



2018 Avila Circulation Study and Road Improvement Fee Update

County of San Luis
Obispo



Final Report



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Executive Summary

The County of San Luis Obispo retained GHD to provide an update to the Avila Circulation Study and Road Improvement Fee (RIF). Included with this Circulation Study is the creation of a new standalone Avila Travel Demand Model (TDM). The new Avila traffic model is utilized as a planning analysis tool on a variety of traffic impact and circulation studies to assess land development proposals within the county as well as the continued update of the County's Capital Improvement Program (CIP) and RIF. The Circulation Study and RIF are updated approximately every five years to fulfill the requirements of Assembly Bill (AB) 1600. This report is technical documentation in support of the Avila Planning Area travel forecasts, resulting Circulation Study, CIP and subsequent RIF update. This study utilizes the goals and objectives identified in the 2009 Avila Valley Circulation Study to assist in developing the recommended circulation plan and travel demand management measures.

The study area includes the Avila Valley area, the private recreation development of the San Luis Bay Inn, the Avila town site, and the Port San Luis area extending along the bayfront. Avila Beach is one of the main recreation/tourist areas of the County and has one of the most popular beaches. Avila Beach is isolated in the sense that there is only one road that provides access to the Town; Avila Beach Drive. Avila Beach Drive and San Luis Bay Drive are the primary arterials that provide access from US 101 to the Avila Beach area. West of the freeway, these two routes join and traffic continues on Avila Beach Drive into the town and Port San Luis.

Avila Beach Drive and San Luis Bay Drive have high demand from US 101, during the peak hours and especially during the peak summer months. Currently, these two interchanges operate deficiently and are constrained due to lack of capacity from turn lanes and control. San Luis Bay Drive at Ontario Road is closely spaced to the US 101 Southbound Ramps intersection, and is projected to operate poorly at level of service (LOS) F under build-out conditions. San Luis Bay Drive at Ontario Road meets the peak hour warrant for a traffic signal under forecasted conditions. Improvements at this intersection will be included in the interchange improvement. Interchange improvements will be finalized through the Caltrans ICE process. Tentative preferred alternatives include installing a roundabout at Avila Beach Drive/US 101 Southbound Ramps/Shell Beach Road, and widening San Luis Bay Drive overcrossing at US 101 to include an eastbound left turn lane, and installing traffic signals.

In addition to an update to the CIP and impact fees, and because of community-wide desire to revert to a conventional method of evaluating traffic in Avila, GHD was contracted by the County to re-evaluate the LOS policy and capacity analysis metric for Avila Beach Drive as part of this study. Traffic volumes on Avila Beach Drive west of San Luis Bay Drive were evaluated based on data from the permanent count station installed in 2015. The analysis is included in a separate memorandum, attached as Appendix F of this report. The memorandum identifies the 100th highest annual hourly volume (K100), averaged over a three-year period, as the proposed capacity metric on Avila Beach Drive, and proposes "LOS D" as the recommended threshold. The LOS D threshold is consistent with the County policy for other established circulation studies in urban reserve lines.



The K100 volume on Avila Beach Drive is representative of LOS D conditions, and the peak season transitional months, or peak “shoulders” of May, August, and September. Avila Beach Drive currently experiences LOS D conditions during the peak shoulders, and exceeds capacity during peak summer weekends usually when special events occur. Under build-out conditions, Avila Beach Drive is projected to exceed capacity thresholds during the peak shoulder months (LOS E/F), with addition of projected development in Town and continued recreational activity. Widening Avila Beach Drive, between San Luis Street and San Luis Bay Drive, to have two lanes eastbound (outbound), and one lane westbound (inbound), is recommended as a long-term solution that will address the projected deficient travel conditions, as well as provide additional capacity along the evacuation route.

In addition to the interchange and roadway capacity deficiencies identified, a few of the unsignalized intersections along Avila Beach Drive are projected to operate deficiently under build-out conditions. The intersections of Avila Beach Drive at San Miguel Street and at San Luis Street serve as access points for the Town, and are projected to operate at LOS D under build-out conditions. The intersection of Avila Beach Drive at Ontario Road serves as access to the frontage road, Avila Valley Barn, and the Bob Jones Trailhead and Park & Ride lot. This intersection is projected to operate at LOS F under build-out conditions. These three unsignalized intersections meet the peak hour warrant for a traffic signal. The improvement recommendation for Avila Beach Drive at San Miguel Street, San Luis Street, and Ontario Road is to install traffic signals at these locations.

During the summer peak, the beach is busy and visitors create a high demand for parking. With future development in the area, congestion at intersections is expected to increase and parking demand in town will rise beyond what is currently available. The Transportation System Management (TSM) program outlined in this report discusses alternatives for reducing traffic and parking congestion in Avila. Additionally, the Avila Beach Parking Study (completed July 24, 2019) identifies near-, mid-, and long-term solutions for utilizing the current parking supply more efficiently and the potential to create new parking supply with either new lots or a parking structure on the Harbor District lot on First Street. Changes to parking in the downtown Avila area will need to be pursued under a coastal development permit issued based on a Parking Management Plan. Short-term actions recommend the County to proceed with the following improvements: implementing commercial and beachgoer loading/drop-off zones in Town; implement an employee permit parking program; and improvements for minor additional parking spaces in Town

Travel demand management for special events have also been identified within this report, and further detailed in a separate memorandum, included in Appendix G. Special events mainly take place at the golf course and increase traffic and parking demand in the area. Avila experiences congestion downtown and LOS E conditions along Avila Beach Drive during larger and medium-size events (2,000 or more attendees) in the summer peak season. Recommendations for special events with 2,000 attendees or more include:

- Begin events before 1:00 pm and after 4:00 pm on the weekends, and after 5:00 pm on the weekdays to avoid peak hour traffic conflicts
- Avoid scheduling with other planned events, such as the Avila Farmers Market
- Limit number of events during the Peak Season (May 1 – September 30)
- Encourage carpooling to reduce the number of vehicles on Avila roadways



In summary, recommendations include utilizing satellite or remote parking lots (Ontario Road, Avila Beach Drive at US 101, and Cal Poly Campus) with shuttle buses and changeable message signs near the interchanges to inform drivers of special events, parking occupancy in Town, and wayfinding to the satellite lots. Use of satellite lots can be incentivized by providing free shuttle service from the satellite lots, and having food trucks/stands or bike rentals at the satellite lots. Satellite lots with shuttle service to Town could also be used for employee parking during peak weekends and holidays.

To update the CIP and RIF, cost estimates were developed by County staff for the transportation recommendations identified in this report. The total funding required from impact fees (less amount spent) is \$8,156,659. The net funding required for determining an update to the impact fee, after accounting for the Avila account balance of \$325,687 as of June 30, 2019, is then \$7,830,972. This report details that 760 PM peak hour trips are projected for future development within the Avila Fee Area. Subsequently, the recommended RIF is calculated to be \$10,304 per peak hour trip. The tables below present the summary of funding required from impact fees, the funds already contributed by existing development, the added peak hour trips projected for future development within the Avila Fee Area, and the recommended fee schedule.

Table E.1 Avila Project Costs and Area Trip Share

	Total Required Funding From Impact Fees	Fund Balance (As of 6/30/2019)	Net Funding Required From Impact Fees
Fee Area Total	\$8,156,659	\$325,687	\$7,830,972
Peak Hour Trips:	760	Cost per/PHT:	\$10,304

Table E.2 Recommended Fee per Peak Hour Trip

Type	Current Fee	Proposed Fee	Fee Increase
Retail	\$3,846	\$10,304	\$6,458
Residential	\$3,846	\$10,304	\$6,458
Other	\$3,846	\$10,304	\$6,458



Table of Contents

- 1. Introduction..... 1
 - 1.1.1 Avila Valley Circulation Study Goals 2
- 1.2 Background Regarding Avila Traffic Evaluation 3
- 1.3 Community Input..... 4
- 2. Background Conditions 7
 - 2.1 Existing Setting 7
 - 2.2 Existing Transportation System 12
 - 2.2.1 State Freeways..... 12
 - 2.2.2 Arterials..... 12
 - 2.2.3 Collectors..... 13
 - 2.2.4 Local Streets..... 13
 - 2.3 Existing Traffic Data Collection 13
 - 2.4 Levels of Service (LOS) Methodology 19
 - 2.4.1 Roadway Segment Capacity 19
 - 2.4.2 Intersection LOS 20
 - 2.4.3 Traffic Signal Warrant Analysis 22
 - 2.4.4 Level of Service Policy 22
 - 2.4.5 Avila Beach Drive Capacity Metric & Policy Evaluation 23
 - 2.5 Existing Traffic Operations..... 24
 - 2.5.1 Existing Roadway Segments Service Levels 24
 - 2.5.2 Existing Intersections Service Levels 25
 - 2.6 Existing Land Uses 28
- 3. Base Year Traffic Model Development 29
 - 3.1 Data Sources 29
 - 3.2 Data Evaluation..... 29
 - 3.3 Choice of Model Software – Cube/Voyager..... 29
 - 3.4 Creation of TAZ Map..... 30
 - 3.5 Land Use –TAZ Integration..... 30



3.6	Network Creation	30
3.6.1	Trip Generation.....	33
3.6.2	Mode Choice.....	33
3.6.3	Trip Assignment.....	33
3.7	Model Calibration	33
4.	Build-Out Conditions Traffic Model Development	34
4.1	Creation of Future Conditions Land Use Database	34
4.2	Year 2035 as the Future Conditions' Model Year	35
4.3	Build-Out Forecasts & Operations	36
4.4	Circulation Issues of Concern	40
4.4.1	Roadway Operations	41
4.4.2	Peak Hour Intersection Operations	41
4.4.3	Parking Capacity & Circulation	42
4.4.4	Emergency Evacuation.....	42
5.	Transportation Improvement Needs and Circulation Plan Recommendations	44
5.1	Base Network.....	44
5.2	Transportation Improvement Needs	44
5.3	Transportation System Management.....	45
5.3.1	Parking Management	46
5.3.2	Special Event Travel Demand Management.....	48
5.3.3	Bicycle Provisions.....	49
5.3.4	Public Transit Improvements	49
5.3.5	PG&E Diablo Canyon Power Plant Shuttle Service	49
5.3.6	RV Parking Management	50
5.3.7	Golf Cart Provisions.....	50
5.3.8	Summary TSM Recommendations.....	50
5.4	Circulation Plan Analysis and Recommendations Summary.....	51
6.	Alternative Transportation Modes	54
6.1	Public Transportation	54
6.2	Bicycle and Pedestrian Routes	55



6.2.1	Existing Pedestrian and Bicycle Facilities	55
6.3	Truck Routes.....	57
6.4	Rail Operations	57
6.5	Airports.....	57
7.	Cost Estimates and Funding Mechanisms, Including Road Improvement Fees	58
7.1	Cost Estimates.....	58
7.1.1	Funding Mechanisms	58
	Appendix	63

Figure Index

Figure 2.1	Study Area and Vicinity Map	10
Figure 2.2	Avila Fee Area Map	11
Figure 2.3	Existing Lane Geometrics and Control.....	15
Figure 2.4	Existing (September 2014) Peak Hour Volumes.....	16
Figure 2.5	Existing (June 2019) Peak Hour Volumes.....	17
Figure 2.6	Existing 2014 and 2019 Average Daily Traffic Volumes	18
Figure 3.1	Avila Traffic Analysis Zones (TAZ) Map	31
Figure 3.2	Avila Base Year Network Map.....	32
Figure 4.1	2035 Build-Out Conditions ADT Projections (Avila Overview)	37
Figure 4.2	Build-Out Conditions Peak Hour Intersection Volumes.....	38
Figure 5.1	Transportation Improvements.....	52
Figure 6.1	Avila Beach Trolley.....	54
Figure 6.2	2010 Bikeways Plan for Avila Beach.....	56

Table Index

Table 2.1	Peak Hour Roadway Capacities by Facility Type.....	20
Table 2.2	Level of Service (LOS) Criteria for Intersections	21
Table 2.3	Existing Conditions: Peak Hour Roadway Level of Service for Weekdays (Non-Summer)	24
Table 2.4	Existing Conditions: Peak Hour Roadway Level of Service for Weekdays (Summer) ...	25



Table 2.5	September 2014 Existing Conditions: Intersection Level of Service for Non-Summer Weekdays	26
Table 2.6	June 2019 Existing Conditions: Intersection Level of Service for Summer Weekdays..	27
Table 2.7	Existing Land Uses	28
Table 3.1	Roadway Classification	33
Table 4.1	Build-Out Land Uses	35
Table 4.2	Build-Out Conditions: Peak Hour Roadway Segment Average Daily Traffic Levels of Service for Non-Summer Weekdays	39
Table 4.3	Build-Out Conditions: Intersection Levels of Service for Non-Summer Weekdays.....	40
Table 5.1	Build-Out Improved Conditions: Peak Hour Roadway Levels of Service.....	53
Table 5.2	Build-Out Improved Conditions: Intersection Levels of Service	53
Table 7.1	Avila Circulation Study 2019 Update Capital Improvements Projects.....	59
Table 7.2	2015 Model Update Land Use (Non-Summer Weekdays Peak Hour Trips).....	61
Table 7.3	Avila Project Costs and Area Trip Share	61
Table 7.4	Recommended Fee per Peak Hour Trip	61

Appendix Index

Appendix A	Traffic Counts
Appendix B	Synchro Reports
Appendix C	Traffic Signal Warrants
Appendix D	Model Land Uses by TAZ
Appendix E	Existing Conditions Model Calibration Report
Appendix F	Avila Beach Drive Capacity Metric Memorandum
Appendix G	Avila Beach Drive Special Events & TDM Recommendations Memorandum
Appendix H:	2019 and 2014 Peak Hour Intersection Traffic Volume Comparison



1. Introduction

The County of San Luis Obispo (County) retained GHD to provide an update to the Avila Circulation Study and Road Improvement Fee (RIF). Included with this Circulation Study is also the creation of a new Avila Travel Demand Model (TDM). The Circulation Study and RIF are updated approximately every five years to fulfill the requirements of Assembly Bill (AB) 1600.

The update of the "2015 Existing Conditions" traffic model has been calibrated and validated based on current land-use information, available transportation facilities, and new traffic count data collected by GHD. The updated existing conditions model formed the basis for the "2035 Build-out Conditions" traffic model that was developed assuming build-out of land uses and construction of planned transportation facilities in the San Luis Obispo General Plan. The build-out conditions model has been developed in order to test alternative land use and/or circulation alternatives that will help assess the need, nature and timing of future circulation improvements within the Avila Planning Area. The new Avila traffic model will also be utilized as a planning analysis tool on a variety of traffic impact and circulation studies to assess land development proposals within the county as well as the continued update of the County's Capital Improvement Program (CIP) and Road Improvement Fee (RIF).

This report is technical documentation in support of the Avila Planning Area travel forecasts, resulting Circulation Study, CIP and subsequent RIF update. This report presents the methodology behind the development of the *2015 Existing Conditions*, summarizing the background data and technical components used in the development of the model, including the existing conditions calibration process. The development of the *2035 Build-out Conditions* is also summarized, including traffic projections rendered by the Avila TDM as well as alternative circulation conditions tested in yielding the circulation plan recommendations.

Following the update to the circulation plan recommendations, the transportation impact fees were updated. The transportation impact fees proposed in this report have been calculated pursuant to the Mitigation Fee Act, as set for in Sections 66000 et seq. of the California Government Code (Assembly Bill 1600).

The Mitigation Fee Act was enacted by the California State legislature in 1987 and requires that all public agencies satisfy the following requirements when establishing, increasing, or imposing a fee as a condition of approval for a development project:

1. Identify the purpose of the fee;
2. Identify the use to which the fee will be put;
3. Determine that there is a reasonable relationship between the fee's use and the type of development on which the fee is imposed;
4. Determine how there is a reasonable relationship between the need for the public facility and the type of development on which the fee is imposed; and,



5. Determine how there is a reasonable relationship between the amount of the fee and the cost of the public facility or portion of the public facility attributable to the development on which the fee is imposed.

The “reasonable relationship” test was supplemented by a test of “rough proportionality” in the 1994 United State Supreme Court decision *Dolan v. City of Tigard*. In this decision, the Court opined that, when a public agency requires an exaction from new development, the agency cannot rely solely on a general, qualitative relationship between a land use and required facility but must make a finding that the exaction is related to the proportional impact of that land use.

The Court specifically stated in its opinion that “no precise mathematical calculation is required, but the city must make some sort of individualized determination that the required dedication is related both in nature and extent to the impact of the proposed development.” This decision effectively added an additional finding that there is a rough proportionality between the amount of the fee and the impact of the development on which the fee is imposed.

