as vehicle miles traveled (VMT) instead of LOS.

VMT also allows for an analysis of a project's impact throughout the jurisdiction rather than only in the vicinity of the proposed project allowing for a better understanding of the full extent of a project's transportation-related impact.

As California has a number of regulations regarding GHG emissions that are often confused with each other, Appendix G provides additional background information on two key laws – AB 32 and SB 375 – and how they align with strategies for the Association of Monterey Bay Area Governments (AMBAG) region to reduce VMT regionally.

Use of this Document

This document has been developed to serve both as the basis of SB 743 implementation and VMT analysis within the City. While this document includes footnotes and references to other documents, the use of this document does not require the reader to reference the footnotes unless they are interested in understanding the technical basis of elements of this document's preparation. The analysis guidelines are separated into two distinct approaches, those that relate to *land use* projects and those that relate to *transportation improvement* projects. If a project includes both land use and transportation improvement elements, analysis would be required to be carried out for both. Projects not subject to CEQA are not required to follow these guidelines. This includes projects that are reviewed under existing ministerial or administrative processes, site plan review, and other actions that do not require environmental review.

This policy shall be administered by the Zoning Administrator and City Engineer, who shall be responsible for all determinations required as part of its implementation. For example, the Zoning Administrator would make a determination whether a land use project meets any of the screening criteria listed in Exhibit 2. Whereas, the City Engineer would decide on whether a transportation project has been prescreened, as further discussed on page 11. Generally speaking, the Zoning Administrator would address questions concerning land use projects, and the City Engineer would address questions

concerning transportation improvement projects. The City Engineer would also be responsible for making determinations on technical questions, such appropriate Institute of Transportation Engineers (ITE) trip generation rates.

Land Use Projects

The approach included within this document identify transportation impacts under CEQA for land-use projects that closely align with guidance provided within the OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018).

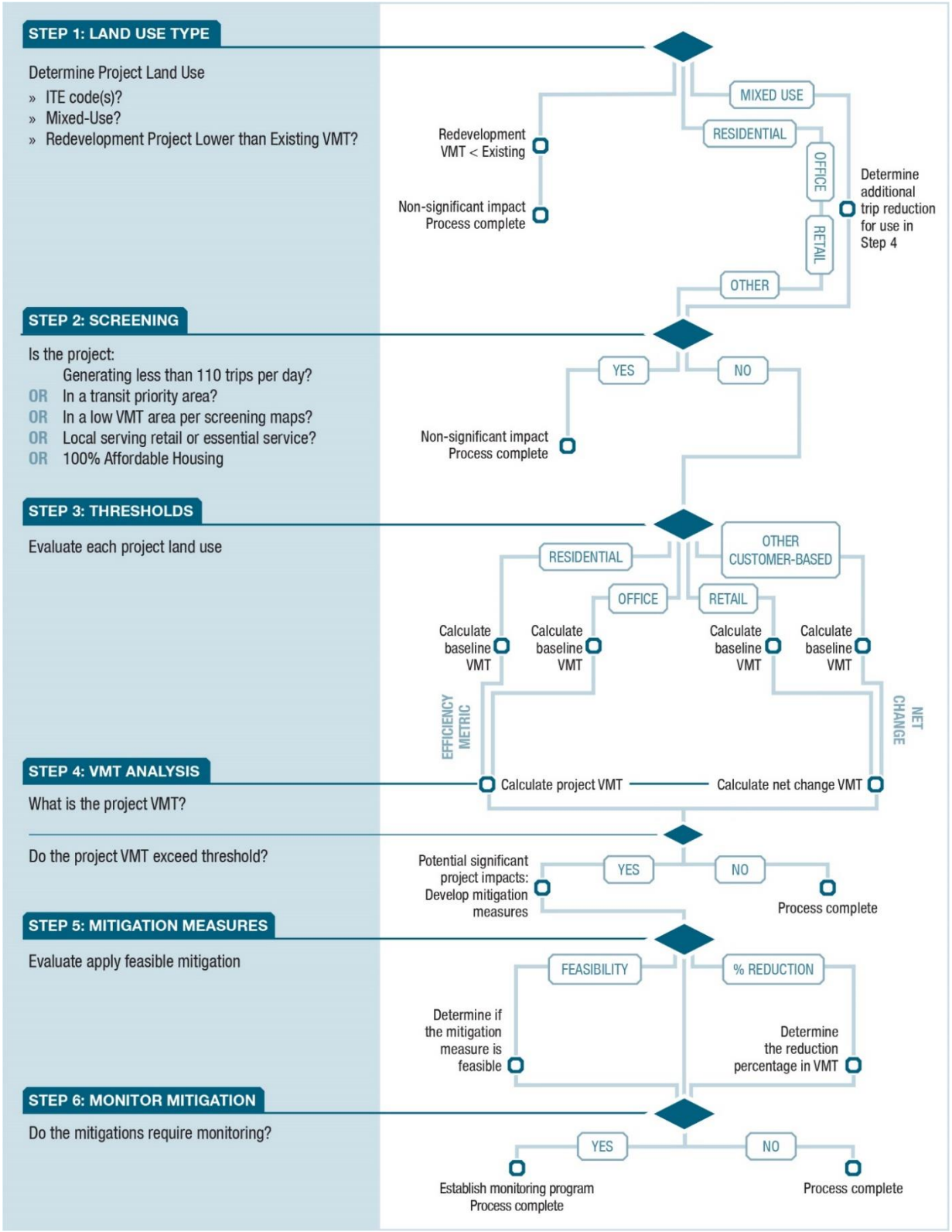
While the OPR guidance related to SB 743 has been a helpful introduction to using VMT to evaluate projects, it does not provide a complete solution. There are a multitude of complex practical issues that are not addressed by the OPR guidance. OPR Guidance does not specifically address land uses beyond residential, office and retail, and it provides latitude on some elements of implementation. In response to this, a specific series of analytical steps for SB 743 project evaluation have been developed to clarify requirements and reduce potential confusion. **Exhibit 1** provides a graphical representation of this analytical process.

Step 1: Evaluate Land Use Type

During the initial step, a land use project will need to be evaluated for the following considerations:

- ***Land use type.*** For the purposes of analysis, the ITE land use codes serve as the basis of land use definitions. Although it is recognized that VMT evaluation tools and methodologies are typically not fully sensitive to some of the distinctions between some ITE categories, the use of ITE land use codes is useful for maintaining consistency across analyses, determining trip generation for other planning level tools, and maintaining a common understanding of trip making characteristics amongst transportation professionals. The ITE land use code is also used as an input into the sketch planning tool.
- ***Mixed use.*** If there are multiple distinct land uses within the project (residential, office, retail, etc.), they will be required to be analyzed separately unless they are determined to be insignificant to the total VMT. Mixed use projects are permitted to account for internal capture which depending on the methodology may require a distinct approach not covered in this documentation.
- ***Redevelopment projects.*** As described under the Non-Significant Screening Criteria section, redevelopment projects which have lower VMT than the existing on-site use can be determined to have a non-significant impact.

Exhibit 1 – Process for CEQA VMT Analysis for Land Use Projects



Step 2: Screen for Non-Significant Transportation Impact

The purpose of this step is to determine if a presumption of a non-significant transportation impact can be made on the facts of the project. The guidance in this section is primarily intended to avoid unnecessary analysis and findings that would be inconsistent with the intent of SB 743. A detailed CEQA transportation analysis will not be required for land use projects that meet the screening criteria shown in **Exhibit 2**. If a project is mixed use in nature, only those elements of the project that do not meet any of the criteria in **Exhibit 2** would require further evaluation to determine transportation significance for CEQA purposes.

Exhibit 2 – Land Use Project Screening Criteria

Screening Criteria[1]	Impact Analysis
SMALL PROJECTS[2]	**Presumed to cause a less-than-significant impact:** ▪ Project generation is less than 110 trips per day **Unless:** ▪ It is inconsistent with the current General Plan and Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS)
PROJECTS NEAR HIGH QUALITY TRANSIT[3]	**Presumed to cause a less-than-significant impact:** ▪ Within a ½ mile of an existing major transit stop, which maintains a service interval frequency of 15 minutes or less during the morning and afternoon peak commute periods. **Unless:** ▪ Has a Floor Area Ratio (FAR) of less than 0.75 ▪ Includes more parking for use by residents, customers, or employees of the project than required by the City of Watsonville ▪ It is inconsistent with the current General Plan and MTP/SCS ▪ Replaces affordable residential units with a smaller number of moderate- or high-income residential units

[1] When the Screening Criteria are met no further transportation analysis of VMT impacts under CEQA is necessary.
[2] Office of Planning and Research (2018), *OPR Technical Advisory on Evaluating Transportation Impacts in CEQA*, p. 12, available at https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.
[3] *Ibid.*, p. 13.

Screening Criteria	Impact Analysis
LOCAL-SERVING RETAIL[4]	**Presumed to cause a less-than-significant impact:** ▪ No single store on-site exceeds 50,000 square feet ▪ Project is local-serving **Unless:** ▪ If the nature of the service is regionally focused[5]
AFFORDABLE HOUSING[6]	**Presumed to cause a less-than-significant impact:** ▪ The residential component of a project consists of 100-percent affordable residential units **Unless:** ▪ The percentage of affordable housing is less than 100 percent of the residential element of a project
LOCAL ESSENTIAL SERVICE[7]	**Presumed to cause less-than-significant impact:** ▪ Day care center ▪ Public K-12 School ▪ Police or Fire facility ▪ Medical/Dental office building ▪ Assisted living / memory care facility ▪ Government offices (in-person services such as post office, library, and utilities) **Unless:** ▪ The nature of the service is regionally focused

[4] *Ibid.*, p. 16. For purposes of these Guidelines, "Local Serving" shall mean retail operations that primarily serve nearby residential neighborhoods within the City of Watsonville. A determination that a project is "Local Serving" may be supported by a market study or other studies of similar uses elsewhere in the City.

[5] For purposes of these Guidelines, "Regionally Focused" shall mean retail operations that primarily serve a regional customer base. A determination that a project is "Regionally Focused" may be supported by a market study or other studies of similar uses elsewhere in the region surrounding the City.

[6] OPR (2018), p. 14. As described, "Evidence supports a presumption of less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations. Lead agencies may develop their own presumption of less than significant impact for residential projects (or residential portions of mixed-use projects) containing a particular amount of affordable housing, based on local circumstances and evidence."

[7] Based on assumption that, like local-serving retail, the addition of necessary local in-person services will reduce VMT given that trips to these locations will be made irrespective of distance given their non-discretionary nature.

Screening Criteria	Impact Analysis
MAP-BASED SCREENING[8]	**Presumed to cause a less-than-significant impact:** ▪ Area of development is under threshold as shown on a screening map included in Appendix B **Unless:** ▪ Represent significant growth as to substantially change regional travel patterns
REDEVELOPMENT PROJECTS[9]	**Presumed to cause a less-than-significant impact:** ▪ Project replaces an existing VMT-generating land use and does not result in a net overall increase in VMT **Unless:** ▪ Project replaces an existing VMT-generating land use and results in a net overall increase in VMT

Step 3: Significance Threshold and Methodology

The purpose of this step is to determine the appropriate threshold of significance for a land use project. Significance thresholds are based on land use type and are broadly grouped into two categories: efficiency and net change metrics. Efficiency metrics include VMT/capita and Work VMT/employee.[10] As shown in **Exhibit 1**, projects involving residential and office land uses would be evaluated using efficiency metrics; whereas, projects that include a significant customer/user base, such as retail and other commercial uses, would be evaluated based on the net change in regional VMT based on customer/user trips. **Exhibit 3** provides a few examples of the variety of uses that have similar characteristics for using Efficiency or Net Change metrics.