As required by Government Code Section 66000 et seq. and subsequent court rulings, this report will show that a reasonable relationship exists between the calculated fee amounts and development land uses on which they are imposed. Additionally, it will be demonstrated that a rough proportionality exists between the impact of a land use on a facility and amount of the fee imposed on it.

Fee Administration

According to California Government Code, prior to levying a new fee or increasing an existing fee, an agency must hold at least one open and public meeting. The agency must make data on infrastructure costs and funding sources available to the public. Notice of the time and place of the meeting, and a general explanation of the matter, are to be published in accordance with Section 6062(a) of the Government Code. The updated traffic fees should be adopted through a County ordinance or resolution. Any future increases to the fees resulting from annual inflation or minor adjustments could be adopted annually by resolution.

Fee Adjustments

All fees calculated in this study are reflected in year 2018 dollars. These fees should be adjusted in future years to reflect revised facility standards, receipt of additional funding from alternative sources (i.e., state or federal grants), revised replacement costs, or changes in demographics or the County’s land use plan. In addition to such periodic adjustments, the fees should be adjusted each year by a predetermined index, such as the Engineering News Record 20-City Construction Cost Index. Incorporating the index adjustment will require revision of the existing Title 13 ordinance of the Road Improvement Fee program.

1.1.1 Avila Valley Circulation Study Goals

The 2009 Avila Valley Circulation Study presents the goals and objectives that were used by the Land Use Committee of the Avila Valley Advisory Council (AVAC) as a guide in updating the study.



The following goals are still applicable in providing an appropriate and efficient inter-modal transportation system to the Avila Beach area.

- Goal 1:** To provide an appropriate and efficient transportation system to serve the present and future needs of the Avila Valley and Port San Luis.
- Goal 2:** To ensure that special events in the Avila Valley provide adequate access management.
- Goal 3:** To expand the use of alternative forms of transportation in the Avila Valley
- Goal 4:** To ensure the transportation system accommodates build-out of the land uses designated by the San Luis Bay Area Plan, both Inland and Coastal portions.
- Goal 5:** To identify a framework for information sharing, coordination and implementation of transportation-related issues among stakeholders.

These goals support maintaining a safe and efficient transportation system serving Avila Valley and Port San Luis residents, and business and recreational users consistent with the built and natural environments, fiscal, and cultural constraints.

This report is organized into the following Chapters:

- Chapter 1 - Introduction
- Chapter 2 - Background Conditions
- Chapter 3 - Travel Demand Model Development and 2015 *Existing Conditions* Calibration
- Chapter 4 - *2035 Build-out Conditions* Traffic Model Development
- Chapter 5 – Transportation Improvement Needs and Circulation Plan Recommendations
- Chapter 6 – Alternative Transportation Modes
- Chapter 7 – Cost Estimates and Funding Mechanisms, Including Transportation Impact Fees

1.2 Background Regarding Avila Traffic Evaluation

Until a 1994 ordinance, Avila traffic was evaluated the same as for other County areas. In 1995, the General Plan was amended to reserve road capacity for Harbor District development by enacting traffic evaluation for Avila Beach Drive and San Luis Bay Drive on the second week in May, during afternoon commute time between 3 pm and 6 pm.

In spring of 2015, the County approved a Coastal Development Permit for a Harbor District camping resort at Harbor Terrace.

A letter dated April 27, 2015, to the County from the Avila Valley Advisory Committee requested that the County evaluate traffic based on the 30th highest annual peak traffic hour.



At a public hearing on October 13, 2015 the Board of Supervisors was notified by members of the Avila community that annual traffic counts indicate that the remaining capacity had declined to 25 percent of LOS "C" and in accordance with the procedures of the Planning Department Resource Management System the Board should consider the allocation of the remaining capacity among coastal-dependent, coastal-related and other development. In response, according to the Department of Planning and Building, Staff was directed by the Board "to investigate the San Luis Bay Area Plan Circulation program entitled 'Resource Capacity-Avila Beach Drive'. This investigation will take place using the Resource Management System..." "The Avila Beach Drive traffic program will investigate: -the current and historical Level of Service on the road, -all language in the Local Coastal Program created as a result of Ordinance 2702 in 1995 (including why the second week in May was selected, to include whether or not it's a feasible/appropriate standard), and -Coastal dependent and Coastal related uses."

On July 19, 2019, the Board of Supervisors eliminated the traffic measures adopted under Ordinance 2702 and directed the Public Works Department to develop an alternative traffic metric which reflected road conditions. Because of community-wide desire to revert to a conventional method of evaluating traffic in Avila, the above-referenced investigation has been completed utilizing the Resource Management System (RMS). The County installed a permanent count station on Avila Beach Drive west of San Luis Bay Drive in January 2015, which provides continuous data collection year-round. The traffic volumes on Avila Beach Drive have been recorded, compared, and analyzed in a separate memorandum, which is included in Appendix F of this report. The memorandum identifies K100 volume, i.e. the 100th highest hour of the year, averaged over a three-year period, as the proposed capacity metric on Avila Beach Drive, and proposes "LOS D" as the recommended threshold. The LOS D threshold is consistent with the County policy for other established circulation studies in urban reserve lines. The K100 volume on Avila Beach Drive is representative of LOS D conditions, and the "shoulder" peak season transitional months of May, August, and September. Therefore, in addition to the 2nd week of May counts and the September counts, the K100 volume on Avila Beach Drive west of San Luis Bay Drive, averaged over three years (2015-2017), has also been analyzed in this study.

1.3 Community Input

The following text is taken from the *2009 Update - Avila Valley Circulation Study 2007*. These adopted Goals and Objectives continue to be supported by the Land Use Committee.

The *2001 Avila Circulation Study* was greatly assisted by the Land Use Committee of the Avila Valley Advisory Council (AVAC). The citizens group met a number of times during the preparation of the 2001 study, providing valuable insight and guidance in the development of the existing and future conditions evaluations, along with the selection of appropriate improvements options. In this study the Land Use Committee of AVAC met to discuss and update the *2007 Avila Valley Circulation Study*.

The Committee and the process were guided by a series of policy statements. These include the following Mission Statement, Goals and Objectives.



Mission Statement: To promote an appropriate and efficient inter-modal transportation system to serve Avila Valley and Port San Luis area residents, businesses and recreational users consistent with the built and natural environments, fiscal, and cultural constraints.

Goal 1: To provide an appropriate and efficient transportation system to serve the present and future needs of the Avila Valley and Port San Luis.

Objective 1: Using current land use and traffic data, review the list of improvements and corresponding priorities contained in the Avila Circulation Study Capital Improvement Program (CIP) to determine their relevance. Specific areas to be reviewed include, but are not limited to, the following:

The need for, and timing of, improvements to:

- The Avila Village entrance, including a street sign for Bay Laurel Drive/Avila Beach Drive
- The Avila Beach Drive and San Luis Bay Drive interchanges with US 101
- The Ontario Road (frontage road) intersection at the San Luis Bay Drive interchange with US 101
- Other arterial roads

Objective 2: Improve safety throughout the transportation system serving the Avila Valley and Port San Luis by identifying traffic controls and other improvements necessary to prevent conflicts among motor vehicles, bicycles, and pedestrians. Review the Avila Circulation Study CIP to identify gaps in planned transportation safety improvements.

Objective 3: *Review the adequacy of emergency access and evacuation plans for the Avila Valley.*

Goal 2: To ensure that special events in the Avila Valley provide adequate access management.

Objective 1: Obtain relevant information about past and scheduled future events and, upon consultation with pertinent entities, formulate any necessary recommendations for reduced impacts.

Goal 3: To expand the use of alternative forms of transportation in the Avila Valley

Objective 1: Identify transportation options for special events and peak summer weekend visitorship, including park and ride shuttle transportation.

Objective 2: Identify strategies (vehicle pools, public transit, paid parking, etc.) to reduce the number of commuter trips.

Goal 4: To ensure the transportation system accommodates build-out of the land uses designated by the San Luis Bay Area Plan, both Inland and Coastal portions.



Objective 1: Ensure that road capacities are consistent with relevant provisions of the Coastal Act regarding coastal-related and coastal-dependent uses.

Objective 2: Identify potential development allowed by the San Luis Bay Area Plan, both Inland and Coastal portions, and evaluate potential transportation impacts.

Objective 3: The County intends to require a Traffic Impact Study be prepared in conjunction with any proposed amendment to the Area Plan.

Goal 5: To identify a framework for information sharing, coordination and implementation of transportation-related issues among stakeholders.

These Goals and Objectives continue to be applicable for this update.



2. Background Conditions

To initiate the 2018 update to the Circulation Study, RIF, and Avila TDM, GHD first needed to ascertain changes to the existing transportation system, land uses, and other background information since the last update was developed in 2009. To this end, GHD reviewed available transportation and land use information useful in obtaining an understanding of existing or “baseline” travel patterns within and through the Avila Planning Area. The 2018 update used available useful information from the previous model update, but then built a new “script file” to achieve an improved Avila TDM. The primary source of input data for the 2018 update came from parcel-based land use data and current traffic counts on critical transportation facilities.

Available sources of transportation and land use information pertinent to the Avila area of San Luis Obispo County that were obtained and reviewed included the following:

- Land Use and Circulation Element (LUCE), Avila Beach Community Plan, 2013.
- GIS database (in *ArcGIS* format) from the County that contained Assessor’s Parcel mapping, General Plan land use designations, current zoning, overlay designations, land use symbols, planning area and urban limit line information, etc., obtained from ParcelQuest in January 2015.
- Recent traffic count data obtained from Caltrans data publications, as well as new traffic counts conducted by GHD in September 2014, as well as County data for 2015.
- Field (windshield) survey of roadway, land development and travel conditions, and photographs of the Avila street system.
- Most recent aerial photographs of the Avila Planning Area.
- US Census Bureau, Census 2000 and 2010 data (in GIS format) for San Luis Obispo County and within the Avila Planning Area.
- Miscellaneous traffic circulation studies and traffic impact studies recently completed for the County.

2.1 Existing Setting

San Luis Obispo County is along the Pacific coastline in Central California, north of Santa Barbara. San Luis Obispo County consists of seven incorporated cities and multiple unincorporated communities.

Avila Beach is an unincorporated community within San Luis Obispo County and is approximately 10 miles south of the City of San Luis Obispo. The Avila Beach urban area includes an area bounded on the east by Highway 101, the city of Pismo Beach on the south, the Pacific Ocean on the west, and the Irish Hills to the north. It includes the Avila Valley area, the private recreation development of the San Luis Bay Inn, the Avila town site (Town) and the Port San Luis area extending along the bayfront. Avila Beach is one of the main recreation/tourist areas of the County and has one of the most popular beaches. This resort orientation is expected to continue;



additionally, development in outlying portions of the urban area could lead to full-time resident population increases as well.

Population within the region has seen fluctuations between 2000 and 2010. Population fluctuations change the transportation needs of the surrounding community. Based on the data from the U.S. Census Bureau for 2010 and 2000, San Luis Obispo County population has increased by approximately 23,000 individuals from 246,681 in 2000 to 269,637 in 2010. In Avila Beach specifically, the community grew from approximately 1,100 individuals¹ in 2000 to over 1,600 individuals¹ in 2010.

These population fluxes cause future transportation needs to vary. These variations will be considered with the Circulation Plan and Road Improvement Fee update. Figure 2.1 shows the study area and vicinity map. Figure 2.2 shows the Avila area with the Fee Area and Avila URL.

US 101 is the primary highway providing regional access and is located east of Avila Beach. Avila Beach has one way in and out. No north - south two-lane access, which the Fire Department considers essential for a large project, has been proposed. The Avila Area is designated "high fire hazard," has multiple earthquake faults, tsunami potential and a nuclear power facility."

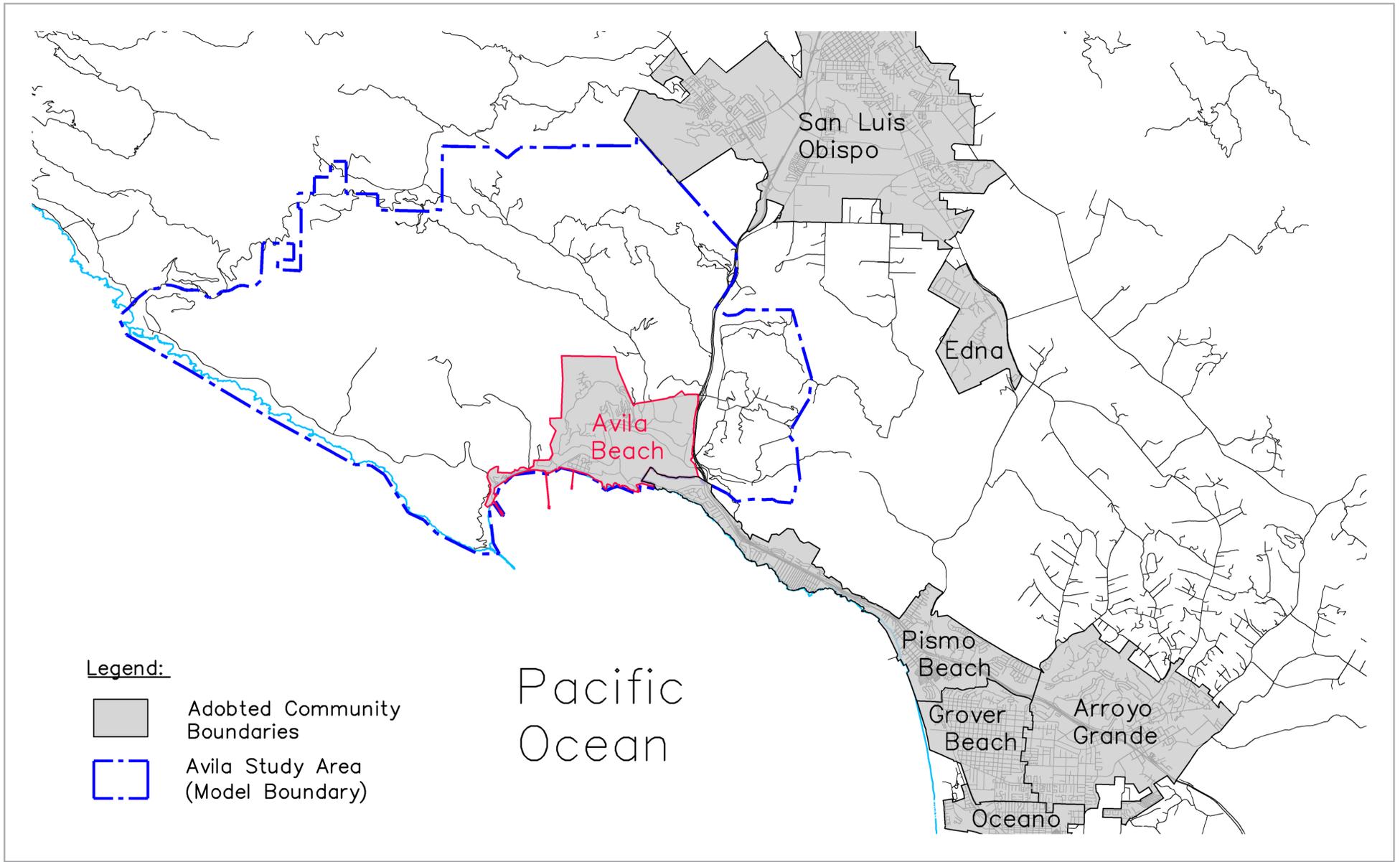
US 101 is an interstate that provides access to Los Angeles, San Jose, and traverses the coastline to Oregon and Washington. Avila Beach Drive and San Luis Bay Drive are the primary arterials that provide access from US 101 to the Avila Beach area. Left turn bays exist at major intersections along Avila Beach Drive, and at a few locations on San Luis Bay Drive. West of the freeway, these two routes join and traffic continues on Avila Beach Drive into the town and Port San Luis. Currently, these two interchanges operate unacceptably and are constrained due to lack of capacity from turn lanes and control. Avila Beach Drive and San Luis Bay Drive have high demand from US 101 north and south of Avila, respectively.

Traffic through Avila is composed of three main components: PG&E employment; recreational use; and residential and commercial use. Recreational and tourist traffic is drawn towards the beach, port area, and golf course and is higher during the summer or holiday months. Resorts and vacation rentals are mainly located along 1st Street, with the exception of the large resort San Luis Bay Inn located west of the beach, and other resorts located along Avila Beach Drive northwest of the central beach area. The commercial areas are located along Front Street with restaurants and shopping, and at the Harford Pier/Harbor District which also has a seasonal fish market. Special events mainly take place at the golf course and increase traffic and parking demand in the area. Parking is allowed on Avila Beach Drive west of San Luis Street and RV camping is provided in certain areas along Avila Beach Drive near Port San Luis. Parking within the town is provided with a large parking lot located at 1st Street and San Miguel Street, and diagonal parking is provided along the commercial areas on and adjacent to Front Street. Avila Beach Drive also serves PG&E's Diablo Canyon Power Plant, whose access road is located just north of the Harbor District.