Exhibit 3 - Significance Threshold and Methodology

Threshold Basis	Efficiency	Net Change
Example Land Uses	Residential, Professional Office, Industrial	Retail, Medical Office, Sports Venue
Example VMT Thresholds	Per capita, per employee	Regional VMT change
Customer/User Component (Primary source of VMT)	No	Yes

[8] OPR (2018), p. 12.
[9] *Ibid.*, p. 18.
[10] Work VMT specifically applies to commute trips as represented by the attractions in the Travel Demand Model. Refer to Appendix A for additional information.

Threshold Basis	Efficiency	Net Change
Allowable Methods	Non-Significant Screening Criteria, The City of Watsonville Sketch Planning Tool, Travel Demand Model	Non-Significant Screening Criteria, Travel Demand Model

For projects with a large customer/user base, it is typically appropriate to separate employee trip characteristics from the customer base trip characteristics. Under these circumstances, it is most appropriate to evaluate the total of the delta in regional VMT resulting from the customer base plus the delta of VMT resulting from employees based on the following formula:

(number of employees) x (estimated VMT/employee – threshold VMT/employee)

The threshold of significance will accordingly correspond to the "Net Change" threshold as described in **Exhibit 3**. Under these circumstances, it is most appropriate to evaluate this total Net Change as the basis for evaluating the outcome of mitigations. As with mixed use projects, each element of the project should be tallied and evaluated separately.

VMT Thresholds of Significance

OPR recommends a 15 percent VMT reduction relative to existing development may be a reasonable threshold. While OPR's Technical Advisory is not binding on public agencies, CEQA allows lead agencies to "consider thresholds of significance . . . recommended by other public agencies, provided the decision to adopt those thresholds is supported by substantial evidence."[11]

According to OPR, achieving 15 percent lower per capita (for residential development) or per employee (for office development) VMT compared with VMT resulting from existing development is both generally achievable and is supported by evidence that connects this level of reduction to the State's emissions goals.[12] The thresholds of significance recommended by OPR, as they relate to the City of Watsonville, are summarized in **Exhibit 4**.

Exhibit 4 - OPR suggested VMT Thresholds of Significance

Land Use	OPR Guidance[13]
Residential	15% below existing county-wide average VMT per capita
Office	15% below existing county-wide average VMT per employee
Retail	Net increase in total VMT

Exhibit 5 provides the City's VMT thresholds of significance for residential, office, retail, and related land use projects based on these criteria.

[11] CEQA Guidelines, § 15064.7(c).
[12] OPR (2018), pp. 10-12.
[13] *Ibid.*, pp. 15-16.

Exhibit 5 - VMT Thresholds of Significance

Land Use	VMT Threshold	Basis
Residential	8.9 VMT/capita[14]	15% below existing county-wide average VMT per capita
Office	7.4 Work VMT/employee[15]	15% below existing county-wide average Work VMT per employee
Retail	No net increase	Using the county-wide VMT as the basis
Other Customer	No net increase	Using the county-wide VMT as the basis for similar land uses
Other Employment	Work VMT/employee[16]	15% below existing county-wide average Work VMT per employee for similar land uses

Note that the inclusion of "Other Employment" and "Other Customer" refers to all other service and goods providers that are not included in the basic office/retail categories. As shown, they follow a similar approach to the office/retail categories with the principal difference being that the average/basis for the threshold would be the aggregation of the specific "other" land use across the County (i.e., an industrial project would use industrial uses, etc.).

Based on improvements to methods and data as well as other modeling modifications there will be periodic updates to the numerical threshold values shown, however the relative approach for calculating them should remain the same. The values in the current sketch planning tool, discussed in the next section, will supersede the information provided in the table above. Additional thresholds for various employment types are also provided in the sketch planning tool.

Sketch Planning Tool

The City of Watsonville has developed a sketch planning tool for use in SB 743 land use project analysis. The purpose of the tool is to enable staff to calculate VMT for a land use project. The sketch planning tool allows the user to enter project information, such as a land use type, amount of development (in terms of units for residential projects and square feet for commercial or other types of non-residential projects), and then generate a VMT output. If above a VMT threshold of significance, applicable Transportation Demand Management (TDM) strategies (from **Appendix C**) can be applied to reduce the project's overall VMT and evaluate their effectiveness. The tool also includes presumption overrides for land use projects that meet screening criteria in **Exhibit 2**, such as projects that provide affordable housing units or local serving retail space up to but not exceeding 50,000 square feet in floor area.

As with any sketch planning tool, there are distinct limitations in terms of its application including limits on the type and size of development that the tool can be applied to. Note that this tool is intended for

[14] Residential VMT specifically applies to all Home-Based trips as represented in the Travel Demand Model. Refer to Appendix A for additional information.
[15] Work VMT specifically applies to commute trips as represented in the Travel Demand Model. Refer to Appendix A for additional information.
[16] Work VMT specifically applies to commute trips as represented in the Travel Demand Model. Refer to Appendix A for additional information.

projects involving up to 2,000 trips. (For projects involving more than 2,000 trips, the Travel Demand Model would need to be run to accurately estimate VMT.) Note further that it is anticipated that the tool will continue to evolve in response to data or methodological changes and as such, it is important that the most current version of the tool be utilized. Broadly, the sketch planning tool provides the following information:

- Institute of Transportation Engineers (ITE) Trip Generation
- Vehicle Miles Traveled (VMT) Threshold Analysis
- Greenhouse Gas (GHG) Estimation
- Transportation Demand Management (TDM) Evaluation

The VMT Analysis methodology utilized by the sketch planning tool is summarized in **Appendix A.**

Agreement Prior to Conducting a VMT Analysis

Prior to undertaking VMT analysis, a scope of work that is compliant with the City of Watsonville's requirements should be prepared and submitted by the Applicant for approval by City staff. Given the potential complexities of some uses, particularly those not identified as residential, retail, or office, an agreement regarding the threshold and methodology is important to avoid analysis that is not compliant with CEQA and the City of Watsonville's standards.

Step 4: VMT Analysis

If a proposed project does not meet one of the screening criteria in **Exhibit 2**, a VMT analysis shall be conducted for the project in accordance with the City's requirements. During this step, the analysis agreed to under Step 3 would be completed. Along with the results of the VMT analysis, relevant documentation must be provided with enough detail to understand assumptions used in conducting the analysis and confirm and/or replicate the methods used in performing the analysis for the proposed project.

Step 5: Mitigation Measures

If a significant transportation impact is identified, the City of Watsonville, as lead agency, must consider mitigation or alternatives. CEQA requires that the mitigation measures or alternatives be included in the project's environmental assessment analysis. OPR provides a list of potential measures to reduce VMT but gives a lead agency full discretion in the selection of mitigation measures.

The type and size of the project will determine the most appropriate mitigation strategies for VMT impacts. For large projects such as general plans or specific plans, VMT mitigations should concentrate on the project's density and land use mix, site design, regional policies, and availability of transit, bicycle, and pedestrian facilities. For smaller projects such as an individual development project, VMT mitigations will typically require the preparation of a TDM program. A TDM program is a combination of strategies to reduce VMT. The program is created by an applicant for their land use project based on a list of strategies agreed to by the Zoning Administrator and City Engineer.

The City of Watsonville has developed a list of potential TDM strategies appropriate for the City and quantifies the magnitude of VMT reduction that could be achieved. The selection process was guided by the California Air Pollution Control Officers Association (CAPCOA) recommendations found in the 2010

publication *Quantifying Greenhouse Gas Mitigation Measures*. The area context of the City of Watsonville also influenced the type of TDM strategies that were selected. CAPCOA has found strategies with the largest VMT reduction in suburban areas include vanpools, telecommute or alternative work schedules, and master planned communities with design and land-use diversity to encourage intra-community travel. Based on empirical evidence, CAPCOA found the cross-category maximum for all transportation-related mitigation measures is 15% for suburban settings.

Appendix C summarizes available TDM strategies, along with the maximum VMT reduction, applicable land use application, and complementary strategies. The City of Watsonville's sketch planning tool includes the TDMs summarized in **Appendix C**.

Step 6: Monitoring Mitigation

As required by CEQA, the City of Watsonville will require ongoing mitigation monitoring and reporting when mitigation measures are adopted as part of an approved project. The specifics of this will be developed on a project-by-project basis. As an example, the City may require the determination of a "trip cap" (the number of vehicle trips entering/existing the site that would correspond with the threshold VMT estimate) as part of the mitigation plan. Subsequently, the project could be required to provide annual reporting of driveway counts collected by an acceptable third party to demonstrate the effectiveness of the adopted mitigation measures.

Transportation Projects

Depending on the specific nature of a transportation project it can alter trip patterns, trip lengths, and even trip generation. Research has determined that capacity-enhancing projects can and often do increase VMT. This phenomenon is commonly referred to as "induced demand". While methods are generally less developed for the analysis of induced demand compared to other areas of transportation analysis, there is still the need to quantify and understand its impact to the transportation system considering the requirements of SB 743.

Similar to land use projects, the approach to transportation project analysis closely aligns with the 2018 OPR Guidance. In terms of analysis, the analyst should first determine whether the transportation project has been prescreened and determined to have a non-significant impact as described in the following section.

Screen for Non-Significant Transportation Impact

The following non-significant impact examples are provided directly from the 2018 OPR Guidance[17]:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways, roadways, bridges, culverts);
- Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity;
- Roadside safety devices or hardware installation such as median barriers and guardrails;

[17] OPR (2018), p. 20.

- Roadway shoulder enhancements to provide "breakdown space," dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile vehicle travel lanes;
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety;
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lanes;
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit;
- Conversion of existing general-purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel;
- Addition of a new lane that is permanently restricted to use only by transit vehicles;
- Reduction in number of through lanes ("road diet");
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles;
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features;
- Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow;
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow;
- Installation of roundabouts or traffic circles;
- Installation or reconfiguration of traffic calming devices;
- Adoption of or increase in tolls;
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase;
- Initiation of new transit service;
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes;
- Removal or relocation of off-street or on-street parking spaces;
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs);
- Addition of traffic wayfinding signage;
- Rehabilitation and maintenance projects that do not add motor vehicle capacity;

- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way;
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel;
- Installation of publicly available alternative fuel/charging infrastructure; and
- Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor.

Significance Threshold and Methodology

For projects that increase roadway capacity and are not identified under the Non-Significant Screening Criteria in the prior section, the significance criterion should be "Net Change" in regional VMT. A finding of a significant impact would be determined if a transportation project results in a net increase in regional VMT.

VMT Mitigation Banking Program

This section discusses a programmatic approach to respond to the need for feasible VMT mitigation within the City of Watsonville. In suburban areas such as the City of Watsonville, VMT impact analyses can result in a finding of a significant adverse transportation impact, particularly in undeveloped areas, due to a lack of land use density and diversity. In addition, with fewer transportation options compared to more urbanized areas, mitigating impacts in suburban areas can prove to be more difficult than under the former LOS methodology for analyzing traffic impacts. For many jurisdictions like the City of Watsonville, the switch to the VMT methodology under SB 743 is resulting in a reversal in the results of transportation impact significance findings as compared to the analyses conducted under the former LOS-based methodology.

As a practical matter, the new VMT methodology is also a more restrictive approach to identifying transportation impacts both because of the basis for setting an impact threshold and limited mitigation opportunities. In terms of the threshold of significance, OPR recommends that projects consisting of residential or general employment category land uses effectively need to be located in an area where they are 15 percent less than the average VMT for similar uses.[18] Effectively this means that new projects must be located in an area where they are more efficient than 65-percent of similar uses from a VMT standpoint. Given the suburban nature of Watsonville and elsewhere in the region, there is a need for additional feasible mitigation solutions.

To date, VMT mitigation across the State has relied heavily on TDM measures. These measures generally represent two basic approaches: infrastructure and policy. The documents produced by CAPCOA regarding VMT mitigation represent the primary bases for estimating the effectiveness of TDM mitigation in California.[19,20] Although CAPCOA is an invaluable resource, many of the TDM mitigation options

[18] OPR (2018), pp. 12 & 15.
[19] CAPCOA (2010), *Quantifying Greenhouse Gas Mitigation Measures*.
[20] CAPCOA (2021), *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health & Equity*.

provided have questionable efficacy in suburban and rural settings, as they are more effective in urban settings with high quality transit and a mix of land uses in close proximity to one another. TDMs can also be challenging from the standpoint of mitigation monitoring and are often unpopular with project applicants because they may need to be managed and paid for in perpetuity. These limitations have led jurisdictions, including the City of Watsonville, to increasingly consider programmatic approaches, in addition to TDMs, for VMT mitigation. Programmatic approaches can allow for collectively funding larger mitigation projects such that a development or transportation project can obtain an amount of mitigation commensurate with their impact with a single monetary payment. Programmatic approaches can also provide a public benefit in terms of funding transportation improvements that would not otherwise be constructed, resulting in improvements to congestion, GHG emissions, increased transportation choices, and additional opportunities for active transportation.

The City of Watsonville has developed a VMT Mitigation Banking Program to help address the need for additional VMT mitigation. A mitigation bank attempts to create a monetary value for VMT reduction such that a developer could purchase VMT reduction credits—i.e., these credits are purchased for the purposes of mitigating VMT in excess of determined impact thresholds. The underlying projects may be either regionally or locally beneficial to the area in which the project is located.

VMT Mitigation Need

The locations of future development, the quantity of development, and the extent of mitigation needs based on individual Traffic Analysis Zone (TAZ) output are invaluable input into determining the magnitude of VMT mitigation needed in the future. This type of dataset is both invaluable to understanding potential revenue and the amount that differing spatial areas may require in mitigation terms.

Using Santa Cruz County's Travel Demand Model and the thresholds established within this document for the City of Watsonville, the total potential VMT to be mitigated was calculated by calculating the difference between the VMT per capita and VMT per employee for each Traffic Analysis Zone (TAZ) that is over the established thresholds. The difference was then multiplied by the population and total employees for each TAZ to develop a total VMT per TAZ to be mitigated, which then allows for a City-wide total to be calculated. Based on these forecasts, **Exhibit 6** below presents an estimate of the amount of VMT that will need to be mitigated through 2040. More detailed mapping showing the spatial location of VMT mitigation needs is provided in **Appendix D**. Although this data does not account for the potential level of site specific VMT mitigation that will occur, it does present a clear need for mitigation more than what can be achieved through TDMs or similar site-based mitigation approaches.

Exhibit 6 – VMT Summary for Anticipated Growth and Needed Mitigation through 2040

Category	#
Future Households over Threshold	678
Future Employment over Threshold	8,997
2040 Total Residential VMT	476,757
2040 Total Employment-Based VMT	333,755
2040 Total Residential VMT for VMT/capita over threshold	237,613
2040 Total Employment-Based VMT for VMT/employee over threshold	333,755

Feasible Mitigation

This section discusses how CEQA and the State of California treat cases in which a project has a significant transportation impact and therefore is required to provide feasible mitigation. Based on research conducted by CAPCOA, the maximum reduction in VMT that can be feasibly attained using exclusively site-specific mitigation measures in a suburban context such as the City of Watsonville, is 15-percent.[21] Site-specific solutions most often rely on TDM measures, as discussed in the previous section, although project land use modifications can also be utilized to mitigate impacts. Therefore, projects that exceed the VMT significant impact thresholds by more than 15-percent must rely on non-site-specific approaches if full mitigation is to be achieved. If full mitigation is not possible, CEQA nonetheless requires that feasible mitigation measures be imposed to reduce the severity of the impact even if the impact remains significant with the mitigation.

Based on this, if a project exceeds the City's VMT threshold by more than 15 percent, it will require a combination of site-specific measures and non-site-specific measures, including the VMT Mitigation Bank as discussed in the next section, in order to achieve mitigation. This could mean using only site-specific mitigation measures to reach the 15-percent threshold, using only the VMT Mitigation Bank to reach the 15-percent threshold, or using both to reach the 15-percent threshold, such as using TDM measures to reduce VMT by 6-percent and then using the VMT Mitigation Bank to reduce VMT by the remaining 9 percent.

VMT Banking Projects

Exhibit 7 below provides information on the VMT banking projects that development and transportation projects can contribute funds for the purpose of mitigating their VMT impacts. The primary focus of these projects is to construct or improve active transportation facilities that will replace vehicular trips thereby reducing VMT. Note that the City may, at its discretion, add additional projects to this list which may alter the then current fee structure discussed in the Maximum Banking Credit Rate provided later in this document. Cost estimate details are provided in **Appendix E**.

[21] CAPCOA (2010), *Quantifying Greenhouse Gas Mitigation Measures*.

Exhibit 7 – VMT Banking Projects

Trail ID	Type	Name of Project	Description	Length/Number of Improvements	Cost Estimate
8.2	Bike/Ped	Lower Watsonville Slough Loop	Provide a new slough trail at the following segments to create a new loop: - Main Street to Ford Street - San Luis Avenue to the existing Watsonville slough loop	0.11 mi	$9,475,000
8.5	Bike/Ped	La Brisas Connector Trail	Provide connection along San Luis Avenue & Santa Victoria Avenue to the existing trail	0.13 mi	$4,000
8.7	Bike/Ped	Manabe-Ow Connector Trail	Provide bridge from Manabe-Ow to existing trail	0.10 mi	$16,400,000
9.1	Bike/Ped	Upper Struve Slough Trail	Slough trail connecting Pennsylvania Drive to South Green Valley Road	0.47 mi	$2,410,000
9.3	Bike/Ped	Rolling Hills Connector Trail	Trail loop along Eileen Street, SR 152, South Green Valley Road, and Melwood Court	0.33 mi	$720,000
9.4	Bike/Ped	Upper Watsonville Slough	Slough trail from Main Street to Freedom Boulevard	1.05 mi	$15,790,000
				Total	**$44,799,000**

Maximum VMT Banking Credit Rate and Nexus:

The four steps to identify the VMT Mitigation Banking projects and calculate the VMT Banking credit rate are as follows:

1. Identify appropriate mitigation projects;
2. Determine the cost of construction of the mitigation projects;
3. Determine the total VMT that can be mitigated by the projects; and
4. Calculate the maximum mitigation credit rate per VMT by dividing total cost of the mitigation projects by the total VMT mitigated by the projects to determine the rate per unit of VMT.

The approach outlined above results in a calculation of the maximum rate per VMT mitigated based on the list of projects identified above. The full cost of funding these improvements is used to calculate the maximum VMT Mitigation Banking credit rate per VMT the City could apply to all new residential and non-residential development in the City between 2022 and 2032 that result in VMT impacts.

As part of this analysis, a nexus evaluation was undertaken to support the basis of the VMT Mitigation Bank's development and credit rate. Consistent with California's Mitigation Fee Act, to develop a fee program a local agency must identify the purpose of the fee (Gov't Code § 66001(a)(1)). The City of Watsonville's policy is that new development shall contribute to the VMT banking credit rate, if needed for mitigation of their VMT impacts. In addition, the costs of constructing the improvements to help mitigate VMT citywide will be implemented through the VMT Mitigation Banking Program administered by the City of Watsonville.

As noted above, the projects that are included in the City of Watsonville's VMT Mitigation Banking Program will fund the construction of facilities that support active transportation (cycling and walking) to

mitigate VMT impacts from new development by moving trips from automobiles to bike or pedestrian facilities. As these projects' benefit could not be sufficiently analyzed using the Travel Demand Model given limitations within the model related to the representation of bike and pedestrian facilities, the projects were analyzed using off-model techniques. Specifically, bicycle improvements were evaluated based on *NCHRP 552 Guidelines for Analysis of Investments in Bicycle Facilities.* This approach relies on spatial analysis techniques to determine the likely number of new active transportation users resulting from the introduction of a new bicycle improvement. This approach also removes the number of new users who will use the facility for exercising as exercise will not replace vehicle trips and thus, will not reduce existing VMT. Based on survey data of bicyclists throughout the United States, both for adults and children, the percentage of those cycling for commute purposes was estimated to be 11-percent of all riders and those cycling for exercise was estimated to be 28-percent of all riders. Child cyclists are included in the analysis as they may use the new facility to access schools, friends, or stores among other destinations that previously they would need a parent to drive them to. Thus, with the removal of riders for exercise, only riders that would use the facilities to replace vehicle trips were included in the analysis.

The resultant bike ridership estimates are provided in **Appendix F**. Note that although the projects will provide benefits to pedestrians, those were not quantified for the purposes of this analysis given that the nature and location of these projects is not anticipated to significantly result in walking trips replacing vehicle-based trips. **Exhibit 8** shows the comparison between the existing ridership and future induced riders based on the construction of the projects.

Exhibit 8 – Existing and Future Daily Bicycle Ridership

Demand (facility users)	Existing Riders	Induced Riders	Total Future Riders (existing + induced)
Adult Bicyclists	5,264	5,606	10,870
Child Bicyclists	1,629	1,743	3,372
Total	**6,893**	**7,349**	**14,242**

As shown in **Exhibit 8**, the bicycle improvement projects could add almost 7,350 bicycle riders per day throughout the City in the future (by model year 2032), which would roughly double existing bicycle ridership to over 14,000 bicycle trips throughout the City and provide an alternative to congested vehicular travel along with significant health and recreational benefits. While not related to VMT mitigation, it should also be noted that construction of the pedestrian and bicycle improvements will result in additional safety benefits by reducing the potential for vehicle-bicycle and vehicle-pedestrian conflicts.

Total VMT Reduction

The total VMT reduction per project for the bicycle and pedestrian projects was calculated by multiplying the average bicycle trip length taken by new riders induced by the construction of a project by the total number of new riders and the project's lifecycle. For the purposes of this analysis, the average trip length used was four miles, based on industry standard assumptions. In addition, the project lifecycle was assumed to be ten years to cover the analysis period between 2022 and 2032. The number of new bicycle riders for each project was multiplied by the average trip length to obtain the total daily VMT reduction

for each project. Each project's VMT reduction was added together to determine the total VMT reduction for all bicycle and pedestrian projects, which for the projects listed in **Exhibit 7** total 29,392.

Maximum Banking Credit Rate

To determine the maximum overall credit rate, the total project costs of $44,799,000 was divided by the total VMT reduction of 29,392 daily VMT. This calculation resulted in a maximum cost per VMT reduction of $1,524.21. Note that this rate does not include any non-fee funding sources (grants, etc.). The addition of any funding sources for these projects could reduce the cost to fully implement projects included in **Exhibit 7**.

VMT Mitigation Banking Program Administration and Monitoring

The City of Watsonville shall set up a separate account for the purpose of tracking the collection of payments into the VMT Mitigation Banking Program. This account shall be monitored by the City Engineer to ensure purchased VMT credits are used for constructing appropriate projects, as identified in **Exhibit 7**, to achieve the intended VMT reduction. As part of the annual Capital Improvement Program (CIP) reporting to Planning Commission and City Council, the City Engineer shall include a progress report on any funds accumulated in the VMT Mitigation Banking Program and expenditures on constructing or improving active transportation facilities providing additional VMT-reducing investments that would not have occurred if bank funding were not available.

Appendix A

VMT Analysis Methodology

Travel Demand Models are broadly considered to be amongst the most accurate of available tools to assess regional and sub-area VMT. While the Association of Monterey Bay Area Governments (AMBAG) maintains the regional travel demand model as a part of the Metropolitan Transportation Plan/Sustainable Communities Strategy program (MTP/SCS), the jurisdictions in Santa Cruz County maintain their own travel demand model (SCC TDM) for the analysis of local conditions. The latest available version of the SCC TDM was developed in 2020.

The 2019 Base Year model scenario from this model was used for the baseline conditions and 2040 Future Year model scenario is used for cumulative conditions analysis. The four incorporated cities included in the model (City of Capitola, City of Santa Cruz, City of Scotts Valley, and the City of Watsonville) are major contributors of the trips throughout the County during a typical weekday.