¹ <http://censusviewer.com/city/CA/Avila%20Beach>



Currently, San Luis Street, San Miguel Street, and 1st Street serve as access points into the commercial and beach area from Avila Beach Drive. During the summer peak, the beach is full and visitors create a high demand for parking. Future development within the town is projected to increase traffic at the access points and along Avila Beach Drive. With future development in the area, congestion at intersections is expected to increase and parking demand in town will rise beyond what is currently available. The Transportation System Management (TSM) program outlined in this report discusses alternatives for reducing traffic and parking congestion. In 2013, a parking study was completed for Avila that also details the existing parking conditions and recommended TSM programs. In 2019, TJKM completed a Parking Study for downtown Avila Beach, which focused on near-term and mid-term improvements to parking.

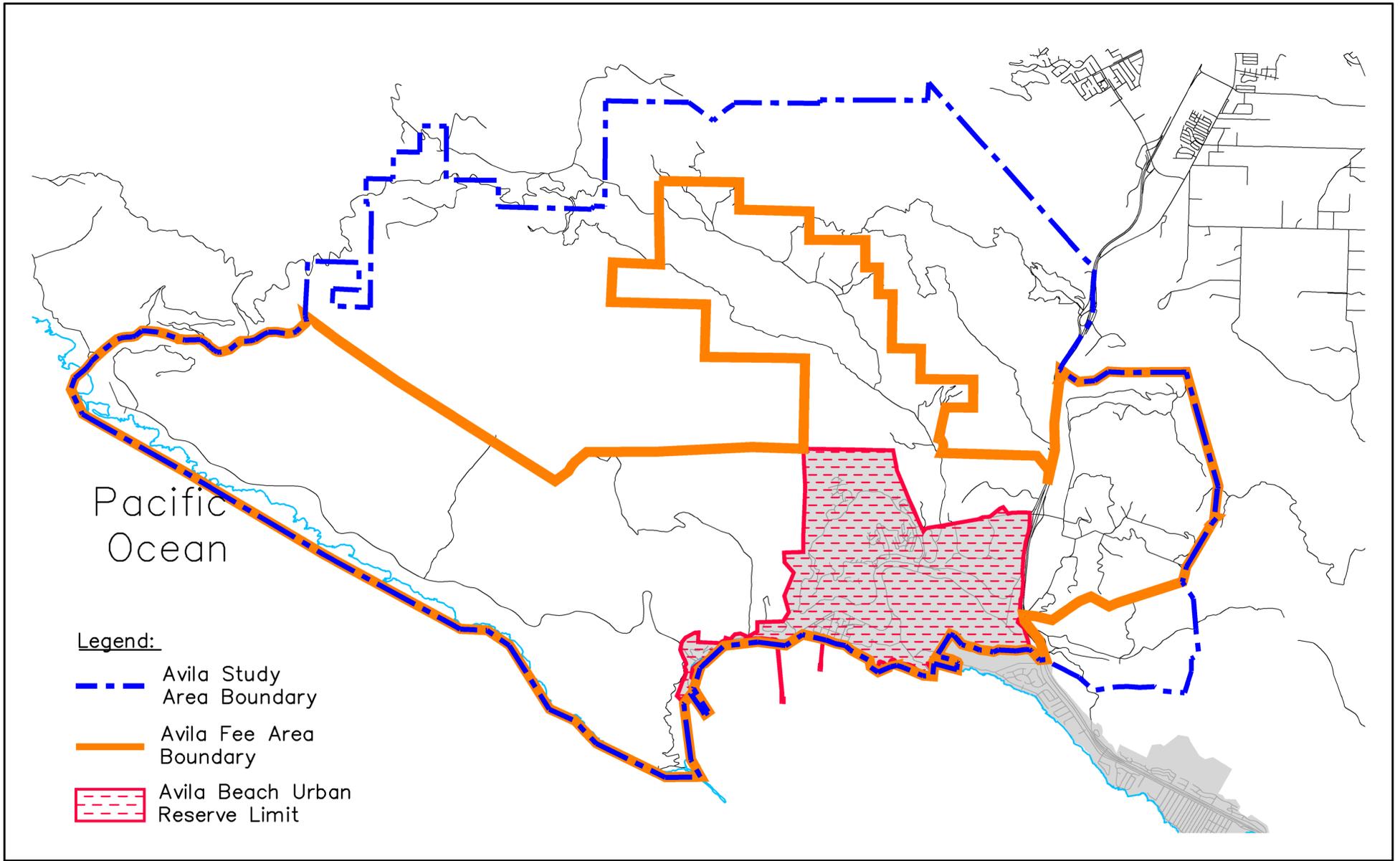


County of San Luis Obispo
Avila Circulation Study & TIF Update

Project No. 11177690
Report No. 009
Date 07.15.2019

STUDY AREA MAP

FIGURE 2.1



County of San Luis Obispo
Avila Circulation Study & TIF Update

Project No. 11177690
Report No. 009
Date 07.15.2019

AVILA FEE AREA MAP

FIGURE 2.2



2.2 Existing Transportation System

The existing physical conditions for the Avila Beach roadway network are described below. A hierarchy of streets provides access to and from residential, commercial, and industrial uses throughout the County and beyond. A route's design, including number of lanes needed, is determined by its functional classification and its projected traffic levels to achieve “safe and convenient movement at the development intensity anticipated in the Land Use Element.”

2.2.1 State Freeways

Controlled access facilities whose junctions are free of at-grade crossing with other roadways, railways, or pedestrian pathways, and instead are served by interchange facilities are classified as highways. Highways usually have posted speed limits ranging from 60 to 70 mph. The following freeway services the Avila Beach area.

U.S. Highway 101 (US 101) is a major north-south interstate that traverses coastal California. US 101 serves as the principal inter-regional auto and truck travel route that connects San Luis Obispo County (and other portions of the Central Coast) with the Los Angeles urban basin to the south, the San Francisco Bay Area to the north, and beyond to Oregon and Washington. Within San Luis Obispo County, US 101 provides major connection between and through several cities, including the Five Cities Area. East of the Avila Beach area, US 101 represents a major commuter travel route and varies from a five-lane to a four-lane divided freeway with a 65 mph posted speed limit. Within the study area, US 101 forms full access interchanges with San Luis Bay Drive to the northeast and Avila Beach Drive/Monte Road/Palisades Road to the east. US 101 between San Luis Obispo and Pismo Beach is also designated as State Route 1.

2.2.2 Arterials

Arterial facilities serve to connect areas of major activity within the urban area and function primarily to distribute cross-town traffic from freeways/highways to collector streets. Within the Avila Beach area, arterial streets are mostly two lane facilities with maximum operating speeds ranging from 30 to 45 mph. In addition, arterial facilities generally have limited access to adjacent land uses and have a design capacity of between 13,500 to 16,000 vehicles per day, depending on geometric design features such as turn lanes, shoulder widths, and travel lane widths. The following arterials service Avila Beach:

Avila Beach Drive is a major east-west two-lane undivided arterial. Avila Beach Drive is the main arterial in Avila Beach, and it goes from Port San Luis to the west, to US 101 to the east. Avila Beach Drive provides a full access interchange with US 101 at Monte Road and Shell Beach Road, approximately 3 miles east of Avila Beach.

San Luis Bay Drive is a major east-west two-lane undivided arterial. San Luis Bay Drive begins at Monte Road to the east and terminates at Avila Beach Drive to the west. San Luis Bay Drive provides a full access interchange with US 101 approximately 3 miles northeast of Avila Beach.



2.2.3 Collectors

Collectors function as connector routes between local and arterial streets providing access to residential, commercial, and industrial property. Additionally, the Circulation Element identifies collectors as serving to provide bicycle and equestrian travel away from arterials for safety purposes. Two lane collectors have a maximum capacity of approximately 12,000 and generally operate at 30 to 40 mph.

Lupine Canyon Road is a private, gated two-lane undivided roadway that primarily runs east-west from Blue Heron Drive to the east, and circles through a large residential area, and ends at Country Club Drive/Blue Heron Drive. It provides access to seven neighborhoods and up to 623 units at build-out. The access points to Lupine Canyon Road from San Luis Bay Drive via Sparrow Street and Bay Laurel Place are gated access control for the San Luis Bay Estates.

Ontario Road is a two-lane undivided roadway that primarily runs north-south from Avila Beach Drive to the south to South Higuera Street to the north. Ontario Road is a collector north of San Luis Bay Drive and serves as the frontage road west of US 101.

See Canyon Road is a two-lane undivided collector that primarily runs north-south from San Luis Bay Drive to Prefumo Canyon Road/Coon Creek Road, See Canyon Road follows up the canyon providing access to vineyards, farms, and rural residences. The road is narrow, curvy and hilly, with a short unpaved portion.

2.2.4 Local Streets

Local streets provide direct access to abutting properties and allow for localized movement of traffic. Local streets are characterized by low daily volumes of less than 2,000 and low operating speeds of 25 to 30 mph.

2.3 Existing Traffic Data Collection

In September 2014, GHD collected daily roadway counts for 14 roadway segments and AM and PM peak hour turning movement counts at 12 key intersections. These counts were collected across Avila Beach in support of the traffic model development effort to follow. Counts were collected during an average weekday, when schools were in session.

Since the preparation of the Existing Conditions analysis and 2014 counts, the County has recently conducted area-wide counts in summer of 2019. Roadway counts were collected in late July and early August. Intersection counts were conducted on June 11, 2019. A comparison of the 2019 summer counts to the 2014 non-summer counts presented minimal changes in traffic patterns within Downtown Avila. The difference for each turning movement at the study intersections, for both AM and PM peak hours is included in Appendix H. The following summarizes the comparison of the 2014 and 2019 traffic counts:

- a. On a Daily volume basis, the July/August 2019 average weekday roadway counts were approximately 13% higher Avila Beach Drive near US 101, and 6% higher on San Luis

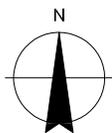
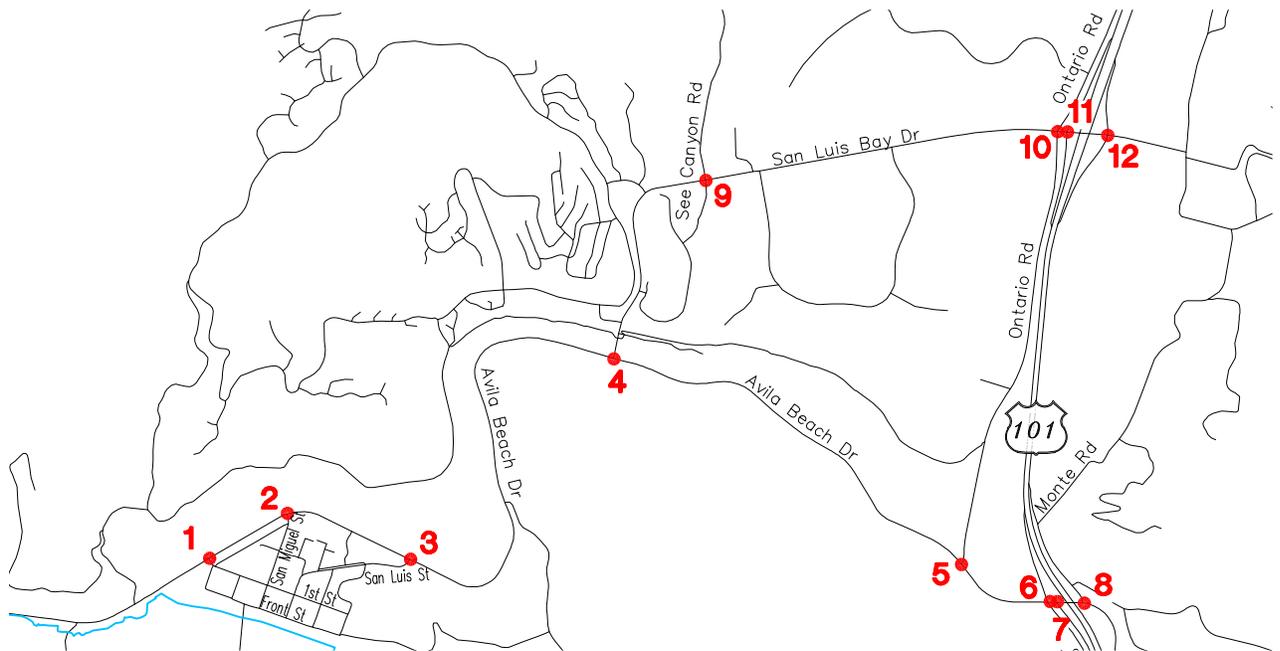
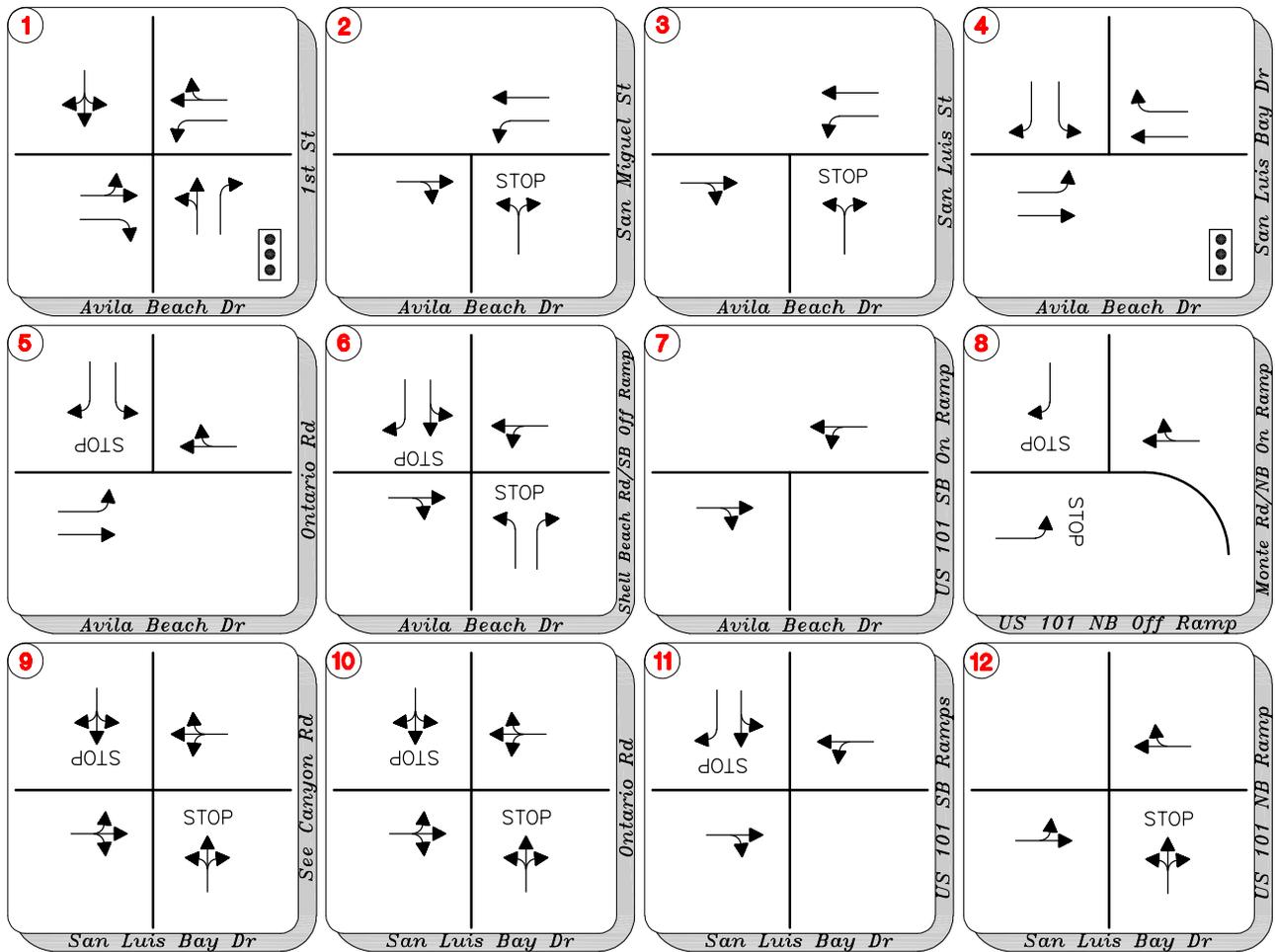


Bay Drive, than the 2014 September counts. Within downtown, daily volumes were notably higher during the summer than during the off-peak season.