As many of the County's daily trips originate from or are destined for areas outside of the County such as the Bay area and Monterey County (external trips), their total length could not be computed solely using the SCC TDM, additional analysis was required. The length of these trips was determined using two main processes, using Big Data and SCC TDM output files. The Big Data firm from which data was obtained was Teralytics, which uses triangulated cell phone data to determine origin-destination locations for vehicle trips, aggregated at the Census Tract level. The data that was obtained from Teralytics summarized the number of trips to and from the County to the surrounding counties at the Census Tract level for the entire month of October 2019. The distance between each Census Tract in the County and the surrounding counties was determined by using the TransCAD software, the modeling platform the SCC TDM runs on. The multipath analysis function within the TransCAD software was used to determine the point to point distance between the centroid of each Census Tract using the internal pathing algorithm that determines the shortest path along the roadway network between the centroid of each Census Tract pair. The shortest path between each individual Santa Cruz County Census Tract and every non-Santa Cruz County Census Tract that contained at least one trip was multiplied by the share of the total trips to and from each individual Santa Cruz County Census Tract to determine the average trip length to and from the individual County Census Tract. The average trip length was applied to each SCC TDM TAZ within the individual Santa Cruz County Census Tract and multiplied by the number of external trips to and from that TAZ to determine the total external VMT by TAZ.

To calibrate the external distance calculated using the Teralytics data, the distance between the internal Santa Cruz County Census Tracts was calculated. The distances were calculated using the process outlined above which included using the TransCAD pathing algorithm to determine the shortest path between Census Tract centroids. The distances between the internal Santa Cruz County Census Tracts were aggregated down to the SCC TDM TAZs to allow for comparison with the SCC TDM data. One of the SCC TDM output files is the peak-period skim file in which the shortest path between two SCC TDM TAZs is calculated during congested (peak) periods of the day.

To determine a calibration factor for the external trip distances, the distance between TAZs calculated by the SCC TDM was compared to the distances calculated using the Teralytics data. The comparison was completed on a TAZ by TAZ basis and the calibration factor was calculated at the County level by averaging

the difference in distances between the Teralytics data and the SCC TDM data. It was determined that the distances calculated using the Teralytics data were, on average, 16-percent longer than the distance calculated by the SCC TDM. Therefore, the external trip distances were reduced by 16-percent when calculating the VMT for the external trips.

Model Zone Structure

VMT was computed at Traffic Analysis Zone (TAZ) level to determine the thresholds as well as to allow for comparisons among different areas throughout the County. There are 696 TAZs within the County, including 364 TAZs within the unincorporated parts of the County.

Socio-Economic Data

Socioeconomic data (SED) and other model inputs are associated with each TAZ. Out of several different variables in the model SED, the VMT analysis mainly focused on population, the number of households, the number of students, and types of employment that are used in the trip generation component of the model. VMT computation was focused on the number of households in each TAZ and employment variables by 6 industries to determine rest of the trips. Employment variables used in the model are listed below.

Employment by Industry type:

1. Agriculture
2. Construction
3. Industrial and Manufacturing
4. Retail and Food
5. Service (White Collar, non-government jobs)
6. Public Administration (Government jobs)

Trip Generation

The SCC TDM runs a series of complex steps to estimate daily trip productions and attractions by various trip purposes for each TAZ. The trip purposes are listed below.

Model Trip Purpose:

1. Home-Based Work (HW)
2. Home-Based Other (HO)
3. Home-Based School, K-12 (HK)
4. Home-Based College (HC)
5. Home-Based Shopping (HS)
6. Work-Based Other (WO)
7. Other-Based Other (OO)

The production model uses several variables such as number of workers, household income, age, household size and car availability depending on the trip purpose. Trip productions for every TAZ in the model were compiled separately by each trip purpose. The attraction model uses employment categories for the HW trip purpose, whereas it uses the employment categories and number of students (K-12 and University) for all non-HW trip purposes. The attraction model estimates trip attractions to each TAZ by regression coefficients that vary by employment type. Trip attractions for every TAZ were compiled by each purpose and by each employment type based on these regression coefficients.

Person Trips, Vehicle Occupancy, Trip Distance

Trip productions and attractions were compiled after the mode choice step, and only auto trips were used for the analysis. After the vehicle trip productions and attractions were computed for each trip purpose, trip lengths were applied for each zone pair from the skim matrices in the model to compute the production and attraction VMT by purpose.

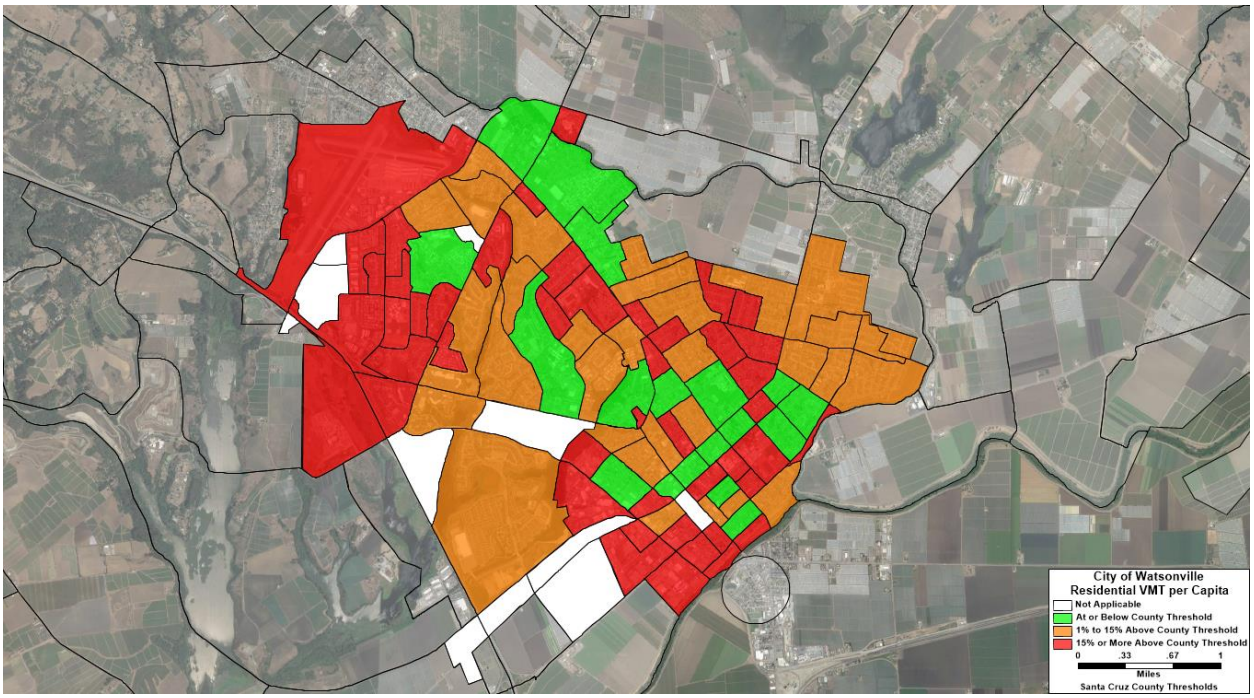
VMT by Land Use Type

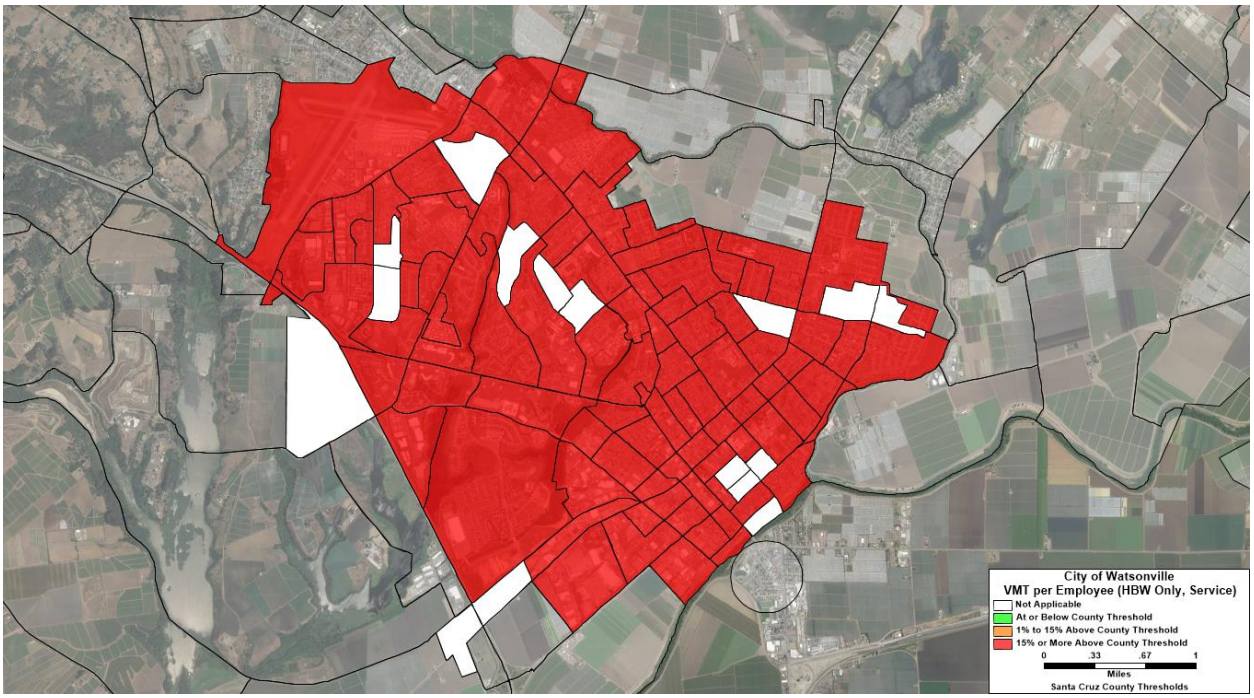
The residential VMT was computed by combining the production VMT for all the Home-Based trip purposes. VMT for non-residential land uses was computed from the attraction VMT by appropriate trip purposes and regression coefficients used in the attraction model.

Residential and non-residential VMT by each TAZ were computed and average VMT were determined by City, County and Region levels to determine City's thresholds.

Appendix B

Screening Maps





Appendix C

City of Watsonville | Transportation Demand Management (TDM) Measures					
#	**TDM Measure**	**Description**	**TDM Type**	**Max VMT Reduction**	**VMT Reduction Type**
Transit Strategies					
1	Transit Stops	Coordinate with local transit agency to provide bus stop near the site. Real time transportation information displays support on-the-go decision making to support sustainable trip making. Only get a reduction on a non-HQT line, cannot get both.	Infrastructure	3%	All
2	Safe and Well-Lit Access to Transit	Enhance the route for people walking or bicycling to nearby transit (typically off-site). Provide Emergency 911 phones along these routes to enhance safety.	Infrastructure	1%	All
3	Implement Neighborhood Shuttle	Implement project-operated or project-sponsored neighborhood shuttle serving residents, employees, and visitors of the project site.	Incentive	5%	All
4	Transit Subsidies	Involves the subsidization of transit fare for residents and employees of the project site. This strategy assumes transit service is already present in the project area. Pays for employees to use local transit. This could either be a discounted ticket or a full-reimbursed transit ticket.	Incentive	5%	All

City of Watsonville | Transportation Demand Management (TDM) Measures					
#	**TDM Measure**	**Description**	**TDM Type**	**Max VMT Reduction**	**VMT Reduction Type**
Communication & Information Strategies					
5	Mandatory Travel Behavior Change Program	Involves the development of a travel behavior change program that targets individuals' attitudes, goals, and travel behaviors, educating participants on the impacts of their travel choices and the opportunities to alter their habits. Provide a web site that allows employees to research other modes of transportation for commuting. Employee-focused travel behavior change program that targets individuals attitudes, goals, and travel behaviors, educating participants on the impacts of their travel choices and the opportunities to alter their habits.	Incentive	4%	All
6	Promotions & Marketing	Involves the use of marketing and promotional tools to educate and inform travelers about site-specific transportation options and the effects of their travel choices with passive educational and promotional materials. Marketing and public information campaign to promote awareness of TDM program with an on-site coordinator to monitor program.	Incentive		All

City of Watsonville | Transportation Demand Management (TDM) Measures					
#	TDM Measure	Description	TDM Type	Max VMT Reduction	VMT Reduction Type
Commuting Strategies					
7	Employer Sponsored Vanpool or Shuttle	Implementation of employer-sponsored employee vanpool or shuttle providing new opportunities for access to connect employees to the project site.	Incentive / Infrastructure	5%	Commute
8	Preferential Carpool / Vanpool Parking Spaces	Reserved carpool / vanpool spaces closer to the building entrance.	Infrastructure	1%	
9	Passenger Loading Zones for Carpool / Vanpool	Provide easy access for carpools or vanpools.	Infrastructure	1%	
10	On-site Carts or Shuttles or bikes	Provide on-site cart or shuttle for employees to travel across campus.	Incentive / Infrastructure	2%	All
11	Emergency Ride Home (ERH) Program	Provides an occasional subsidized ride to commuters who use alternative modes. Guaranteed ride home for people if they need to go home in the middle of the day due to an emergency or stay late and need a ride at a time when transit service is not available. Ecology Action is preferred vendor. This supplemental to the other trip reduction strategies. ADD to 5 and 6.	Incentive	4%	Commute
12	On-site Childcare	Provides on-site childcare to remove the need to drive a child to daycare at a separate location.	Infrastructure	4%	All

City of Watsonville | Transportation Demand Management (TDM) Measures					
#	**TDM Measure**	**Description**	**TDM Type**	**Max VMT Reduction**	**VMT Reduction Type**
13	Telecommuting	Four-Ten work schedule results in 20% weekly VMT reduction, 10% trip reduction equals 15% VMT reduction		10%	
14	Alternative work schedule	Alternative Fridays off (Nine-Ten schedule)		10%	
Shared Mobility Strategies					
15	Mandatory Ride Amigos-Share Program	Increases vehicle occupancy by providing ride-share matching services, designating preferred parking for ride-share participants, designing adequate passenger loading/unloading and waiting areas for ride-share vehicles, and providing a website or message board to connect riders and coordinate rides. Need a point person form the business on-site	Incentive	10%	Commute
16	Employee/Employer Car Share	Implement car sharing to allow people to have on-demand access to a vehicle, as-needed. This may include providing membership to an existing program located within 1/4 mile, contracting with a third-party vendor to extend membership-based service to an area, or implementing a project-specific fleet that supports the residents and employees on -site.	Incentive	0.7%	All

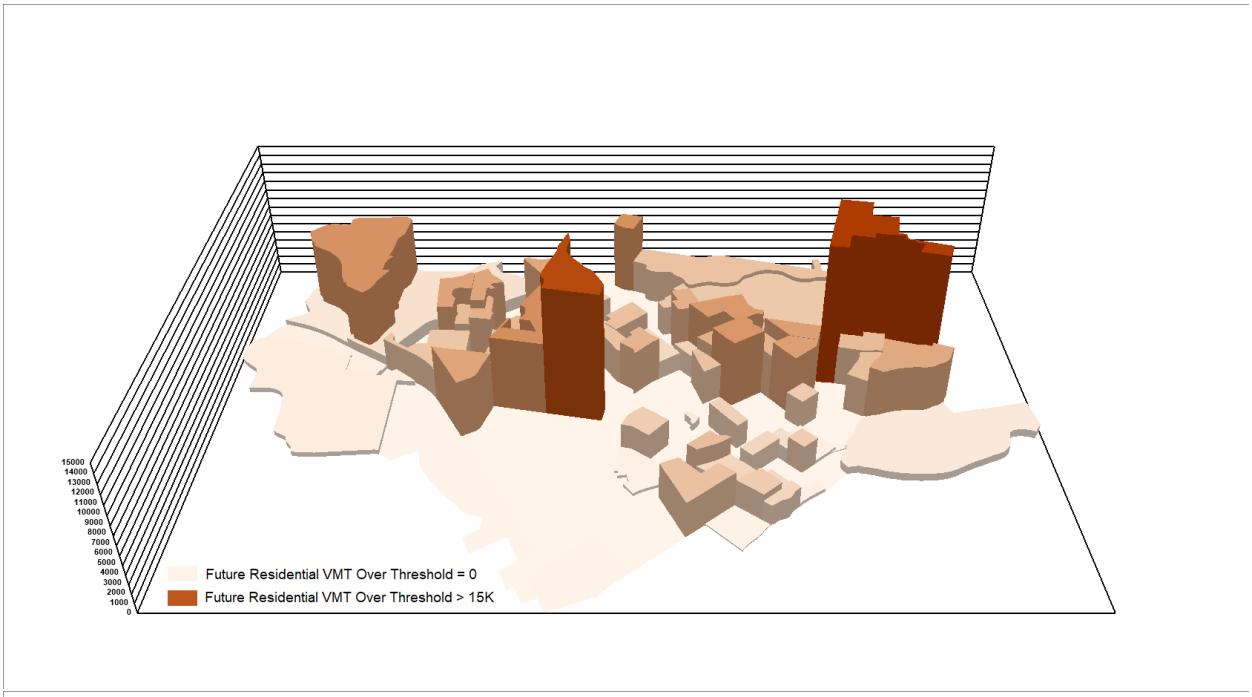
City of Watsonville | Transportation Demand Management (TDM) Measures					
#	**TDM Measure**	**Description**	**TDM Type**	**Max VMT Reduction**	**VMT Reduction Type**
		Provide an on-site car vehicle for employees to use for short trips. This allows for employees to run errands or travel for lunch.	Incentive	2%	Commute
17	School Carpool Program	Implements a school carpool program to encourage ride-sharing for students.	Incentive	15%	School
Bicycle Infrastructure Strategies					
18	Bike Share	Sign up for shared bikes.	Incentive / Infrastructure	7%	All
19	Implement/Improve On-street Bicycle Facility	Implements or provides funding for improvements to corridors and crossings for bike networks identified within a one-half mile buffer area of the project boundary, to support safe and comfortable bicycle travel.	Infrastructure	4%	All
20	Include Bike Parking in excess of City Code	Implements long-term bicycle parking to support safe and comfortable bicycle travel by providing parking facilities at destinations	Infrastructure	2%	All
21	Include Secure Bike Parking and Showers in excess of City Code	Implements additional end-of-trip bicycle facilities to support safe and comfortable bicycle travel.	Infrastructure		
22	Bicycle Repair Station / Services	On-site bicycle repair tools and space to use them supports on-going use of bicycles for transportation.	Infrastructure		

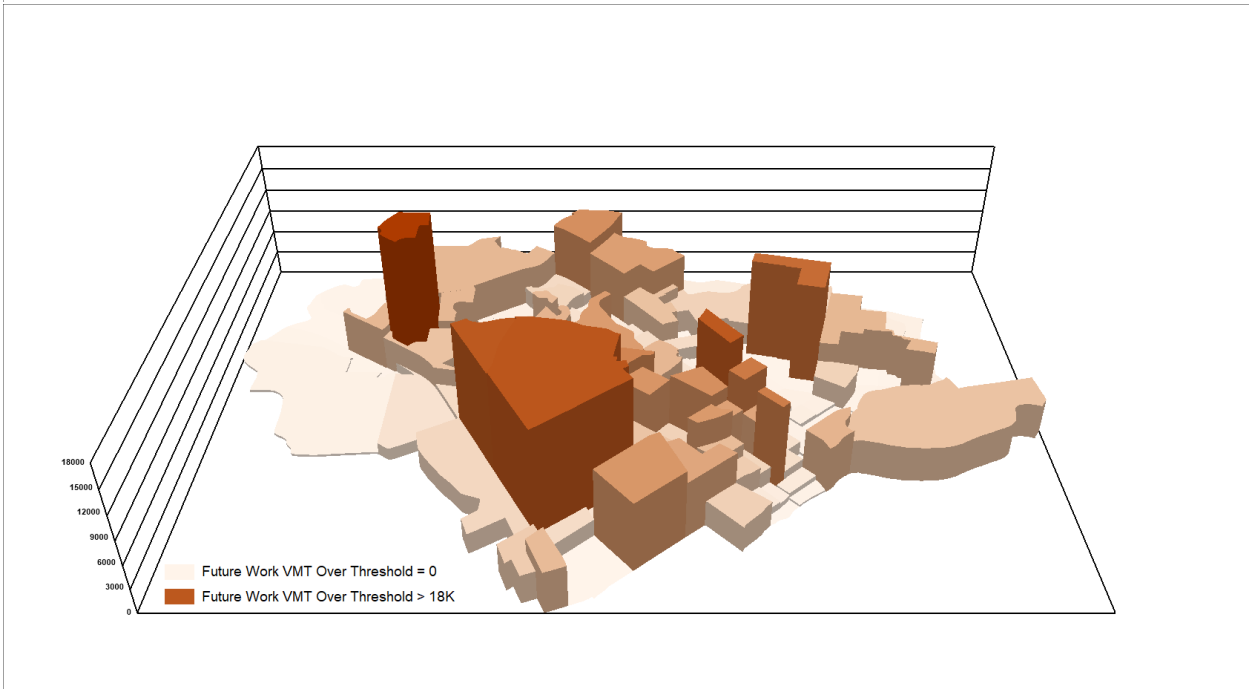
City of Watsonville | Transportation Demand Management (TDM) Measures					
#	**TDM Measure**	**Description**	**TDM Type**	**Max VMT Reduction**	**VMT Reduction Type**
Neighborhood Enhancement Strategies					
23	Traffic Calming Improvements	Implements traffic calming measures throughout and around the perimeter of the project site that encourage people to walk, bike, or take transit within the development and to the development from other locations.	Infrastructure	1%	All
24	Pedestrian Network Improvements	Implements pedestrian network improvements throughout and around the project site that encourages people to walk.	Infrastructure	2%	All
Miscellaneous Strategies					
25	Virtual Care Strategies for Hospitals/Health care providers/MOB/Clinic	Resources to allow patients to access healthcare services or communicate with healthcare staff through online or off-site programs.	Infrastructure	5%	Hospital Visitors
26	On-site Affordable Housing	Provides on-site affordable housing in excess of inclusionary rates % of units is the % reduction developer can get.	Infrastructure	4%	All
Parking Strategies					
27	Reduce Parking Supply	Changes on-site parking supply to provide less than the amount required by municipal code. Permitted reductions could utilize mechanisms such as TOC, Density Bonus, Bike Parking ordinance, or locating in a Specific Plan Area.	Infrastructure	10%	All

City of Watsonville | Transportation Demand Management (TDM) Measures					
#	**TDM Measure**	**Description**	**TDM Type**	**Max VMT Reduction**	**VMT Reduction Type**
28	Unbundle Parking	Unbundles parking costs from property costs, requiring those who wish to purchase parking spaces to do so at an additional cost. Implementation of residential permit parking zones for long-term use of on-street parking in residential area at the expense to the developer.	Incentive	10%	Residential
29	Parking Cash-Out	Provide employees a choice of forgoing current parking for a cash payment to be determined by the employer. The higher the cash payment, the higher the reduction.	Incentive	5.0%	Commercial Only
30	Residential Area Parking Permits		Incentive	0.25%	Only in non-Coastal Commission areas
31	Parking Management Strategies	Strategies to encourage efficiency in parking facilities and improve the quality of service to parking users	Incentive	1%	Valet