- b. On a peak hour basis, the 2019 roadway counts were higher in certain areas (Avila Beach Drive interchange, Ontario Road, and Downtown), and lower in others (Avila Beach Drive west of San Luis Bay Drive, and San Luis Bay Drive). However, the difference in volume would **not** have a significant effect on existing analysis results.
- c. The June 2019 intersection traffic counts are approximately 11% higher in the AM peak hour, and 3% higher in the PM peak hour at Avila Beach Drive/San Luis Bay Drive intersection. June 2019 counts result in LOS B conditions at Avila Beach Drive/San Luis Bay Drive in both AM and PM peak hours; consistent with the 2014 data. Intersections along Avila Beach Drive at Ontario Road and at Shell Beach are 10%-22% higher in the PM peak hour. During the PM peak hour, there is a significant increase in traffic volumes turning left from Ontario Road (+130 vph) to Avila Beach Drive, as well as eastbound right from Avila Beach Drive and southbound through to Shell Beach Road (+468 along southbound Shell Beach Road), with a lower reciprocal movement eastbound through to US 101 Southbound (-246 vph). During the PM peak hour, the traffic appears to shift from US 101 Southbound due to mainline congestion, to Ontario and Shell Beach Road.

Existing conditions analysis is performed for both 2014 and 2019 data. These counts will provide the baseline conditions for roadway and intersection facilities throughout Avila Beach. The 2014 volumes were utilized to calibrate both existing and future traffic volume forecasts. The traffic counts are included in Appendix A. Figure 2.3 presents the existing lane geometrics and control at the study intersections. Figure 2.4 presents the September 2014 Existing AM and PM peak hour volumes at the study intersections. Figure 2.5 presents the June 2019 Existing AM and PM peak hour volumes at the study intersections. Figure 2.6 presents the Existing 2014 and 2019 Average Daily Traffic (ADT) on the roadways within Avila Beach.

In compliance with the Avila Beach Specific Plan and the San Luis Bay Coastal Plan Urban Area Standards, traffic counts were also collected for average hourly weekday two-way 3:00 pm to 6:00 pm during the second week in May in 2015 along Avila Beach Drive. However, this methodology has since been suspended by the Board of Supervisors on July 19, 2016. The County installed a permanent count station on Avila Beach Drive west of San Luis Bay Drive in January 2015. The count data has been collected since 2015 and is available on the County Public Works website.

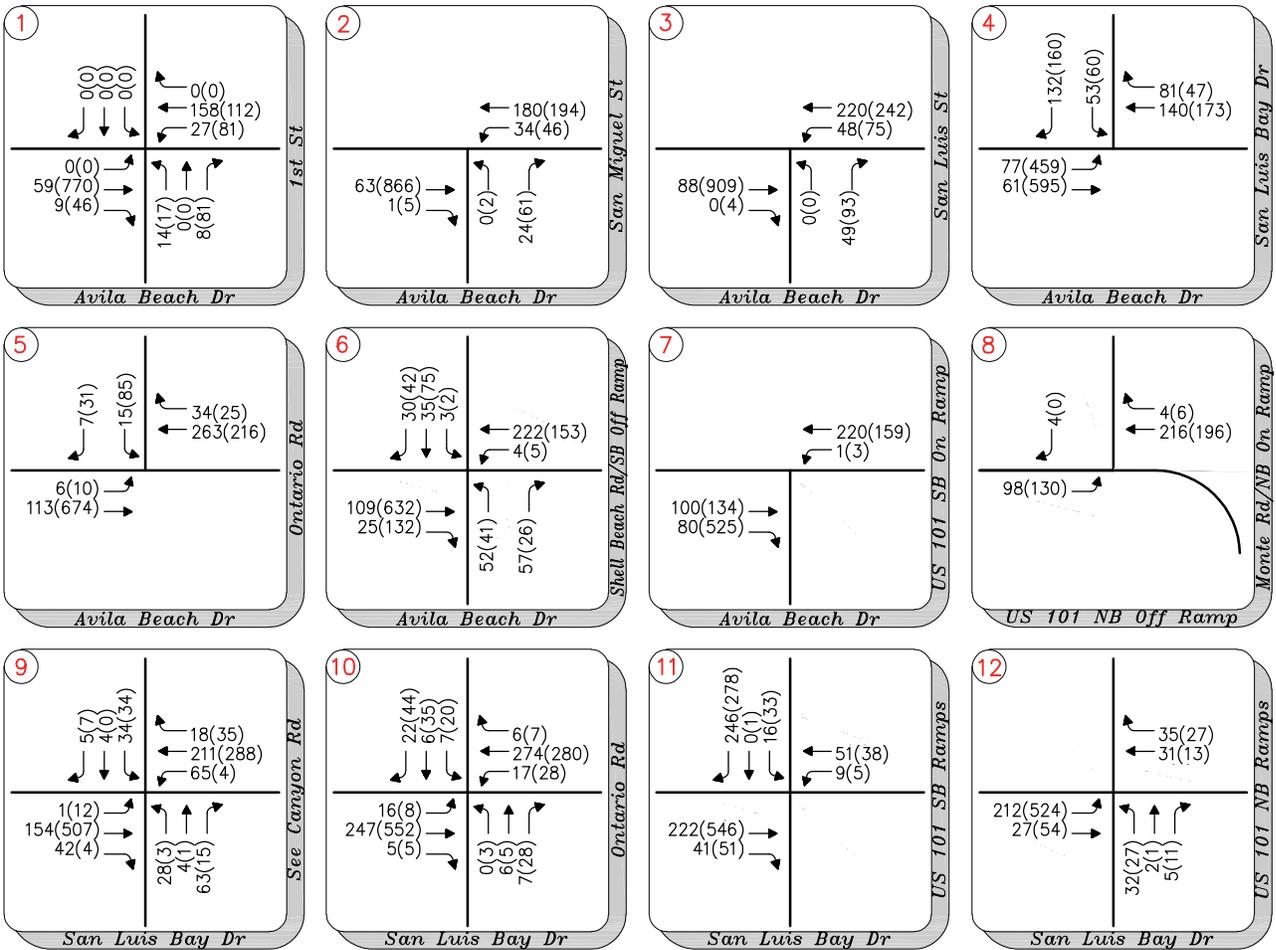


County of San Luis Obispo
 Avila Circulation Study & TIF Update

Project No. 11177690
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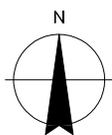
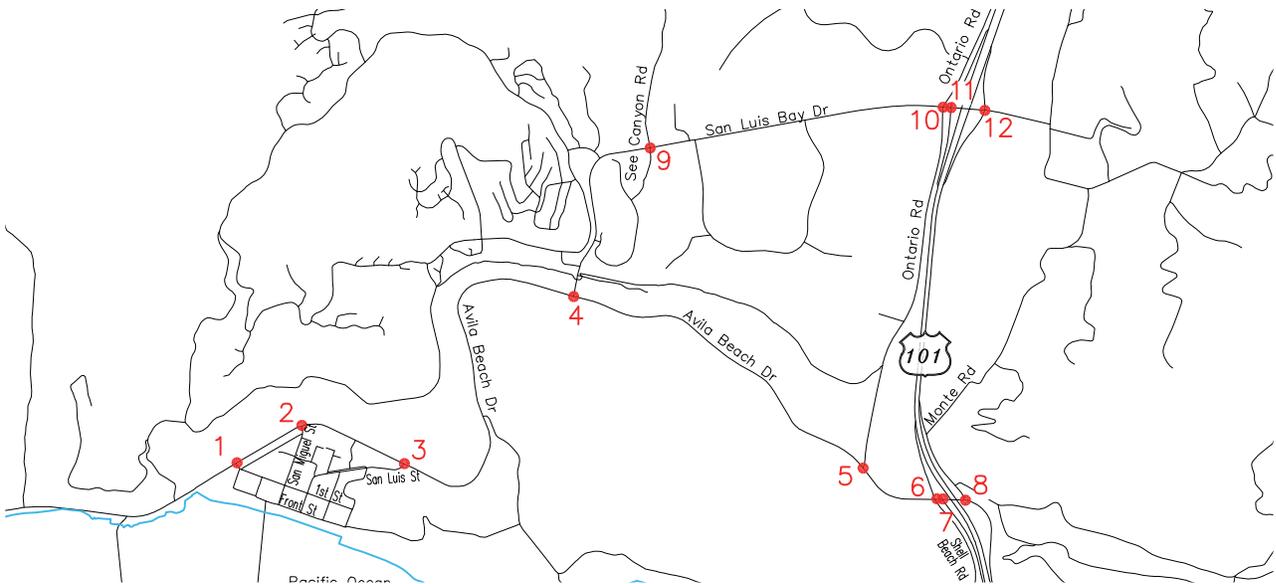
**EXISTING LANE GEOMETRICS
 AND CONTROL**

FIGURE 2.3



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES
 (XX) - PM PEAK HOUR TRAFFIC VOLUMES

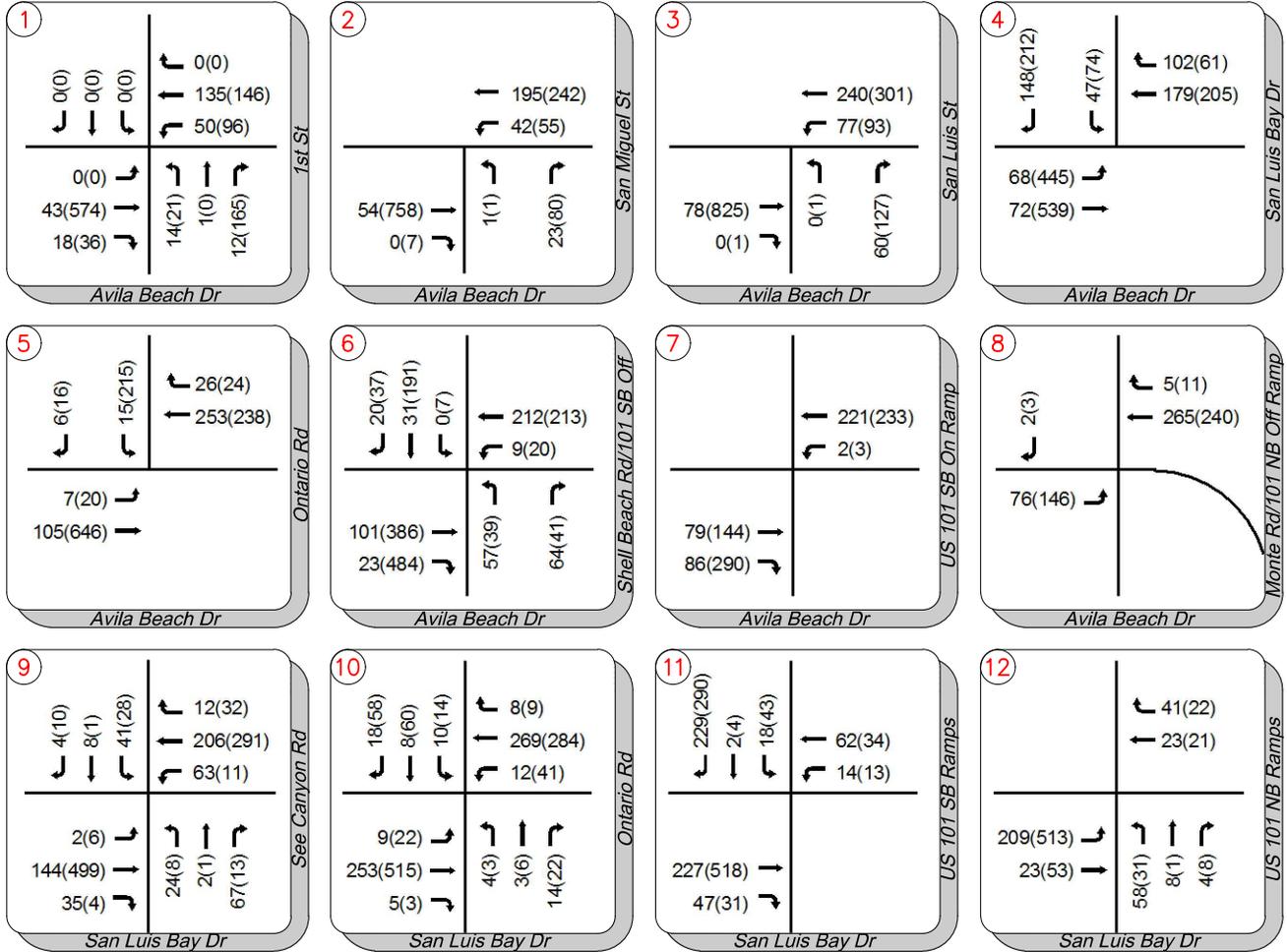


County of San Luis Obispo
 Avila Circulation Study & TIF Update

Project No. 11177690
 Report No. 009
 Date 09.27.2019

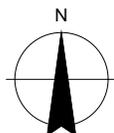
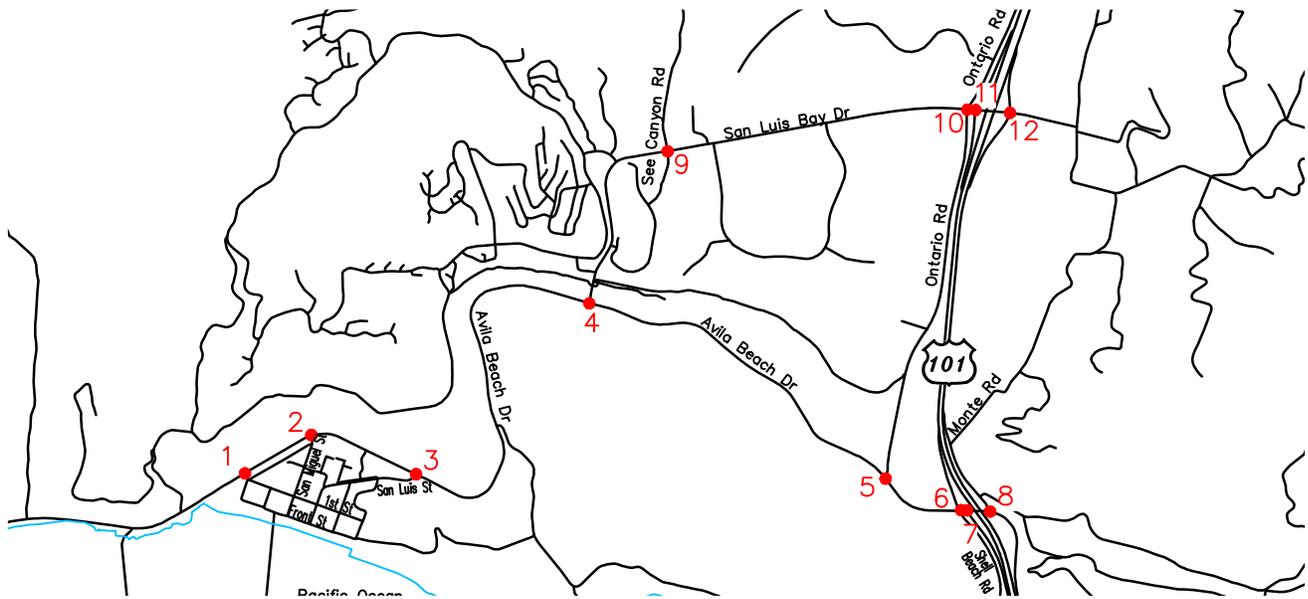
**EXISTING (SEPTEMBER 2014)
 PEAK HOUR VOLUMES**

FIGURE 2.4



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES
 (XX) - PM PEAK HOUR TRAFFIC VOLUMES



County of San Luis Obispo
 Avila Circulation Study & TIF Update

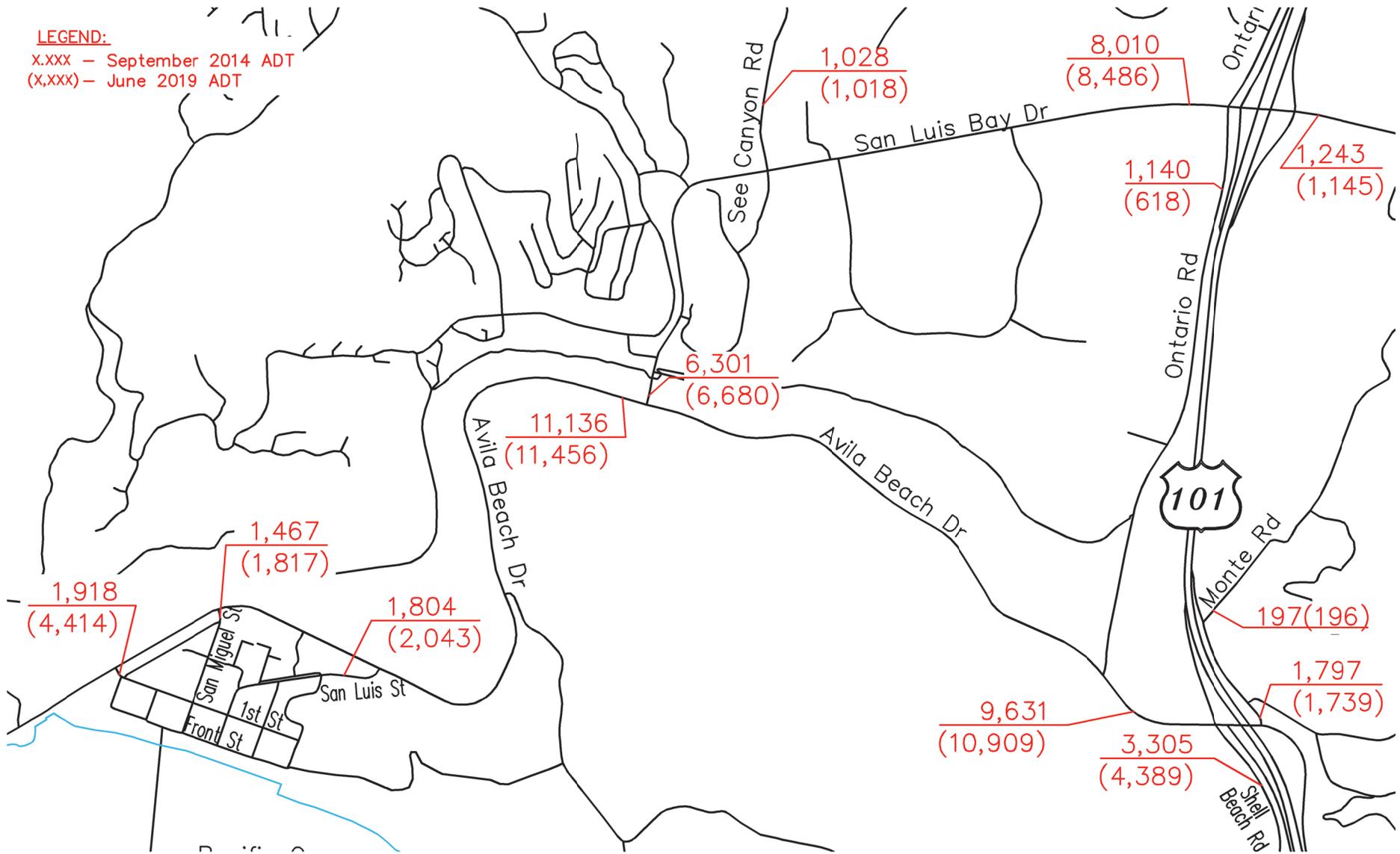
Project No. 11177690
 Report No. 009
 Date 09.27.2019

**EXISTING (JUNE 2019)
 PEAK HOUR VOLUMES**

FIGURE 2.5

LEGEND:

X.XXX - September 2014 ADT
(X,XXX) - June 2019 ADT



County of San Luis Obispo
Avila Circulation Study & TIF Update

Project No. 11177690
Report No. 009
Date 09.27.2019

**EXISTING (2014 AND 2019)
AVERAGE DAILY TRAFFIC VOLUMES**

FIGURE 2.6



2.4 Levels of Service (LOS) Methodology

Avila Beach experiences variable traffic volumes between summer and winter and also fluctuations between weekday and weekend traffic. In compliance with the Avila Beach Specific Plan and the San Luis Bay Coastal Plan Urban Area Standards, traffic counts collected in the 2nd week of May were utilized to determine PM peak hour levels of service and identify deficiencies along Avila Beach Drive and San Luis Bay Drive. Counts collected in September 2014 were higher than in May during the PM peak hour, and are also presented in the roadway segment analyses for comparison purposes.

Traffic operations have been quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment representing progressively worsening traffic conditions. The following section outlines the methodology and analysis parameters used to quantify existing conditions.

2.4.1 Roadway Segment Capacity

Roadway segment LOS for Avila Beach Drive and San Luis Bay Drive were determined using the capacities set in the *Avila Beach Drive Resource Capacity Study* (Wilbur Smith Associates, 1992). The capacities presented in the 1992 study take into account the higher than usual directionality along Avila Beach Drive. Capacity methodologies such as those in the Highway Capacity Manual typically assume a 60/40 peak hour directional split. The directional split for Avila Beach Drive is greater than this, ranging from 68% to 78% in the eastbound direction.

Arterials in Avila have lower effective capacity due to the higher directionality factor, as noted in the 1992 WSA study, which recommends a maximum two-way traffic volume of 1,280 vehicles per hour for LOS C. For the roadways which do not have left turn lanes, a 5% capacity reduction is applied, based on adjustments set in Florida Department of Transportation (FDOT) Quality/Level of Service Handbook Tables, 2012. The FDOT table for Peak Hour Two-Way volumes in transitioning areas on Class II facilities was used to determine the capacity for the study collectors.

Besides the adjustments made for directionality, the peak hour-based capacity thresholds applied in this study use built-in adjustment factors for typical intersection spacing, driveway spacing, etc. and therefore reasonably reflect roadway operations at a peak hour level. For standard roadways, LOS was estimated using peak-based LOS thresholds, as presented in Table 2.1.

Roadway segment LOS is a "planning level" evaluation of traffic operations and is a supplement to the intersection evaluation. Improvement design is ultimately driven by intersection operations that quantify such factors as approach and vehicle delay as well as queuing, taking into account existing intersection lane geometry and control type.



Table 2.1 Peak Hour Roadway Capacities by Facility Type

Roadway Type	Maximum Two-Way Peak Volume for Given Service Level				
	A	B	C	D	E
Two-Lane Arterial (w/LTL)	1,052	1,203	1,365	1,535	1,719
Two-Lane Arterial (No LTL)	1,001	1,149	1,300	1,460	1,635
Avila Two-Lane Arterial (w/LTL) (One-way volumes)	100	320	640	1,020	1,560
Avila Two-Lane Arterial (w/LTL) (Two-way Volumes)	150	470	940	1,500	2,290
Avila Three-Lane Arterial (w/LTL)	1,655	1,900	2,150	2,420	2,715
Two-Lane Collector (w/LTL)	-	-	610	1,260	1,345
Two-Lane Collector (No LTL)	-	-	580	1,200	1,280
Notes:					
1. Capacity thresholds for Avila Beach Drive are based on HCM 6 methodologies for two-lane highways, with baseline adjustment factors, assuming a PHF of 0.92, and a 68% - 32% split for directionality.					
2. Standard Arterial and Collector LOS based on FDOT Peak Hour Two-Way Volumes for Transitioning Areas; and assumes a 0.6 directional factor, typ.					
3. w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.					
4. No LTL indicates arterials without left turn lanes (LTL) at most major intersections.					

2.4.2 Intersection LOS

Intersection Level of Service (LOS) will be calculated for all control types using the methods documented in the Transportation Research Board publications *Highway Capacity Manual, Fifth Edition, 2010*, as well as the HCM 6 Edition. At the time of preparation of the operational analysis, HCM 2010 was most current. LOS results for 2014 data utilized HCM 2010, and LOS results for 2019 data utilized HCM 6. Traffic operations have been quantified through the determination of LOS. LOS determinations are presented on a letter grade scale from "A" to "F", whereby LOS "A" represents free-flow operating conditions and LOS "F" represents over-capacity conditions. For a signalized or all-way stop-controlled (AWSC) intersection, an LOS determination is based on the calculated averaged delay for all approaches and movements. For a two-way stop controlled (TWSC) intersection, an LOS determination is based upon the calculated average delay for all movements of the worst-performing approach. The Synchro 8 (Trafficware) software program was used to implement the HCM 2010 and Synchro analysis methodologies. Synchro 8 takes into account intersection signal timing and queuing constraints when calculating delay and queue lengths. The Synchro 8 outputs can be found in Appendix B. LOS definitions for different types of intersection controls are presented in Table 2.2.



Table 2.2 Level of Service (LOS) Criteria for Intersections

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle	
				Signalized	Unsignalized
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	<10.0	<10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and <20.0	>10.0 and <15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20.0 and <35.0	>15.0 and <25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and <55.0	>25.0 and <35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and <80.0	>35.0 and <50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0

Source: Highway Capacity Manual, Fifth Edition, 2010.



2.4.3 Traffic Signal Warrant Analysis

A supplemental traffic signal “warrant” analysis was completed for unsignalized intersections determined to be operating at an unacceptable LOS. The term “signal warrant” refers to the list of established criteria used by public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an unsignalized intersection. This study has employed the signal warrant criteria presented in the latest edition of the California Manual on Uniform Traffic Control Devices (MUTCD) for all unsignalized study intersection.

The California MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, this study utilizes the peak hour volume-based Warrant 3 as one representative type of traffic signal warrant analysis. It should be noted that the Peak Hour Volume Warrant was only applied when the intersection was found to be operating at an unacceptable LOS. Therefore, there may be instances when the unsignalized intersection operates at acceptable LOS conditions but still meets the Peak Hour Volume Warrant. Signal warrant analyses are included in Appendix C.

2.4.4 Level of Service Policy

San Luis Obispo County’s General Plan Land Use and Circulation Element (LUCE) for San Luis Obispo (SLO) Area Plan, (August 2013) specifies minimum LOS standards for all streets and intersections within the Avila Beach area. Section 5.4 establishes the following threshold for acceptable LOS:

Utilize the Resource Management System (RMS) to determine when specific actions must be taken to address existing and projected deficiencies in service levels.

The RMS uses traffic data for Avila based on the second average weekday from 3 pm to 6 pm on Tuesday, Wednesday, or Thursday. This measure was discontinued by the Board of Supervisors on July 19, 2016. The Board directed Public Works Department to replace with a new traffic collection methodology which better represents actual traffic conditions.

Objectives:

- Monitor traffic conditions on major arterials and urban/rural arterials to identify existing deficiencies.
- Project future traffic conditions based on anticipated local development trends and traffic from outside the sub-area using computer-based modeling techniques.
- Utilize computer-based modeling techniques to assess the most cost-effective strategies for roadway improvements and alternative transportation programs that provide a level of service (LOS) D or better at peak commuter periods.

The following policies were used to determine the acceptable level of service thresholds:

- The Coastal San Luis Bay Area Plan and Inland San Luis Obispo Area Plan establishes the following:



The Level of Service (LOS) for Avila Beach Drive and San Luis Bay Drive shall be based on the average hourly weekday two-way 3:00 p.m. to 6:00 p.m. traffic counts to be conducted during the second week in May of each year. [Added 1995, Ord. 2702]

- San Luis Obispo County's General Plan LUCE for SLO Area Plan, the San Luis Bay Coastal Area Plan establishes the following related to service levels:

Avila Beach Drive shall not be subjected to traffic levels exceeding level of service "C".

- The Road and Interchanges section of the 2012-214 Resource Summary Report (RSR) of the RMS states the following regarding LOS for areas outside of the Avila Beach Urban Reserve Line (URL):

San Luis Obispo County has established LOS "C" as the threshold for the acceptable operation of roadways and interchanges in rural areas and LOS "D" in urban areas.

- In addition to the County's policies, Caltrans also provides guidance on LOS policy on State facilities. Caltrans' Guide for the Preparation of Traffic Impact Studies contains the following policy pertaining to the LOS standards within Caltrans jurisdiction:

Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS.

Consistent with Caltrans and County policies, this study will consider **LOS "C"** as the standard acceptable threshold for all study intersections and roadways on Avila Beach Drive, those maintained by the State/Caltrans jurisdiction (i.e., ramp intersections, and intersections along State Highways), and those in rural Areas (outside URL).

Also consistent with Caltrans and County policies, this study will consider **LOS "D"** as the standard acceptable threshold for all study intersections and roadways inside the Urban Reserve Line, except for Avila Beach Drive and within Caltrans jurisdiction.

2.4.5 Avila Beach Drive Capacity Metric & Policy Evaluation

Per Board of Supervisors direction, the County contracted GHD to re-evaluate the capacity metric and LOS policy for Avila Beach Drive. The County installed a permanent count station on Avila Beach Drive west of San Luis Bay Drive in January 2015, which provides continuous data collection year-round. The traffic volumes on Avila Beach Drive have been recorded, compared, and analyzed in a separate memorandum, which is included in Appendix F of this report. The memorandum identifies K100 volume, i.e. the 100th highest hour of the year, as the proposed capacity metric on Avila Beach Drive, and proposes an "LOS D" policy, consistent with the County policy for other established circulation studies in urban reserve lines. The K100 volume on Avila Beach Drive is representative of LOS D conditions, and the "shoulder" peak season transitional months of May, August, and September. Therefore, in place of the 2nd week of May counts, the K100 volume on Avila Beach Drive west of San Luis Bay Drive, averaged over three years (2015-2017), has also been analyzed in this study.



2.5 Existing Traffic Operations

2.5.1 Existing Roadway Segments Service Levels

Existing roadway LOS was determined on a daily basis for 14 intersections throughout the Avila Beach area. These intersections were analyzed using Synchro 8 (Trafficware) software. Existing AM and PM peak hour intersection traffic operations were quantified utilizing the existing intersection lane geometrics and controls and the existing traffic volumes. Table 2.3 presents a summary of the existing roadway analysis and LOS conditions for the September 2014 and 100th highest hour (K100) volumes.

Table 2.3 Existing Conditions: Peak Hour Roadway Level of Service for Weekdays (Non-Summer)

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Peak Hour Volume	LOS
September 2014 Counts						
1	Avila Beach Drive	W of US 101 SB Ramps	Avila Two-Lane Arterial (w/LTL)	C	996	D
2	Avila Beach Drive	W of San Luis Bay Drive	Avila Two-Lane Arterial (w/LTL)	C	1,316	D
3	Avila Beach Drive	E of Lighthouse Road	Avila Two-Lane Arterial (w/LTL)	C	273	≤C
4	1st Street	S of Avila Beach Drive	Two-Lane Collector (No LTL)	D	233	≤C
5	Monte Road	NE of US 101 NB On Ramp	Two-Lane Collector (No LTL)	C	24	≤C
6	Monte Road	N of Avila Beach Drive	Two-Lane Collector (No LTL)	C	177	≤C
7	Ontario Road	S of San Luis Bay Drive	Two-Lane Collector (No LTL)	D	133	≤C
8	San Luis Street	SW of Avila Beach Drive	Two-Lane Collector (No LTL)	D	167	≤C
9	San Luis Bay Drive	N of Avila Beach Drive	Avila Two-Lane Arterial (w/LTL)	D	724	≤C
10	San Luis Bay Drive	W of Ontario Road	Avila Two-Lane Arterial (No LTL)	D	865	≤C
11	San Luis Bay Drive	E of US 101 NB Ramps	Avila Two-Lane Arterial (No LTL)	C	116	≤C
12	San Miguel Street	S of Avila Beach Drive	Two-Lane Collector (No LTL)	D	134	≤C
13	See Canyon Road	N of San Luis Bay Drive	Two-Lane Collector (No LTL)	D	103	≤C
14	Shell Beach Road	S of Avila Beach Drive	Two-Lane Collector (No LTL)	C	417	≤C
100th Highest Hour (Average of 2015, 2016, 2017)						
2	Avila Beach Drive (K100 Estimate)	W of San Luis Bay Drive	Avila Two-Lane Arterial (w/LTL)	C	1,399	D
<i>Notes:</i>						
1. BOLD = Unacceptable operations						
2. w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.						
3. No LTL indicates arterials without left turn lanes (LTL) at most major intersections.						
4. May Estimates based on Avila Beach Drive factor of 0.83 for May counts to September counts						

As shown in Table 2.3, Avila Beach Drive reaches LOS D levels during September (2014) and during the 100th highest hour (average over three years based on the permanent count station).

Table 2.4 presents a summary of the existing roadway analysis and LOS conditions during the summer, based on recent counts conducted in July/August of 2019. As shown in Table 2.4, Avila Beach Drive has continued to operate at LOS D conditions during late July and early August (2019), under peak summer weekday conditions.