Appendix D

2040 VMT Mitigation Needs for Residential and Employee-Based VMT Projects





Appendix E

VMT Banking Project Costs

City of Watsonville

Estimate of Conceptual Project Costs

8.2 Lower Watsonville Slough Loop Bridge

From West and North Side to West and South Side

Kimley»Horn

Date Prepared: April 20, 2022

	Item	Unit	Quantity	Unit Cost	Total Cost	Notes
	Slough Bridge					
1	Bridge	SF	3,360	$900	$3,024,000	Assumes a 12' path over the bridge
	Main to Ford St					
3	Trail (14' Width)	LF	295	$325	$95,900	
4	Retaining Wall	SF	1,770	$250	$442,500	Assumes a 6' wall
	SUB-TOTAL MAJOR CONSTRUCTION ITEMS				**$3,562,400**	**Notes**
	Utility Work	% of sub-total major construction items		3.0%	$106,900	
	Landscaping	% of sub-total major construction items		5.0%	$178,200	
	Erosion Control	% of sub-total major construction items		5.0%	$178,200	
	Drainage	% of sub-total major construction items		5.0%	$178,200	
	Traffic Control / Detour	% of sub-total major construction items		0.0%	$0	
	Traffic - Signage & Striping	% of sub-total major construction items		0.0%	$0	
	Mobilization	% of sub-total major construction items		8.0%	$285,000	
	Misc. - Lighting/Commercial Signs	% of sub-total major construction items		0.0%	$0	
	Minor Contract Revisions	% of sub-total major construction items		5.0%	$178,200	
	SUB-TOTAL CONSTRUCTION COSTS				**$4,667,100**	**Notes**
	Environmental Review	% of sub-total construction costs		15.0%	$700,100	
	Design Engineering	% of sub-total construction costs		15.0%	$700,100	
	Construction Management/Materials Testing	% of sub-total construction costs		15.0%	$700,100	
	SUB-TOTAL DESIGN AND PROJECT ADMIN				**$2,100,300**	
				SUB-TOTAL	**$6,767,400**	**Notes**
	Contingency (40%)	% of sub-total		40.0%	$2,707,000	
	Total Project Cost Estimate (2020 Cost Rounded up to the Nearest $10,000)					**$9,475,000**

Opinion of Probable Construction Costs

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

It should be noted that the provided cost estimation excludes Right of Way acquisition costs that may be required for these improvements to be implemented.

City of Watsonville

Estimate of Conceptual Project Costs

8.5 Las Brisas Connector Trail

From Lower Watsonville Slough Loop to East Side Struve Slough

Kimley»Horn

Date Prepared:	April 20, 2022

	Item	Unit	Quantity	Unit Cost	Total Cost	Notes
	San Luis Avenue & Santa Victoria Avenue					
1	Sharrow Markings	EA	14	$115	$1,600	Spaced at 100' each marking on both sides of the road
	SUB-TOTAL MAJOR CONSTRUCTION ITEMS				**$1,600**	**Notes**
	Utility Work	% of sub-total major construction items		0.0%	$0	
	Landscaping	% of sub-total major construction items		0.0%	$0	
	Erosion Control	% of sub-total major construction items		0.0%	$0	
	Drainage	% of sub-total major construction items		0.0%	$0	
	Traffic Control / Detour	% of sub-total major construction items		5.0%	$100	
	Traffic - Signage & Striping	% of sub-total major construction items		5.0%	$100	
	Mobilization	% of sub-total major construction items		5.0%	$100	
	Misc. - Lighting/Commercial Signs	% of sub-total major construction items		0.0%	$0	
	Minor Contract Revisions	% of sub-total major construction items		5.0%	$100	
	SUB-TOTAL CONSTRUCTION COSTS				**$2,000**	**Notes**
	Design Engineering	% of sub-total construction costs		15.0%	$300	
	Construction Management/Materials Testing	% of sub-total construction costs		15.0%	$300	
	SUB-TOTAL DESIGN AND PROJECT ADMIN				**$600**	
	SUB-TOTAL				**$2,600**	**Notes**
	Contingency (40%)	% of sub-total		40.0%	$1,100	
	Total Project Cost Estimate (2020 Cost Rounded up to the Nearest $10,000)					**$4,000**

Opinion of Probable Construction Costs

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

It should be noted that the provided cost estimation excludes Right of Way acquisition costs that may be required for these improvements to be implemented.

City of Watsonville

Estimate of Conceptual Project Costs

8.7 Manabe-Ow Connector Trail Bridge

From West Side Struve Slough to East Side Struve Slough

Kimley»Horn

Date Prepared: April 20, 2022

Item	Unit	Quantity	Unit Cost	Total Cost	Notes
Manabe-Ow Connector Trail Bridge					
1 Bridge	SF	6,600	$900	$5,940,000	Assumes a 12' path over the bridge
SUB-TOTAL MAJOR CONSTRUCTION ITEMS				**$5,940,000**	**Notes**
Utility Work	% of sub-total major construction items		3.0%	$178,200	
Landscaping	% of sub-total major construction items		5.0%	$297,000	
Erosion Control	% of sub-total major construction items		5.0%	$297,000	
Drainage	% of sub-total major construction items		5.0%	$297,000	
Traffic Control / Detour	% of sub-total major construction items		5.0%	$297,000	
Traffic - Signage & Striping	% of sub-total major construction items		0.0%	$0	
Mobilization	% of sub-total major construction items		8.0%	$475,200	
Misc. - Lighting/Commercial Signs	% of sub-total major construction items		0.0%	$0	
Minor Contract Revisions	% of sub-total major construction items		5.0%	$297,000	
SUB-TOTAL CONSTRUCTION COSTS				**$8,078,400**	**Notes**
Environmental Review	% of sub-total construction costs		15.0%	$1,211,800	
Design Engineering	% of sub-total construction costs		15.0%	$1,211,800	
Construction Management/Materials Testing	% of sub-total construction costs		15.0%	$1,211,800	
SUB-TOTAL DESIGN AND PROJECT ADMIN				**$3,635,400**	
SUB-TOTAL				**$11,713,800**	**Notes**
Contingency (40%)	% of sub-total		40.0%	$4,685,600	
Total Project Cost Estimate (2020 Cost Rounded up to the Nearest $10,000)					**$16,400,000**

Opinion of Probable Construction Costs

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

It should be noted that the provided cost estimation excludes Right of Way acquisition costs that may be required for these improvements to be implemented.

City of Watsonville

Estimate of Conceptual Project Costs

9.1 Upper Struve Slough

From Pennsylvania Dr to South Green Valley Rd

Kimley»Horn

Date Prepared: April 20, 2022

	Item	Unit	Quantity	Unit Cost	Total Cost	Notes
	Pennsylvania Dr to South Green Valley Rd					
1	Trail (14' Width)	LF	2,500	$325	$812,500	
2	Retaining Wall	SF	30,000	$250	$7,500,000	Assumes a 6' wall
	SUB-TOTAL MAJOR CONSTRUCTION ITEMS				**$812,500**	**Notes**
	Utility Work	% of sub-total major construction items		3.0%	$24,400	
	Landscaping	% of sub-total major construction items		10.0%	$81,300	
	Erosion Control	% of sub-total major construction items		10.0%	$81,300	
	Drainage	% of sub-total major construction items		10.0%	$81,300	
	Traffic Control / Detour	% of sub-total major construction items		0.0%	$0	
	Traffic - Signage & Striping	% of sub-total major construction items		0.0%	$0	
	Mobilization	% of sub-total major construction items		8.0%	$65,000	
	Misc. - Lighting/Commercial Signs	% of sub-total major construction items		0.0%	$0	
	Minor Contract Revisions	% of sub-total major construction items		5.0%	$40,700	
	SUB-TOTAL CONSTRUCTION COSTS				**$1,186,500**	**Notes**
	Environmental Review	% of sub-total construction costs		15.0%	$178,000	
	Design Engineering	% of sub-total construction costs		15.0%	$178,000	
	Construction Management/Materials Testing	% of sub-total construction costs		15.0%	$178,000	
	SUB-TOTAL DESIGN AND PROJECT ADMIN				**$534,000**	
				SUB-TOTAL	**$1,720,500**	**Notes**
	Contingency (40%)	% of sub-total		40.0%	$688,200	
	Total Project Cost Estimate (2020 Cost Rounded up to the Nearest $10,000)					**$2,410,000**

Opinion of Probable Construction Costs

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

It should be noted that the provided cost estimation excludes Right of Way acquisition costs that may be required for these improvements to be implemented.

City of Watsonville

Estimate of Conceptual Project Costs

9.3 Rolling Hills Connector Trail

From Green Valley Rd to Hermann Ave

Kimley»Horn

Date Prepared: April 20, 2022

	Item	Unit	Quantity	Unit Cost	Total Cost	Notes
	Eileen St (Hermann Ave to Trail)					
1	Sharrow Markings	EA	8	$115	$900	Spaced at 100' each marking on both sides of the road
	Trail (Eileen St to SR 152)					
2	Trail (14' Width)	LF	490	$325	$159,300	This does not include amenities along the trail
	SR 152 (Trail to S. Green Valley Rd)					
3	Class I Path (10' Width)	SF	4,900	$25	$122,500	Concrete Path
	Green Valley Rd (Main St to Trail)					
4	Remove Concrete (Sidewalk)	LF	100	$120	$12,000	Removal of existing sidewalk for new Class I path
5	Class I Path (10' Width)	SF	1,000	$25	$25,000	Concrete Path
	Melwood Ct					
6	Sharrow Markings	EA	6	$115	$700	Spaced at 100' each marking on both sides of the road
	SUB-TOTAL MAJOR CONSTRUCTION ITEMS				**$282,700**	**Notes**
	Utility Work	% of sub-total major construction items		3.0%	$8,500	
	Landscaping	% of sub-total major construction items		0.0%	$0	
	Erosion Control	% of sub-total major construction items		5.0%	$14,200	
	Drainage	% of sub-total major construction items		5.0%	$14,200	
	Traffic Control / Detour	% of sub-total major construction items		10.0%	$28,300	
	Traffic - Signage & Striping	% of sub-total major construction items		2.0%	$5,700	
	Mobilization	% of sub-total major construction items		8.0%	$22,700	
	Misc. - Lighting/Commercial Signs	% of sub-total major construction items		0.0%	$0	
	Minor Contract Revisions	% of sub-total major construction items		5.0%	$14,200	
	SUB-TOTAL CONSTRUCTION COSTS				**$390,500**	**Notes**
	Design Engineering	% of sub-total construction costs		15.0%	$58,600	
	Construction Management/Materials Testing	% of sub-total construction costs		15.0%	$58,600	
	SUB-TOTAL DESIGN AND PROJECT ADMIN				**$117,200**	
				SUB-TOTAL	**$507,700**	**Notes**
	Contingency (40%)	% of sub-total		40.0%	$203,100	
	Total Project Cost Estimate (2020 Cost Rounded up to the Nearest $10,000)					**$720,000**

Opinion of Probable Construction Costs

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It should be noted that the provided cost estimation excludes Right of Way acquisition costs that may be required for these improvements to be implemented.