Table 2.4 Existing Conditions: Peak Hour Roadway Level of Service for Weekdays (Summer)

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Peak Hour Volume	LOS
July/August 2019 Counts						
1	Avila Beach Drive	W of US 101 SB Ramps	Avila Two-Lane Arterial (w/LTL)	C	1,188	D
2	Avila Beach Drive	W of San Luis Bay Drive	Avila Two-Lane Arterial (w/LTL)	C	1,401	D
3	Avila Beach Drive	E of Lighthouse Road	Avila Two-Lane Arterial (w/LTL)	C	651	≤C
4	1st Street	S of Avila Beach Drive	Two-Lane Collector (No LTL)	D	471	≤C
5	Monte Road	NE of US 101 NB On Ramp	Two-Lane Collector (No LTL)	C	21	≤C
6	Monte Road	N of Avila Beach Drive	Two-Lane Collector (No LTL)	C	167	≤C
7	Ontario Road	S of San Luis Bay Drive	Two-Lane Collector (No LTL)	D	80	≤C
8	San Luis Street	SW of Avila Beach Drive	Two-Lane Collector (No LTL)	D	193	≤C
9	San Luis Bay Drive	N of Avila Beach Drive	Avila Two-Lane Arterial (w/LTL)	D	720	≤C
10	San Luis Bay Drive	W of Ontario Road	Avila Two-Lane Arterial (No LTL)	D	821	≤C
11	San Luis Bay Drive	E of US 101 NB Ramps	Avila Two-Lane Arterial (No LTL)	C	97	≤C
12	San Miguel Street	S of Avila Beach Drive	Two-Lane Collector (No LTL)	D	175	≤C
13	See Canyon Road	N of San Luis Bay Drive	Two-Lane Collector (No LTL)	D	90	≤C
14	Shell Beach Road	S of Avila Beach Drive	Two-Lane Collector (No LTL)	C	825	≤C
<i>Notes:</i>						
1. BOLD = Unacceptable operations						
2. w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.						
3. No LTL indicates arterials without left turn lanes (LTL) at most major intersections.						
4. May Estimates based on Avila Beach Drive factor of 0.83 for May counts to September counts						

2.5.2 Existing Intersections Service Levels

Existing AM and PM peak hour intersection LOS was determined for 12 intersections throughout the Avila Beach area. These intersections were analyzed using Synchro 8 (Trafficware). Existing AM and PM peak hour intersection traffic operations were quantified utilizing the existing intersection lane geometrics and controls and the existing traffic volumes. Table 2.5 presents a summary of the 2014 intersection analysis and LOS conditions.



Table 2.5 September 2014 Existing Conditions: Intersection Level of Service for Non-Summer Weekdays

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak Hour		PM Peak Hour		Signal Warrant Met? ³
				Delay	LOS	Delay	LOS	
1	1st Street & Avila Beach Drive	Signal	C	14.3	B	16.2	B	-
2	San Miguel Street & Avila Beach Drive	TWSC	C	8.8	A	19.6	C	-
3	San Luis Street & Avila Beach Drive	TWSC	C	9.1	A	23.1	C	-
4	San Luis Bay Drive & Avila Beach Drive	Signal	C	16.5	B	16.5	B	-
5	Ontario Road & Avila Beach Drive	TWSC	C	11.2	B	23.9	C	-
6	Shell Beach Road/US 101 SB Off Ramp & Avila Beach Drive	TWSC	C	11.2	B	31.7	D	Yes
7	US 101 SB On Ramp & Avila Beach Drive ⁴	NC			N/A		N/A	-
8	Monte Road/US 101 NB Off Ramp & Avila Beach Drive	TWSC	C	9.6	A	0.0	A	-
9	See Canyon Road & San Luis Bay Drive	TWSC	D	19.6	C	20.6	C	-
10	Ontario Road & San Luis Bay Drive	TWSC	D	12.4	B	25.6	D	-
11	US 101 SB On/Off Ramp & San Luis Bay Drive	TWSC	C	10.0	A	10.5	B	-
12	US 101 NB On/Off Ramp & San Luis Bay Drive	TWSC	C	13.8	B	35.5	E	No

Notes:

1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal
3. Warrant = Based on California MUTCD Warrant 3
4. NC = No Control as it is an on-ramp only intersection. Synchro software does not provide LOS for uncontrolled intersections

As shown in Table 2.5, the intersections of US 101 SB Off Ramp/Shell Beach Road/Avila Beach Drive and US 101 NB On/Off Ramp at San Luis Bay Drive operate at unacceptable LOS in the PM peak hour, during 2014 non-summer weekday conditions.

Table 2.6 presents a summary of the 2019 intersection analysis and LOS conditions for comparison. The County installed all-way stop control at the intersection of San Luis Bay Drive at Ontario Road in June 2019, which improves the safety and operations of this intersection.



Table 2.6 June 2019 Existing Conditions: Intersection Level of Service for Summer Weekdays

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak Hour		PM Peak Hour		Signal Warrant Met? ³
				Delay	LOS	Delay	LOS	
1	1st St & Avila Beach Dr	Signal	C	9.5	A	17.3	B	-
2	San Miguel St & Avila Beach Dr	TWSC	C	8.8	A	17.7	C	-
3	San Luis St & Avila Beach Dr	TWSC	C	9.0	A	21.5	C	-
4	San Luis Bay Dr & Avila Beach Dr	Signal	C	12.2	B	13.0	B	-
5	Ontario Rd & Avila Beach Dr	TWSC	C	11.0	B	61.4	F	-
6	Shell Beach Rd/101 SB Off Ramp & Avila Beach Dr	TWSC	C	11.3	B	155.4	F	Yes
7	US 101 SB On Ramp & Avila Beach Dr ⁴	NC			N/A		N/A	-
8	Monte Rd/101 NB Off Ramp & Avila Beach Dr	TWSC	C		A		A	-
9	See Canyon Rd & San Luis Bay Dr	TWSC	D	16.9	C	20.0	C	-
10	Ontario Rd & San Luis Bay Dr	AWSC	D	9.7	A	19.4	C	-
11	US 101 SB On/Off Ramp & San Luis Bay Dr	TWSC	C	9.8	A	10.6	B	-
12	US 101 NB On/Off Ramp & San Luis Bay Drive Dr	TWSC	C	15.5	C	39.4	E	No

Notes:

1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal
3. Warrant = Based on California MUTCD Warrant 3
4. NC = No Control as it is an on-ramp only intersection. Synchro software does not provide LOS for uncontrolled intersections

As shown in Table 2.6, the intersections of US 101 SB Off Ramp/Shell Beach Road/Avila Beach Drive, US 101 NB On/Off Ramps at San Luis Bay Drive, and Avila Beach Drive at Ontario Road operate at unacceptable LOS in the PM peak hour, during the 2019 summer weekday conditions. The analysis of summer traffic indicates more delays near the Avila Beach Drive interchange than during the off-peak season. The traffic counts indicate that there is traffic diversion from US 101 Southbound to Ontario Road and Shell Beach Road, likely due to congestion on US 101 Southbound in the area.

Improvements are currently being evaluated at the two interchanges (Avila Beach Drive and San Luis Bay Drive), and will be partially funded by the RIF. For the Avila Beach Drive interchange, a draft environmental document for constructing a roundabout at the southbound ramp intersection is set to be released in fall 2019. The San Luis Bay Drive interchange is currently undergoing the Intersection Control Evaluation (ICE) process through Caltrans. The tentative preferred alternative includes widening San Luis Bay Drive overcrossing at US 101 to include an eastbound left turn lane, and installing traffic signals.

Additionally, mainline operations and potential improvements along US 101 Southbound are being evaluated to relieve the congestion present and improve travel time reliability. The *US 101 Southbound Pismo Congestion Relief Project* is currently ongoing, with the lead agency being San Luis Obispo Council of Governments (SLOCOG). The Traffic Operations Analysis Report, dated June 30, 2019 (GHD) analyzes three alternatives including a part-time use of left shoulder



(managed lane), extending the truck climbing lane, and converting the truck-climbing lane into general a purpose lane. The managed lane will allow for additional capacity when determined necessary to relieve congestion on US 101 Southbound.

2.6 Existing Land Uses

According to a review of the parcel land use database (in GIS format) provided by County staff, 14,500 acres out of the modeled 24,800 acres are within the existing Avila Traffic Fee Area, and therefore are included in the traffic model area. Existing and approved development includes Harbor Terrace and the approved but un-built dwelling units in San Luis Bay Estates. Regional beach access will cause higher traffic volumes during peak summer months. A summary of the County's General Plan land use designations is shown below in Table 2.7.

Table 2.7 Existing Land Uses

Land Use	Fee Area	Non-fee Area	Avila Total
Residential (dwelling units)	1,228	55	1,283
Single Family	968	18	986
Multi Family	253	0	253
Mobile Home	7	37	44
Non-Residential (acres)	8,501	3,817	12,318
Agriculture	6,987	3,817	10,803
Commercial + Motel	18	0	18
Golf/Recreation	428	0	428
Industrial	96	0	96
Office	0	0	0
Public Facility/Other Service	973	0	973
Estimated Employment	1,896	35	1,931
Retail	270	0	270
Service	1,546	0	1,546
Other	80	35	115

Non-fee Area consists of parcels outside the Avila Fee Area that are included in the Avila Travel Demand Model.



3. Base Year Traffic Model Development

This chapter presents the supporting technical documentation for the Avila traffic model development process.

3.1 Data Sources

The travel demand model is based on land use information at parcel level resolution as provided by the County of San Luis Obispo Engineering Department in ESRI Arc View Shape file format. The parcel, road and county limit shape file were projected into California State Plane, Zone IV, US Foot, coordinate systems using the Lambert Conformal Conic projection.

3.2 Data Evaluation

In order to generate an accurate representation of the existing land use patterns within the study area, an evaluation of the parcel land use data was performed. The County assessor uses a numeric code to describe the land use of parcels within the County. The model roadway network was created using existing roadway maps and the parcel shape file.

The Traffic Analysis Zones (TAZ's) creation process begins by determining which parcels contribute traffic to the model network roads. Each parcel is analyzed to determine how the traffic it generates will logically shed to the model network. A TAZ is composed of all the parcels that shed to common model network roads. Creation of the model network is completed with the addition of centroid connectors from the TAZ's.

3.3 Choice of Model Software – Cube/Voyager

The CUBE/Voyager (Citilabs) software suite was used for the current update to the Avila Travel Demand Model. The travel demand model follows an industry-standard four-step procedure for modeling travel demand. The steps are as follows:

1. Trip Generation – Estimate the trips generated and attracted by individual Traffic Analysis Zones (TAZ's)
2. Trip Distribution – Match trips that are generated and attracted between zones for varying trip purposes.
3. Mode Choice – Select a travel mode for a particular trip.
4. Assignment – Select a path for the chosen travel mode and trip.



3.4 Creation of TAZ Map

Avila land uses are simplified into areas referred to as “Traffic Analysis Zones” (TAZs) for travel demand modeling purposes. Aggregating minute areas like parcels into larger zones decreases the computation intensity of the model and simplifies data processing. The TAZs are defined using real-world traffic boundaries, such as natural geographic barriers (e.g. rivers and creeks) and “man-made” barriers (e.g. major street right-of-ways and railroads).

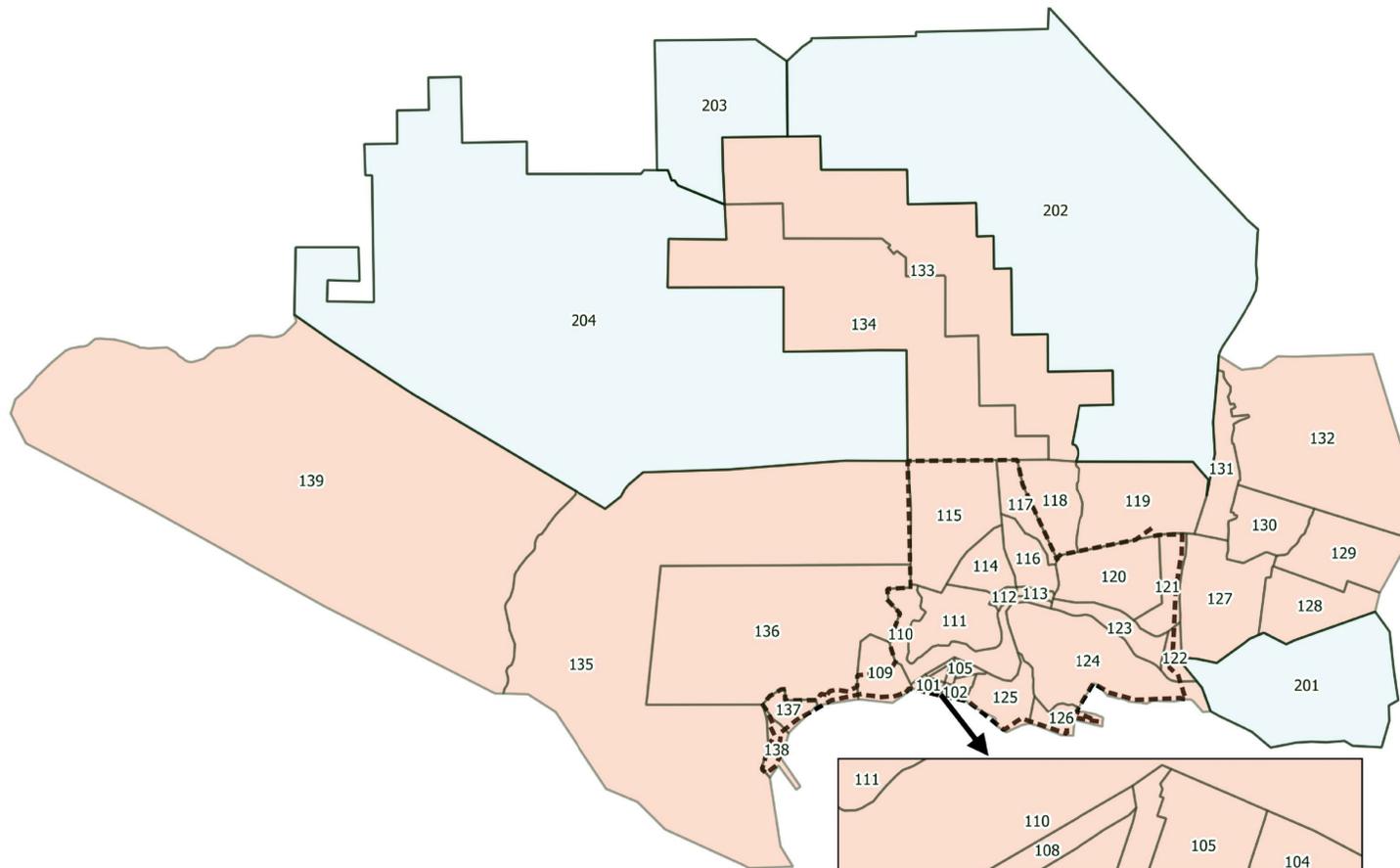
Figure 3.1 presents the Avila TAZ boundary map. A total of 43 TAZs were defined for the Avila area. The TAZ boundaries are separated into two areas, as presented in Figure 3.2. Area 1 of the two model areas is the fee area, which will be used in the Avila Circulation Study and Impact Fee Update. The land use detail by TAZ for 2015 and 2035 are included in Appendix D. Figures 1 and 2 in Appendix D show land use growth from 2015 to 2035 for residential dwelling units and employment by TAZ.

3.5 Land Use –TAZ Integration

Travel demand models simulate travel demand by first estimating trips generated in zones within the study area. The number and type of trips generated and attracted between areas depend on land use. The County Assessor’s parcel database provides land use data in terms of zoning and development type (e.g. housing, commercial development, public uses). The land uses were further simplified into housing unit and employment estimates, which are consistent with the US Census. The existing land uses within the Avila area are as previously summarized in Table 2.7.

3.6 Network Creation

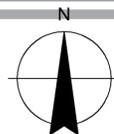
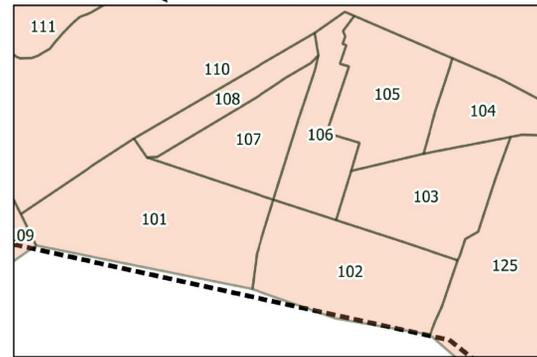
Street networks handle the trips generated by land use. The travel demand model simulates a road’s ability to handle travel demand based on facility type (e.g. freeway, highway, arterial, and collector), number of lanes, speed, and alignment. Figure 3.2 shows the Base Year network map, which reflects the existing Avila area roadway system. Table 3.1 presents the road classification categories, the associated operating characteristics of each category, and examples of roads in each category.



Legend

Avila TAZ Areas

- Fee Area
- Non-Fee Area
- Avila Urban Reserve Limit

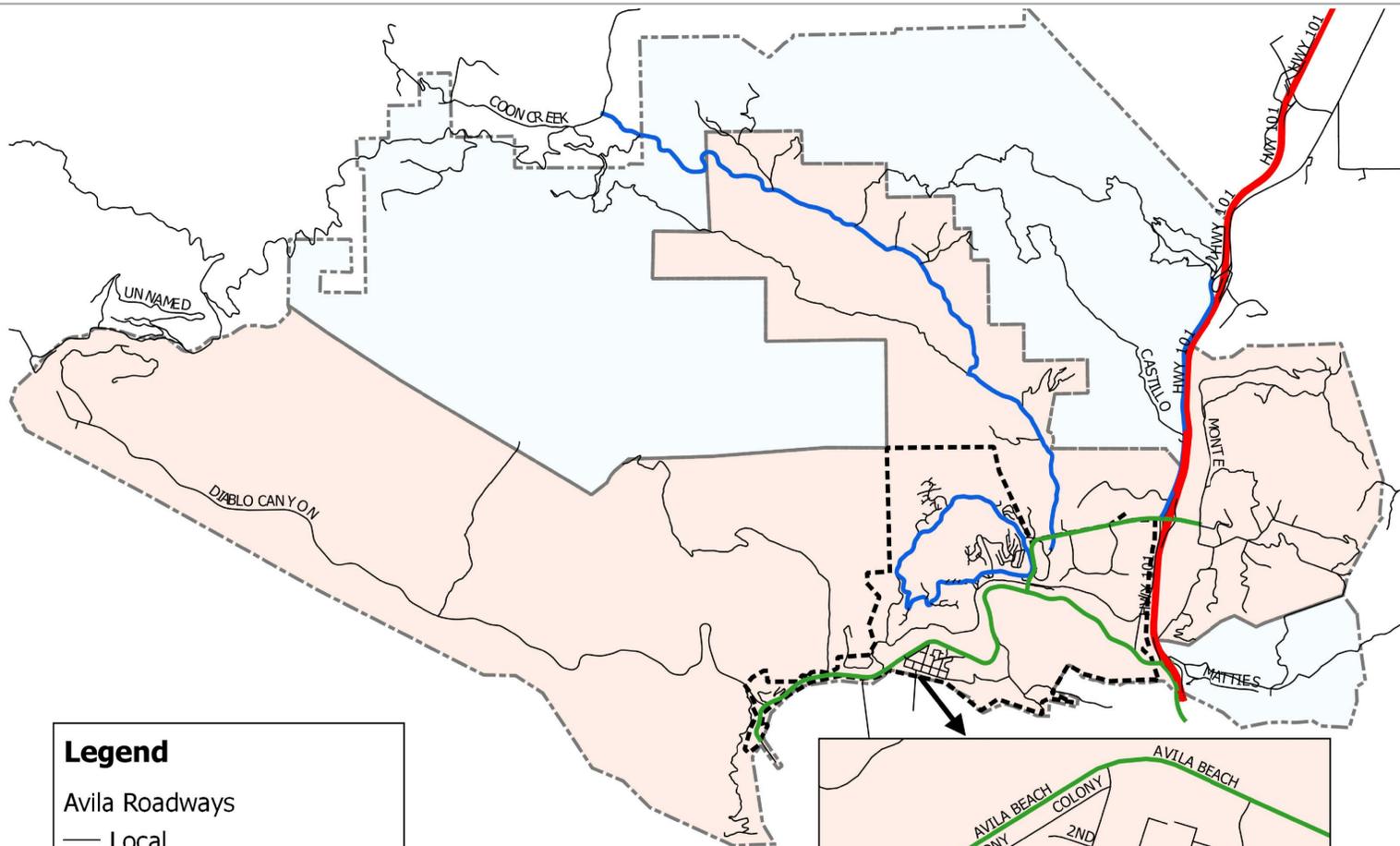


County of San Luis Obispo
Avila Circulation Study & TIF Update

**AVILA TRAFFIC ANALYSIS ZONES
(TAZ) MAP**

Project No. 11177690
Report No. 009
Date 07.15.2019

FIGURE 3.1



Legend

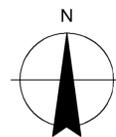
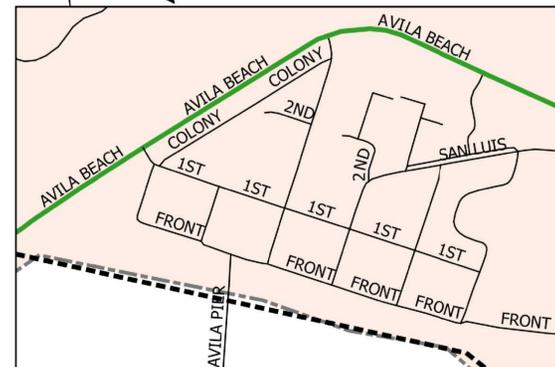
Avila Roadways

- Local
- Arterial
- Collector
- US 101

Avila Urban Reserve Limit

Avila Study Area

- Fee Area
- Non-Fee Area



County of San Luis Obispo
 Avila Circulation Study & TIF Update
AVILA BASE YEAR NETWORK MAP

Project No. 11177690
 Report No. 009
 Date 07.15.2019

FIGURE 3.2



Table 3.1 Roadway Classification

Classification	Capacity (Vehicles per Lane per Hour)	Free-Flow Speed (mph)	Example Roadway
Freeway	2000	65-70	US Highway 101
Highway	1000	45-55	Highway 1
Arterial	800	35-45	San Luis Bay Drive
Collector	600	25-35	See Canyon Road
Local	300	25-35	San Rafael Street

3.6.1 Trip Generation

Land uses generate a varying number of trips based on development type and development quantity. Trip producing land use groups include single-family and multi-family residential dwelling units. Trip attracting land use groups include retail, office, industrial and educational land uses. The land use quantities derived from the parcel database was converted into dwelling unit and employment estimates. These TAZ-level estimates were checked for consistency with the US Census and the regional model.

Each trip purpose has a different trip generation rate for each land use. Trip generation rates for individual land uses were checked against traffic studies contained in the Institute of Transportation Engineers *Trip Generation, 9th Edition* manual.

3.6.2 Mode Choice

The Avila travel demand model solely simulates automobile travel patterns. Transit service is not a major component of the vehicular traffic within Avila and was not considered in the travel demand model process.

3.6.3 Trip Assignment

Trips between origin-destination pairs are assigned by the model using an equilibrium process. The multiple possible paths between zones are iteratively loaded until no one path provides an advantage over another. The volumes on each network link are then compared against real-world traffic counts to determine model correctness. The following section outlines the model calibration procedure.

3.7 Model Calibration

The previous section described the creation of a complete but “un-validated” base year model, i.e. the model may not accurately reflect real-world travel demand. Calibrating the model so that it reasonably reflects real world travel demand requires matching the model estimate on a set of links against traffic counts. The calibration process and technical information is included in Appendix E.



4. Build-Out Conditions Traffic Model Development

The creation of a long-term future conditions traffic forecast model for the Avila planning area involved the following steps.

4.1 Creation of Future Conditions Land Use Database

The Avila built-out land use database was created by assuming existing uses on currently developed lands and build-out per the County's general plan (provided by San Luis Obispo County) on vacant and/or underdeveloped lands. Parcels that were considered "vacant" (San Luis Obispo County Assessor's criteria) were first identified. The currently vacant parcels were segregated into residential and non-residential land use categories based on General Plan zoning designations contained in the County tract map. The Avila Planning Area comprises of approximately 24,800 acres, of which approximately 481 acres of lands are considered "vacant" by the San Luis Obispo County Assessor's parcel data. The area currently has 2,075 acres of residential, 31 acres of retail/commercial/service, 96 acres of industrial, 10,800 acres of general agricultural, 1,257 acres of golf/recreational/open space, 990 acres of other/public/government land uses, and approximately 9,070 acres of rural/mountainous lands.

Future land use projections were based on the San Luis Obispo County General Plan. The build-out of the area per General Plan zoning is projected to result in 2,533 acres of residential, 46 acres of retail/commercial/service, 96 acres industrial, 10,800 acres of general agricultural, 1257 acres of golf/recreational/open space, 998 acres of other/public/government use, and approximately 9,070 acres of rural/mountainous lands. The development densities for build-out land uses were projected to remain consistent with existing land use density. Residential unit density for future development was projected based on the residential unit densities per land use presented in the General Plan.

Much of the residential development in the Avila area, outside of the "downtown" Avila area, has been developed as clusters. These clusters are primarily residential developments and may be near recreational areas (e.g. resorts, bike trails, etc.) and include some commercial development. Examples of these developments include those along Lupine Canyon Road. Including vacant parcels in these residential clusters and the remaining undeveloped residential parcels some areas east of US 101, the residential build-out of the Avila area is projected to result in 1,119 single-family dwelling units, 280 multi-family dwelling units and 44 mobile homes. This residential growth projection represents a 160 dwelling unit increase.

The build-out land use database, as described above, is summarized in Table 4.1. Land use for each TAZ was tabulated and included in the Appendix D, in addition to maps showing growth by dwelling units and employees.



Table 4.1 Build-Out Land Uses

Land Use	Fee Area			Non-fee Area		
	Existing	Added	Build-Out	Existing	Added	Build-Out
Residential (dwelling units)	1,228	160	1,388	55	0	55
Single Family	968	133	1,101	18	0	18
Multi Family	253	27	280	0	0	0
Mobile Home	7	0	7	37	0	37
Non-Residential (KSF)	370,300	657	370,957	166,260	0	166,260
Agriculture	304,334	0	304,334	166,260	0	166,260
Commercial + Motel	782	288	1,070	0	0	0
Golf/Recreation	18,629	0	18,629	0	0	0
Industrial	4,175	150	4,325	0	0	0
Office	2	81	83	0	0	0
Public Facility/Other Services	42,378	139	42,516	0	0	0
Estimated Employment	1,896	148	2,044	35	0	35
Retail	270	64	334	0	0	0
Service	1,546	69	1,615	0	0	0
Other	80	15	95	35	0	35

*Non-fee Area consists of parcels outside the Avila Fee Area that are included in the Avila Travel Demand Model.

4.2 Year 2035 as the Future Conditions' Model Year

Caltrans and other agencies typically require twenty years or more of design life span for improvements to their transportation facilities. Recognizing these concerns, and based on discussions with County staff, year 2035 was agreed to as the cumulative or long-term future conditions' traffic model forecast year. Year 2035 is also anticipated to be consistent with the long-range forecast year for the upcoming Regional Traffic Model (RTM) developed by SLOCOG.

State facilities including US 101 within the vicinity of the Community's planning area have experienced approximately 0.4% to 0.6% compounded annual growth in AADT over the last ten years (2004 through 2014). Based on Caltrans ten-year count data and considering differential rates of growth for communities adjacent to the Avila area (e.g. Shell Beach and San Luis Obispo), the twenty-year US 101 background traffic change has been calculated as 27% growth from the south and 34% growth from the north. Growth from local gateways, particularly from the City of San Luis Obispo to the north and Shell Beach to the south, was based on regional growth projections from the County travel demand model. The year 2035 growth from local gateways has been assumed at 22% consistent with the County travel demand model.

The Build-Out land use database (General Plan build-out land uses) was multiplied with the calibrated existing conditions trip generation rates to develop the projected future trip generation. The updated year 2035 gateway trip production-attraction table and "through" (external or X-X) trip table were incorporated into the Build-Out traffic model.



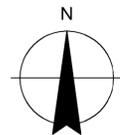
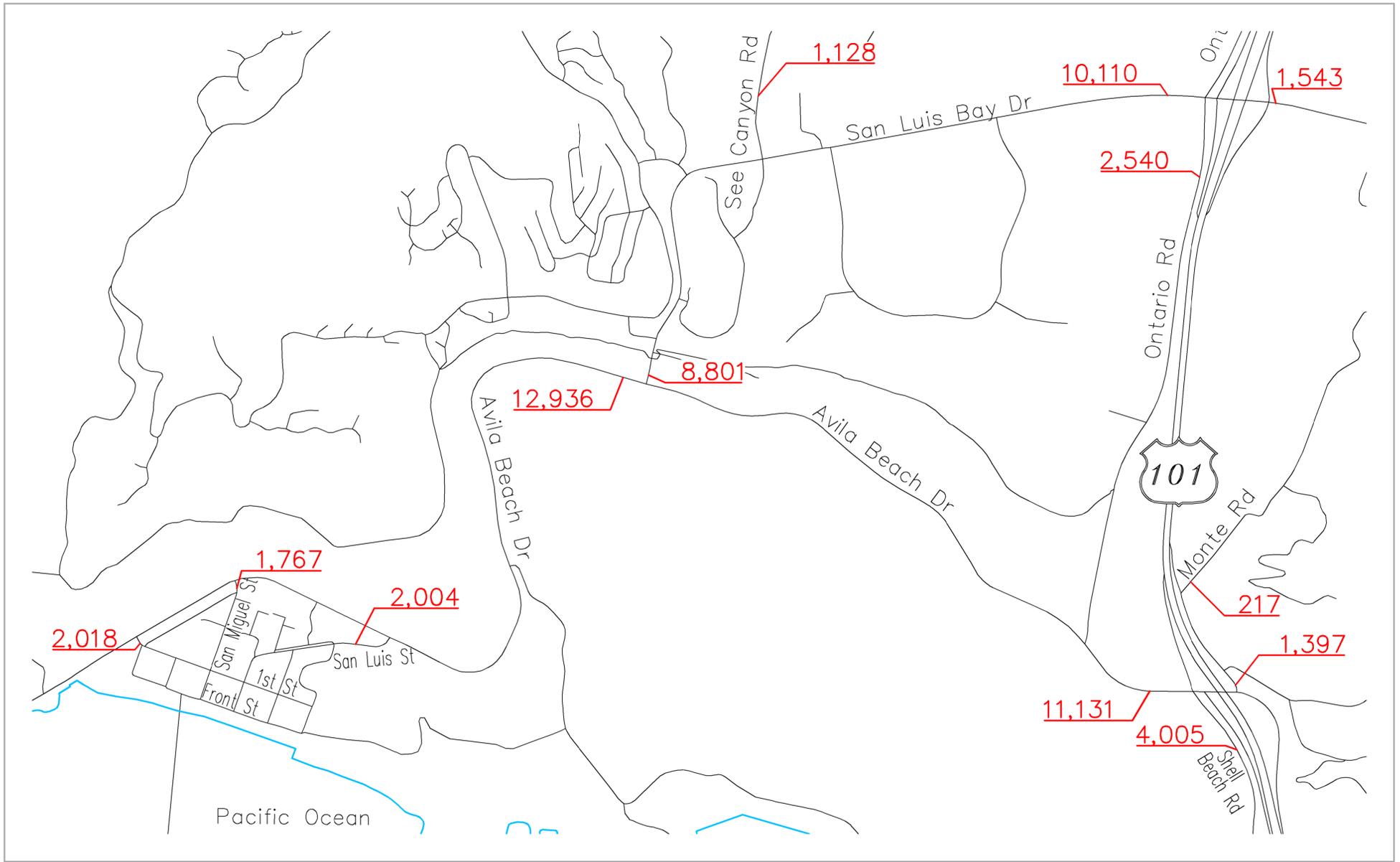
4.3 Build-Out Forecasts & Operations

The projected Build-Out segment volumes are listed in Table 4.2 and illustrated on Figure 4.1. Estimate peak hour intersection volumes at study intersections are shown in Figure 4.2. The Build-Out model land uses and trip volumes generated by TAZ are shown in Appendix D.

Based on the link volumes and roadway characteristics provided by the County, the peak hour levels of service were estimated using Highway Capacity Manual 2000 and 2010 (HCM 2000 and 2010) methodologies. The peak hour volume thresholds for roadways presented in Table 2.1 provide a generalized estimate on typical roadway capacities.

Future intersection LOS was estimated using the projected Build-Out traffic volumes and Highway Capacity Manual 2000 methodologies. Table 2.2 provides the typical delay thresholds for intersections of varying control types (e.g. signal, two-way stop, all-way stop). The *Synchro 8* (Trafficware) software program was used to implement the HCM 2010 analysis methodologies.

Table 4.3 shows the estimated intersection LOS under existing intersection controls and the projected Build-Out intersection volumes, as shown in Figure 4.2.