City of Watsonville

Estimate of Conceptual Project Costs

9.4 Upper Watsonville Slough Trail

From Main St to Freedom Blvd

Kimley»Horn

Date Prepared: April 20, 2022

	Item	Unit	Quantity	Unit Cost	Total Cost	Notes
	Trail (Main St to North of 9th St)					
1	Trail (14' Width)	LF	500	$325	$162,500	This does not include amenities along the trail
	Trail (North of 9th Street to Junipero Serra Dr)					
2	Trail (14' Width)	LF	1,650	$325	$536,300	This does not include amenities along the trail
3	Retaining Wall	SF	16,500	$250	$4,125,000	Assumes a 5' wall
	Junipero Serra Dr & Crespi Way					
4	Sharrow Markings	EA	10	$115	$1,200	Spaced at 100' each marking on both sides of the road
	Trail (Junipero Serra Dr to Miles Ln)					
5	Trail (14' Width)	LF	460	$325	$149,500	This does not include amenities along the trail
	Miles Ln (Trail to Slough)					
6	Sharrow Markings	EA	12	$115	$1,400	Spaced at 100' each marking on both sides of the road
	Trail (Junipero Serra Dr to Miles Ln)					
7	Trail (14' Width)	LF	390	$325	$126,800	This does not include amenities along the trail
	Trail (Miles Ln to Marin St)					
8	Trail (14' Width)	LF	200	$325	$65,000	ADA & pedestrian intersection improvements
	Trail (Marin to Alta Vista Ave)					
9	Trail (14' Width)	LF	1,820	$325	$591,500	This does not include amenities along the trail
	Alta Vista Ave (Trail to Freedom Blvd)					
10	Sharrow Markings	EA	12	$115	$1,400	Spaced at 100' each marking on both sides of the road
	SUB-TOTAL MAJOR CONSTRUCTION ITEMS				**$5,760,600**	**Notes**
	Utility Work	% of sub-total major construction items		3.0%	$172,900	
	Landscaping	% of sub-total major construction items		0.0%	$0	
	Erosion Control	% of sub-total major construction items		5.0%	$288,100	
	Drainage	% of sub-total major construction items		3.0%	$172,900	
	Traffic Control / Detour	% of sub-total major construction items		10.0%	$576,100	
	Traffic - Signage & Striping	% of sub-total major construction items		1.0%	$57,700	
	Mobilization	% of sub-total major construction items		8.0%	$460,900	
	Misc. - Lighting/Commercial Signs	% of sub-total major construction items		0.0%	$0	
	Minor Contract Revisions	% of sub-total major construction items		5.0%	$288,100	
	SUB-TOTAL CONSTRUCTION COSTS				**$7,777,300**	**Notes**
	Environmental Review	% of sub-total construction costs		15.0%	$1,166,600	
	Design Engineering	% of sub-total construction costs		15.0%	$1,166,600	
	Construction Management/Materials Testing	% of sub-total construction costs		15.0%	$1,166,600	
	SUB-TOTAL DESIGN AND PROJECT ADMIN				**$3,499,800**	
				SUB-TOTAL	**$11,277,100**	**Notes**
	Contingency (0%)	% of sub-total		40.0%	$4,510,900	
	Total Project Cost Estimate (2020 Cost Rounded up to the Nearest $10,000)					**$15,790,000**

Opinion of Probable Construction Costs

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

It should be noted that the provided cost estimation excludes Right of Way acquisition costs that may be required for these improvements to be implemented.

Appendix F

Bike Ridership Forecasts

	Existing			Induced			Existing			Induced		
Trail	Child	Adult	Commuter	Child	Adult	Commuter	Child corrected	Adult corrected	Total	Child corrected	Adult corrected	Total
8.2	402	1,203	241	430	1,283	258	276	900	1,176	295	961	1,255
8.5	260	816	156	280	875	168	178	607	786	192	654	845
8.7	211	678	127	229	731	137	145	505	649	157	545	702
9.1	632	1,784	379	670	1,865	402	433	1,342	1,775	459	1,405	1,864
9.3	262	796	157	285	862	171	180	595	775	195	645	840
9.4	610	1,750	366	649	1,860	389	418	1,315	1,733	445	1,397	1,842
Total							**1,629**	**5,264**	**6,893**	**1,743**	**5,606**	**7,349**

Correction calculations:

Child corrected = ((1-commute%)-exercise%)/(1-commute%)*(Child)

Adult corrected = commuter+((((1-commuter%)-exercise%)/(1-commuter%)*(adult-commuter)))

Notes:

Percent commute = 11%

Percent exercise = 28%

Corridor Bikeway Improvement Project 8.2

National Cooperative Highway Research Program 552

Forecasted Bicycle Ridership Analysis

Near	Population within 0.5 miles	18,875	NCHRP crow flies default: 400m KHA network default: 0.5 miles
Mid	Population between 0.5 miles and 1 mile	38,930	NCHRP crow flies default: 800m KHA network default: 1 mile
Far	Population between 1 mile and 1.5 miles	52,536	NCHRP crow flies default: 1600m KHA network default: 1.5 miles
	Proportion of adults in population	0.801	NCHRP default 0.8 American Community Survey: Most recent 5-Year Estimate, Table S0101
	Proportion of adults that commute	0.5	NCHRP default 0.5
	Bicycle Commute Mode Share	1.00%	American Community Survey: Most recent 5-Year Estimate, Table B08006
Near	Proportion of commuters that will use the facility	0.9	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Mid	Proportion of commuters that will use the facility	0.59	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Far	Proportion of commuters that will use the facility	0.3	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Near	Proportion of non-commuters that will use the facility	0.9	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Mid	Proportion of non-commuters that will use the facility	0.59	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Far	Proportion of non-commuters that will use the facility	0.3	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Near	Proportion of youth that will use the facility	0.5	Estimated assuming younger children will not travel as far unaccompanied
Mid	Proportion of youth that will use the facility	0.33	Estimated assuming younger children will not travel as far unaccompanied
Far	Proportion of youth that will use the facility	0.17	Estimated assuming younger children will not travel as far unaccompanied
High	Adult bicycling rate	3.6%	NCHRP default 0.6% + 3 times commute rate
Medium	Adult bicycling rate	1.6%	NCHRP default 0.4% + 1.2 times commute rate
Low	Adult bicycling rate	1.0%	NCHRP default commute rate
Near	Likelihood multiplier for induced bicycle riders	2.93	NCHRP default 2.93
Mid	Likelihood multiplier for induced bicycle riders	2.11	NCHRP default 2.11
Far	Likelihood multiplier for induced bicycle riders	1.39	NCHRP default 1.39
	Youth bicycle use	6.0%	Statewide Household Travel Survey Data

SOURCE:

Ridership Estimate		High	Medium	Low
A	Total existing bicycle commuters	223	223	223
B	Total existing adult non-commuter bicyclists	2,958	1,191	660
C	Total existing adult cyclists (A+B)	3,181	1,414	884
D	Induced bicycle commuters	258	258	258
E	Induced non-commuters	2,628	1,025	544
F	Induced adult cyclists (D+E)	2,886	1,283	802
G	Total adult cyclists (C+F)	6,067	2,696	1,685
H	Total existing child cyclists	373	373	373
I	Induced child cyclists	430	430	430
J	Total child cyclists (H+I)	803	803	803
K	Total facility users (G+J)	6,870	3,500	2,488

1,255 Recommended Estimate for This Project
4 est dist (2 mi avg, 4 mi total)
5020.252 Daily VMT reduc

0.11 Percent Commute
0.28 Percent Exercise

Corridor Bikeway Improvement Project 8.5

National Cooperative Highway Research Program 552

Forecasted Bicycle Ridership Analysis

Near	Population within 0.5 miles	11,405	NCHRP crow flies default: 400m KHA network default: 0.5 miles
Mid	Population between 0.5 miles and 1 mile	25,693	NCHRP crow flies default: 800m KHA network default: 1 mile
Far	Population between 1 mile and 1.5 miles	45,599	NCHRP crow flies default: 1600m KHA network default: 1.5 miles
	Proportion of adults in population	0.801	NCHRP default 0.8 American Community Survey: Most recent 5-Year Estimate, Table S0101
	Proportion of adults that commute	0.5	NCHRP default 0.5
	Bicycle Commute Mode Share	1.00%	American Community Survey: Most recent 5-Year Estimate, Table B08006
Near	Proportion of commuters that will use the facility	0.9	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Mid	Proportion of commuters that will use the facility	0.59	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Far	Proportion of commuters that will use the facility	0.3	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Near	Proportion of non-commuters that will use the facility	0.9	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Mid	Proportion of non-commuters that will use the facility	0.59	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Far	Proportion of non-commuters that will use the facility	0.3	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Near	Proportion of youth that will use the facility	0.5	Estimated assuming younger children will not travel as far unaccompanied
Mid	Proportion of youth that will use the facility	0.33	Estimated assuming younger children will not travel as far unaccompanied
Far	Proportion of youth that will use the facility	0.17	Estimated assuming younger children will not travel as far unaccompanied
High	Adult bicycling rate	3.6%	NCHRP default 0.6% + 3 times commute rate
Medium	Adult bicycling rate	1.6%	NCHRP default 0.4% + 1.2 times commute rate
Low	Adult bicycling rate	1.0%	NCHRP default commute rate
Near	Likelihood multiplier for induced bicycle riders	2.93	NCHRP default 2.93
Mid	Likelihood multiplier for induced bicycle riders	2.11	NCHRP default 2.11
Far	Likelihood multiplier for induced bicycle riders	1.39	NCHRP default 1.39
	Youth bicycle use	6.0%	Statewide Household Travel Survey Data

SOURCE:

Ridership Estimate		High	Medium	Low
A	Total existing bicycle commuters	157	157	157
B	Total existing adult non-commuter bicyclists	2,227	903	506
C	Total existing adult cyclists (A+B)	2,384	1,059	662
D	Induced bicycle commuters	168	168	168
E	Induced non-commuters	1,801	707	379
F	Induced adult cyclists (D+E)	1,969	875	547
G	Total adult cyclists (C+F)	4,353	1,935	1,209
H	Total existing child cyclists	262	262	262
I	Induced child cyclists	280	280	280
J	Total child cyclists (H+I)	543	543	543
K	Total facility users (G+J)	4,896	2,477	1,752

845 Recommended Estimate for This Project
4 est dist (2 mi avg, 4 mi total)
3379.303 Daily VMT reduc

0.11 Percent Commute
0.28 Percent Exercise

Corridor Bikeway Improvement Project 8.7

National Cooperative Highway Research Program 552

Forecasted Bicycle Ridership Analysis

Near	Population within 0.5 miles	9,126	NCHRP crow flies default: 400m KHA network default: 0.5 miles
Mid	Population between 0.5 miles and 1 mile	20,537	NCHRP crow flies default: 800m KHA network default: 1 mile
Far	Population between 1 mile and 1.5 miles	42,791	NCHRP crow flies default: 1600m KHA network default: 1.5 miles
	Proportion of adults in population	0.801	NCHRP default 0.8 American Community Survey: Most recent 5-Year Estimate, Table S0101
	Proportion of adults that commute	0.5	NCHRP default 0.5
	Bicycle Commute Mode Share	1.00%	American Community Survey: Most recent 5-Year Estimate, Table B08006
Near	Proportion of commuters that will use the facility	0.9	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Mid	Proportion of commuters that will use the facility	0.59	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Far	Proportion of commuters that will use the facility	0.3	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Near	Proportion of non-commuters that will use the facility	0.9	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Mid	Proportion of non-commuters that will use the facility	0.59	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Far	Proportion of non-commuters that will use the facility	0.3	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Near	Proportion of youth that will use the facility	0.5	Estimated assuming younger children will not travel as far unaccompanied
Mid	Proportion of youth that will use the facility	0.33	Estimated assuming younger children will not travel as far unaccompanied
Far	Proportion of youth that will use the facility	0.17	Estimated assuming younger children will not travel as far unaccompanied
High	Adult bicycling rate	3.6%	NCHRP default 0.6% + 3 times commute rate
Medium	Adult bicycling rate	1.6%	NCHRP default 0.4% + 1.2 times commute rate
Low	Adult bicycling rate	1.0%	NCHRP default commute rate
Near	Likelihood multiplier for induced bicycle riders	2.93	NCHRP default 2.93
Mid	Likelihood multiplier for induced bicycle riders	2.11	NCHRP default 2.11
Far	Likelihood multiplier for induced bicycle riders	1.39	NCHRP default 1.39
	Youth bicycle use	6.0%	Statewide Household Travel Survey Data

SOURCE:

Ridership Estimate		High	Medium	Low
A	Total existing bicycle commuters	133	133	133
B	Total existing adult non-commuter bicyclists	1,956	795	447
C	Total existing adult cyclists (A+B)	2,089	928	580
D	Induced bicycle commuters	137	137	137
E	Induced non-commuters	1,508	594	320
F	Induced adult cyclists (D+E)	1,646	731	457
G	Total adult cyclists (C+F)	3,734	1,660	1,037
H	Total existing child cyclists	223	223	223
I	Induced child cyclists	229	229	229
J	Total child cyclists (H+I)	452	452	452
K	Total facility users (G+J)	4,186	2,111	1,489

702	Recommended Estimate for This Project
4	est dist (2 mi avg, 4 mi total)
2806.56	Daily VMT reduc
0.11	Percent Commute
0.28	Percent Exercise

Corridor Bikeway Improvement Project 9.1

National Cooperative Highway Research Program 552

Forecasted Bicycle Ridership Analysis

Near	Population within 0.5 miles	35,296	NCHRP crow flies default: 400m KHA network default: 0.5 miles
Mid	Population between 0.5 miles and 1 mile	49,594	NCHRP crow flies default: 800m KHA network default: 1 mile
Far	Population between 1 mile and 1.5 miles	57,517	NCHRP crow flies default: 1600m KHA network default: 1.5 miles
	Proportion of adults in population	0.801	NCHRP default 0.8 American Community Survey: Most recent 5-Year Estimate, Table S0101
	Proportion of adults that commute	0.5	NCHRP default 0.5
	Bicycle Commute Mode Share	1.00%	American Community Survey: Most recent 5-Year Estimate, Table B08006
Near	Proportion of commuters that will use the facility	0.9	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Mid	Proportion of commuters that will use the facility	0.59	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Far	Proportion of commuters that will use the facility	0.3	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Near	Proportion of non-commuters that will use the facility	0.9	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Mid	Proportion of non-commuters that will use the facility	0.59	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Far	Proportion of non-commuters that will use the facility	0.3	NCHRP default 1 Override with likelihood decay factor based on .9 use for close proximity
Near	Proportion of youth that will use the facility	0.5	Estimated assuming younger children will not travel as far unaccompanied
Mid	Proportion of youth that will use the facility	0.33	Estimated assuming younger children will not travel as far unaccompanied
Far	Proportion of youth that will use the facility	0.17	Estimated assuming younger children will not travel as far unaccompanied
High	Adult bicycling rate	3.6%	NCHRP default 0.6% + 3 times commute rate
Medium	Adult bicycling rate	1.6%	NCHRP default 0.4% + 1.2 times commute rate
Low	Adult bicycling rate	1.0%	NCHRP default commute rate
Near	Likelihood multiplier for induced bicycle riders	2.93	NCHRP default 2.93
Mid	Likelihood multiplier for induced bicycle riders	2.11	NCHRP default 2.11
Far	Likelihood multiplier for induced bicycle riders	1.39	NCHRP default 1.39
	Youth bicycle use	6.0%	Statewide Household Travel Survey Data

SOURCE:

Ridership Estimate		High	Medium	Low
A	Total existing bicycle commuters	313	313	313
B	Total existing adult non-commuter bicyclists	3,792	1,511	827
C	Total existing adult cyclists (A+B)	4,105	1,824	1,140
D	Induced bicycle commuters	402	402	402
E	Induced non-commuters	3,795	1,463	763
F	Induced adult cyclists (D+E)	4,197	1,865	1,166
G	Total adult cyclists (C+F)	8,302	3,690	2,306
H	Total existing child cyclists	524	524	524
I	Induced child cyclists	670	670	670
J	Total child cyclists (H+I)	1,194	1,194	1,194
K	Total facility users (G+J)	9,496	4,884	3,500

1,864	Recommended Estimate for This Project
4	est dist (2 mi avg, 4 mi total)
7457.568	Daily VMT reduc
0.11	Percent Commute
0.28	Percent Exercise

Corridor Bikeway Improvement Project 9.3

National Cooperative Highway Research Program 552

Forecasted Bicycle Ridership Analysis

Near	Population within 0.5 miles	13,168
Mid	Population between 0.5 miles and 1 mile	22,545
Far	Population between 1 mile and 1.5 miles	43,216
	Proportion of adults in population	0.801
	Proportion of adults that commute	0.5
	Bicycle Commute Mode Share	1.00%
Near	Proportion of commuters that will use the facility	0.9
Mid	Proportion of commuters that will use the facility	0.59
Far	Proportion of commuters that will use the facility	0.3
Near	Proportion of non-commuters that will use the facility	0.9
Mid	Proportion of non-commuters that will use the facility	0.59
Far	Proportion of non-commuters that will use the facility	0.3
Near	Proportion of youth that will use the facility	0.5
Mid	Proportion of youth that will use the facility	0.33
Far	Proportion of youth that will use the facility	0.17
High	Adult bicycling rate	3.6%
Medium	Adult bicycling rate	1.6%
Low	Adult bicycling rate	1.0%
Near	Likelihood multiplier for induced bicycle riders	2.93
Mid	Likelihood multiplier for induced bicycle riders	2.11
Far	Likelihood multiplier for induced bicycle riders	1.39
	Youth bicycle use	6.0%

SOURCE:

NCHRP crow flies default: 400m	KHA network default: 0.5 miles
NCHRP crow flies default: 800m	KHA network default: 1 mile
NCHRP crow flies default: 1600m	KHA network default: 1.5 miles
NCHRP default 0.8	American Community Survey: Most recent 5-Year Estimate, Table S0101
NCHRP default 0.5	
American Community Survey: Most recent 5-Year Estimate, Table B08006	
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
Estimated assuming younger children will not travel as far unaccompanied	
Estimated assuming younger children will not travel as far unaccompanied	
Estimated assuming younger children will not travel as far unaccompanied	
NCHRP default 0.6% + 3 times commute rate	
NCHRP default 0.4% + 1.2 times commute rate	
NCHRP default commute rate	
NCHRP default 2.93	
NCHRP default 2.11	
NCHRP default 1.39	
Statewide Household Travel Survey Data	

Ridership Estimate		High	Medium	Low
A	Total existing bicycle commuters	153	153	153
B	Total existing adult non-commuter bicyclists	2,123	859	479
C	Total existing adult cyclists (A+B)	2,275	1,011	632
D	Induced bicycle commuters	171	171	171
E	Induced non-commuters	1,769	691	368
F	Induced adult cyclists (D+E)	1,940	862	539
G	Total adult cyclists (C+F)	4,215	1,873	1,171
H	Total existing child cyclists	256	256	256
I	Induced child cyclists	285	285	285
J	Total child cyclists (H+I)	540	540	540
K	Total facility users (G+J)	4,755	2,414	1,711

840	Recommended Estimate for This Project
4	est dist (2 mi avg, 4 mi total)
3359.883	Daily VMT reduc
0.11	Percent Commute
0.28	Percent Exercise

Corridor Bikeway Improvement Project 9.4

National Cooperative Highway Research Program 552

Forecasted Bicycle Ridership Analysis — **Base Year**

Near	Population within 0.5 miles	31,304
Mid	Population between 0.5 miles and 1 mile	54,172
Far	Population between 1 mile and 1.5 miles	63,220
	Proportion of adults in population	0.801
	Proportion of adults that commute	0.5
	Bicycle Commute Mode Share	1.00%
Near	Proportion of commuters that will use the facility	0.9
Mid	Proportion of commuters that will use the facility	0.59
Far	Proportion of commuters that will use the facility	0.3
Near	Proportion of non-commuters that will use the facility	0.9
Mid	Proportion of non-commuters that will use the facility	0.59
Far	Proportion of non-commuters that will use the facility	0.3
Near	Proportion of youth that will use the facility	0.5
Mid	Proportion of youth that will use the facility	0.33
Far	Proportion of youth that will use the facility	0.17
High	Adult bicycling rate	3.6%
Medium	Adult bicycling rate	1.6%
Low	Adult bicycling rate	1.0%
Near	Likelihood multiplier for induced bicycle riders	2.93
Mid	Likelihood multiplier for induced bicycle riders	2.11
Far	Likelihood multiplier for induced bicycle riders	1.39
	Youth bicycle use	6.0%

SOURCE:

NCHRP crow flies default: 400m	KHA network default: 0.5 miles
NCHRP crow flies default: 800m	KHA network default: 1 mile
NCHRP crow flies default: 1600m	KHA network default: 1.5 miles
NCHRP default 0.8	American Community Survey: Most recent 5-Year Estimate, Table S0101
NCHRP default 0.5	
American Community Survey: Most recent 5-Year Estimate, Table B08006	
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
NCHRP default 1	Override with likelihood decay factor based on .9 use for close proximity
Estimated assuming younger children will not travel as far unaccompanied	
Estimated assuming younger children will not travel as far unaccompanied	
Estimated assuming younger children will not travel as far unaccompanied	
NCHRP default 0.6% + 3 times commute rate	
NCHRP default 0.4% + 1.2 times commute rate	
NCHRP default commute rate	
NCHRP default 2.93	
NCHRP default 2.11	
NCHRP default 1.39	
Statewide Household Travel Survey Data	

Ridership Estimate		High	Medium	Low
A	Total existing bicycle commuters	317	317	317
B	Total existing adult non-commuter bicyclists	3,970	1,588	874
C	Total existing adult cyclists (A+B)	4,286	1,905	1,191
D	Induced bicycle commuters	389	389	389
E	Induced non-commuters	3,796	1,471	773
F	Induced adult cyclists (D+E)	4,186	1,860	1,163
G	Total adult cyclists (C+F)	8,472	3,765	2,353
H	Total existing child cyclists	529	529	529
I	Induced child cyclists	649	649	649
J	Total child cyclists (H+I)	1,178	1,178	1,178
K	Total facility users (G+J)	9,650	4,943	3,531

1,842	Recommended Estimate for This Project
4	est dist (2 mi avg, 4 mi total)
7368.137	Daily VMT reduc
0.11	Percent Commute
0.28	Percent Exercise

Appendix G

Assembly Bill (AB) 32, Senate Bill (SB) 375, and Senate Bill (SB) 743

California has a number of regulations regarding greenhouse gases (GHGs) and they are often confused with each other, in particular SB 375 is confused with AB 32. The major difference is AB 32 reduces GHGs from all sectors, whereas SB 375 is only concerned with transportation, specifically passenger vehicles. SB 743 also focuses on the transportation sector, but from an environmental perspective. It works with the California Environmental Quality Act (CEQA) to prioritize development and transportation projects that get people out of individual cars and into sustainable modes of transportation.

California's major initiative for reducing GHG emissions is outlined in AB 32, the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels), and requires the California Air Resources Board (CARB) to prepare a Scoping Plan that outlines the main state strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions.

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by aligning transportation planning and funding, land use planning and state housing mandates at the regional level in order to reduce vehicle miles travelled (VMT) and transportation-related GHG emissions. As mandated by CARB, the Association of Monterey Bay Area Governments (AMBAG) must reduce per capita GHG emissions from passenger vehicles in order to meet the SB 375 target. The 2035 Metropolitan Transportation Plan / Sustainable Communities Strategy (MTP/SCS) for the AMBAG region includes the targets previously set by CARB to not exceed 2005 per capita levels of GHGs by 2020 and to reduce GHG emissions by 5 percent per capita from 2005 levels by 2035. These targets will be revised based on updated Scoping Plans prepared by CARB and reflected in subsequent MTP/SCS documents prepared by AMBAG.

SB 743 concerns how transportation-related GHG impacts of development and transportation projects are evaluated under CEQA. SB 743 focused transportation's impacts on the environment instead of on congestion. Before July 1, 2020, traffic congestion levels (known as level of service, or LOS) were the main measurement to determine the negative environmental impacts of development and transportation projects. These effects are now measured according to the overall amount that people drive (known as VMT). Given that transportation — and particularly passenger cars — is responsible for close to 40 percent of all GHG emissions in the State and over half of GHG emissions in the City, by reducing the VMT, the amount of GHG emissions and other air pollutants from cars are reduced.