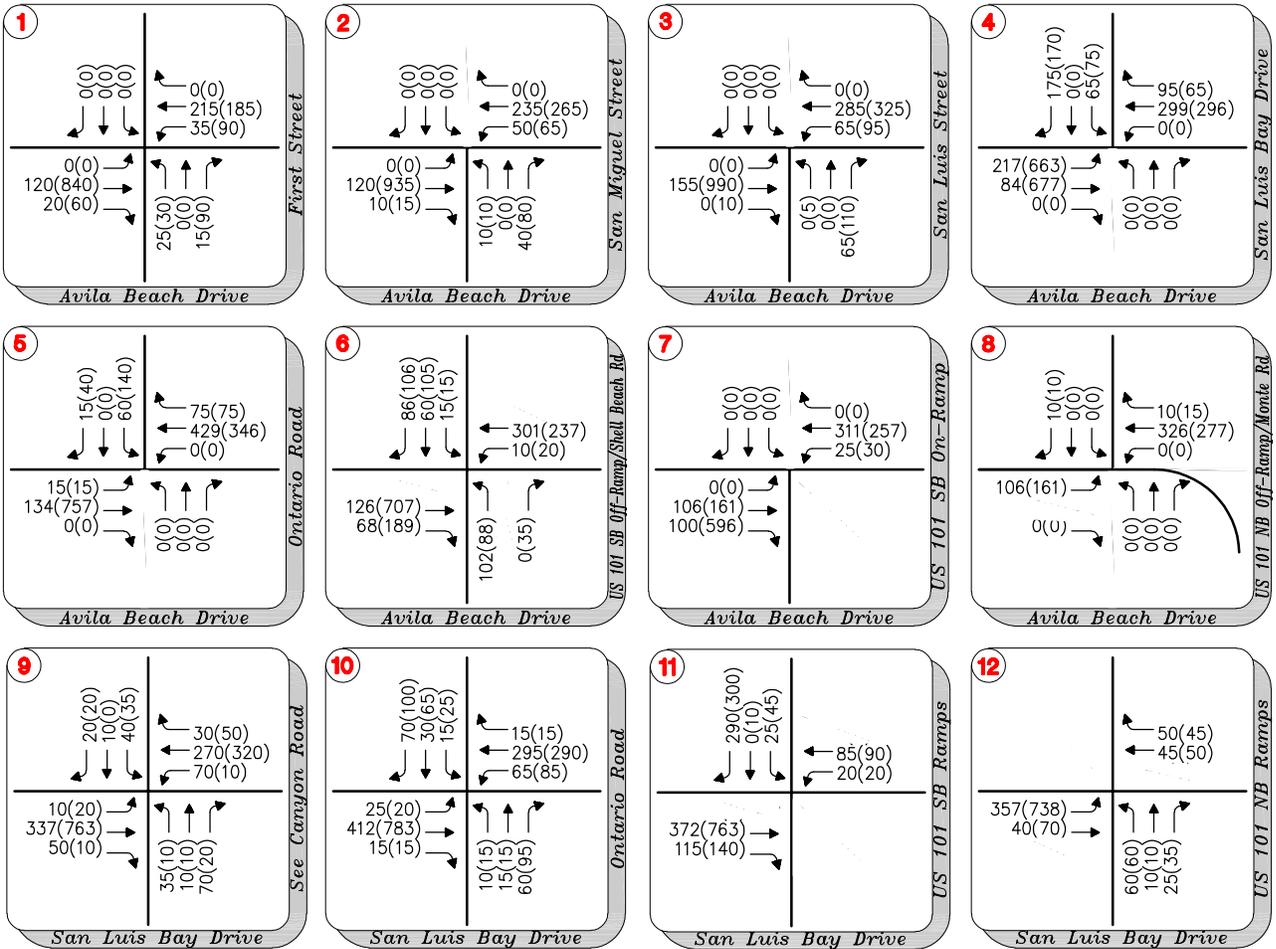


County of San Luis Obispo
Avila Circulation Study & TIF Update

Project No. 11177690
Report No. 009
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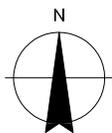
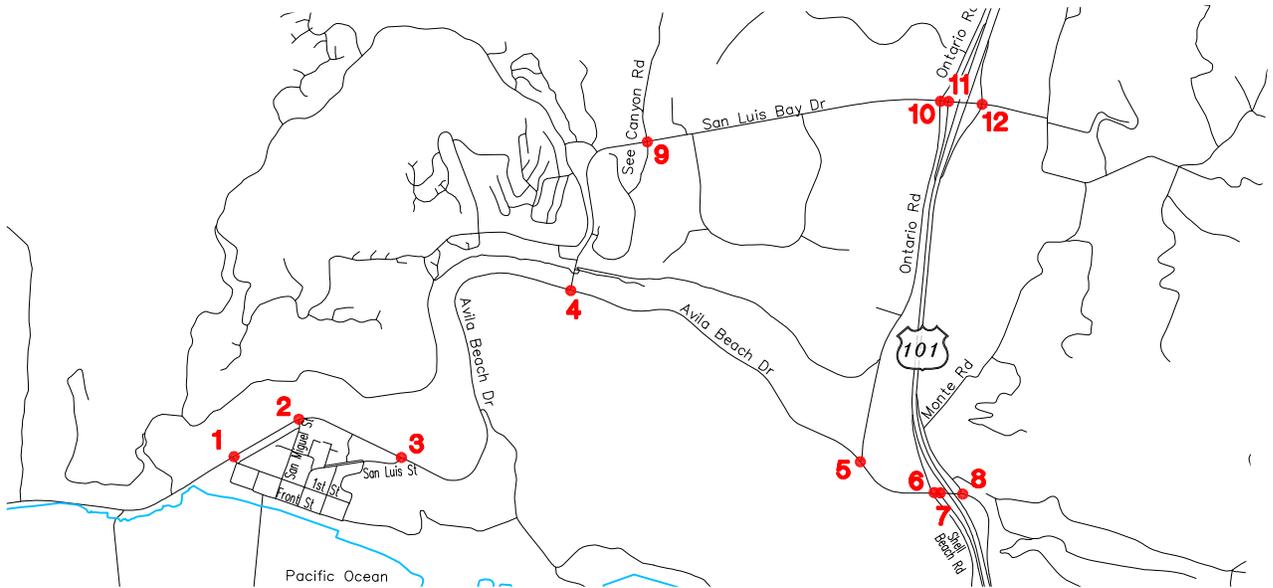
**2035 BUILD-OUT CONDITIONS ADT
PROJECTIONS (AVILA OVERVIEW)**

FIGURE 4.1



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES
 (XX) - PM PEAK HOUR TRAFFIC VOLUMES



County of San Luis Obispo
 Avila Circulation Study & TIF Update

Project No. 11177690
 Report No. 009
 Date 07.15.2019

**BUILD-OUT CONDITIONS PEAK HOUR
 INTERSECTION VOLUMES**

FIGURE 4.2



Table 4.2 Build-Out Conditions: Peak Hour Roadway Segment Average Daily Traffic Levels of Service for Non-Summer Weekdays

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Build-out Peak Projection	Build-out Peak LOS
1	Avila Beach Drive	W of US 101 SB Ramps	Avila Two-Lane Arterial (w/LTL)	C	1,239	C
2	Avila Beach Drive	W of San Luis Bay Drive	Avila Two-Lane Arterial (w/LTL)	C	1,660	E
3	Avila Beach Drive	E of Lighthouse Road	Avila Two-Lane Arterial (w/LTL)	C	296	A
4	1st Street	S of Avila Beach Drive	Two-Lane Collector (No LTL)	D	245	≤C
5	Monte Road	NE of US 101 NB On Ramp	Two-Lane Collector (No LTL)	C	26	≤C
6	Monte Road	N of Avila Beach Drive	Two-Lane Collector (No LTL)	C	138	≤C
7	Ontario Road	S of San Luis Bay Drive	Two-Lane Collector (No LTL)	D	296	≤C
8	San Luis Street	SW of Avila Beach Drive	Two-Lane Collector (No LTL)	D	186	≤C
9	San Luis Bay Drive	N of Avila Beach Drive	Avila Two-Lane Arterial (w/LTL)	D	1,054	B
10	San Luis Bay Drive	W of Ontario Road	Avila Two-Lane Arterial (No LTL)	D	1,135	C
11	San Luis Bay Drive	E of US 101 NB Ramps	Avila Two-Lane Arterial (No LTL)	C	144	A
12	San Miguel Street	S of Avila Beach Drive	Two-Lane Collector (No LTL)	D	161	≤C
13	See Canyon Road	N of San Luis Bay Drive	Two-Lane Collector (No LTL)	D	113	≤C
14	Shell Beach Road	S of Avila Beach Drive	Two-Lane Collector (No LTL)	C	527	≤C
100th Highest Hour (projected 3-year average)						
2	Avila Beach Drive	W of San Luis Bay Drive	Avila Two-Lane Arterial (w/LTL)	C	1,743	F
<i>Notes:</i>						
1. BOLD = Unacceptable operations						
2. w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.						
3. No LTL indicates arterials without left turn lanes (LTL) at most major intersections.						
4. Peak Projections based on average factor for ADT/Peak Hour, May estimates based on factor of Avila Beach Drive projections.						

As shown in Table 4.2, the segment of Avila Beach Drive west of San Luis Bay Drive is projected to operate at an unacceptable LOS E, and LOS F under K 100 under build-out conditions.



Table 4.3 Build-Out Conditions: Intersection Levels of Service for Non-Summer Weekdays

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak Hour		PM Peak Hour		Signal Warrant Met? ³
				Delay	LOS	Delay	LOS	
1	1st Street & Avila Beach Drive	Signal	C	16.3	B	32.0	C	-
2	San Miguel Street & Avila Beach Drive	TWSC	C	9.9	A	27.4	D	Yes
3	San Luis Street & Avila Beach Drive	TWSC	C	9.6	A	30.2	D	Yes
4	San Luis Bay Drive & Avila Beach Drive	Signal	C	17.5	B	25.8	C	-
5	Ontario Road & Avila Beach Drive	TWSC	C	15.4	C	88.7	F	Yes
6	Shell Beach Road/US 101 SB Off Ramp & Avila Beach Drive	TWSC	C	16.7	C	694.5	F	Yes
7	US 101 SB On Ramp & Avila Beach Drive ⁴	NC			N/A		N/A	-
8	Monte Road/101 NB Off Ramp & Avila Beach Drive	TWSC	C	10.5	B	9.9	A	-
9	See Canyon Road & San Luis Bay Drive	TWSC	D	27.1	D	34.6	D	-
10	Ontario Road & San Luis Bay Drive	TWSC	D	22.4	C	309.4	F	Yes
11	US 101 SB On/Off Ramp & San Luis Bay Drive	TWSC	C	11.0	B	12.9	B	-
12	US 101 NB On/Off Ramp & San Luis Bay Drive	TWSC	C	24.9	C	581.0	F	Yes
<i>Notes:</i>								
1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control								
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal								
3. Warrant = Based on California MUTCD Warrant 3								
4. NC = No Control as it is an on-ramp only intersection. Synchro software does not provide LOS for uncontrolled intersections								

Shown in Table 4.3, intersections of San Luis Bay Drive at Ontario Road and at the US 101 NB Ramps, Avila Beach Drive at US 101 SB Off-Ramp/Shell Beach Road and at Ontario Road, and Avila Beach Drive at the San Luis Street and at the San Miguel Street entrances into Town are projected to result in deficient operations under build-out conditions. Intersection improvement alternatives are evaluated in a subsequent section.

4.4 Circulation Issues of Concern

The following are summaries of the circulations issues that currently exist or are forecasted within the Avila Valley area. Utilizing average daily traffic (ADT) predictions produced by the Avila travel model, the peak hour-based levels of service for each roadway segment were calculated according to the methodology described in Chapter 2. Consistent with San Luis Obispo County and Caltrans policies, LOS “C” was taken as the general threshold for acceptable/tolerable operations for rural areas, areas within Caltrans jurisdiction, and along Avila Beach Drive, and LOS “D” was taken as the general threshold for urban areas (Avila URL). Roadway segments with projected LOS worse than the identified thresholds were determined as “deficient”. Implications on community traffic conditions and safety are also described in this section, along with possible effects resulting from approved/planned capital improvement projects listed in the 2013 Avila Capital Improvement Program (CIP) Update project inventory.



4.4.1 Roadway Operations

Avila Beach Drive west of San Luis Bay Drive – This roadway is projected to operate deficiently under build-out conditions. Based on the September and K100 projections (representative of the peak “shoulder” conditions), Avila Beach Drive is projected to reach LOS E/F during the peak hour.

4.4.2 Peak Hour Intersection Operations

Avila Beach Drive/First Street/San Juan Street - This intersection is busy on weekends due to its proximity to the Bob Jones Pathway terminus, golf course event parking entrance, beach and Town center access, and access to the First Street parking lot. Available right-of-way would accommodate a right turn lane onto Avila Beach Drive to alleviate Congestion.

Avila Beach Drive/Shell Beach Road/US 101 SB Off-Ramp – The intersection of Avila Beach Drive at US 101 SB Off-Ramp/Shell Beach Road currently operates at LOS “D” and worsens under build-out conditions. The lack of capacity from turn lanes and intersection control types causes major delays through this intersection. This intersection is also closely spaced with the US 101 SB On-Ramp. A draft environmental document for constructing a roundabout at the southbound ramp intersection is set to be released in fall 2019.

San Luis Bay Drive/US 101 NB Ramps – This intersection currently operates at LOS “E” in the PM peak hour and worsens under build-out conditions. Modifications at this interchange including a US 101 bridge widening and a PSR are recommended. This project is currently undergoing ICE process through Caltrans.

Avila Beach Drive/San Luis Street – This intersection is projected to operate at deficient LOS "D" under build-out conditions. The volumes are projected to satisfy peak hour warrants for a traffic signal. Intersection improvements and traffic signal installation at this intersection are recommended.

Avila Beach Drive/San Miguel Street – This intersection is projected to operate at deficient LOS "D" under build-out conditions. The volumes are projected to satisfy peak hour warrants for a traffic signal. Intersection improvements and traffic signal installation at this intersection are recommended.

Avila Beach Drive/Ontario Road – This intersection is projected to operate at deficient LOS "F" under build-out conditions. The volumes are projected to satisfy peak hour warrants for a traffic signal. Intersection improvements and traffic signal installation at this intersection are recommended.

San Luis Bay Drive/Ontario Road – This intersection is projected to operate at deficient LOS "F" under build-out conditions. The volumes are projected to satisfy peak hour warrants for a traffic signal. Intersection improvements and traffic signal installation at this intersection are recommended. An interim measure of placing an all-way stop control at Ontario Road occurred in June 2019. Intersection improvements are to be coordinated with the interchange improvements, due to the close spacing with the US 101 Southbound Ramps.



4.4.3 Parking Capacity & Circulation

Avila Beach Parking Study

The County of San Luis Obispo conducted a parking study (July 2019) to evaluate existing parking supply and demand, and to develop solutions to address parking supply constraints. The study shows that there are currently 1,250 on-street parking spaces, and 767 off-street parking spaces within the Avila Town area and west of the creek (including Harbor District). There are approximately 235 parking spaces located in remote lots, including the Bob Jones Trail Park & Ride lot, the Bellevue-Santa Fe Charter School frontage on See Canyon Road, and the proposed lot at Avila Beach Drive and US 101. In addition, the Avila Beach golf course provides 2,410 temporary parking spaces on the fairway, and 360 paved parking spaces, when special events are held. In total there are approximately 4,662 parking spaces in the Avila area, including the golf course parking when there are special events.

The Avila Beach community experiences very high parking demand during summer weekends, with the off-street lot and most on-street parking in Town at 100% occupancy by mid-morning, and parking along Avila Beach Drive nearing capacity by mid-afternoon. Once parking has reaching saturation in Town, vehicles circulate downtown looking for parking and exacerbate circulation issues and congestion. Beachgoers and tourists park along Avila Beach Drive or in town in designated and non-designated parking areas.

Special Events

Throughout the year, special events are held within Avila, most of which occur at the Avila Beach Golf Resort, including well-attended festivals and concerts. These events are frequent, particularly through the summer and on weekends, and can have attendance reaching 5,000 people. As previously discussed, the golf resort provides free parking on the fairway during special events. However, travel conditions are compounded when special events occur during the peak summer season, when beachgoers and event attendees create heavy parking demand and traffic in Town. The travel demand along Avila Beach Drive exceeds capacity during special events in the summer. Although the parking demand can be accommodated on the golf course for most events (under 3,000 attendees), traffic conditions can become an issue along Avila Beach Drive. For inbound traffic, the intersection of Avila Beach Drive at First Street experiences congestion, as heavy demand of vehicles, bicycles and pedestrians utilize this intersection to access downtown Avila, the Bob Jones Bike Trail, and special event parking/access at the golf resort. The objective is to maintain one-directional travel on Avila Beach Drive to volumes at or below 1,020 vehicles per hour to adhere to LOS D conditions. Included in Appendix G, is a memorandum that further details the impact of special event traffic, and identifies recommendations for travel demand management measures for special events.

4.4.4 Emergency Evacuation

This is an excerpt from the 2009 Update Study:



As part of the operations plans for the Diablo Canyon Nuclear Power Plant, an Emergency Evacuation Plan has been prepared and, in the wake of current disasters such as Hurricane Katrina, has been reevaluated by the San Luis Obispo County Civil Grand Jury in the 2006-2007 San Luis Obispo County Civil Grand Jury Report. Based on the results of this report one recommendation was made to the current Evacuation Plan. Historically, the Cave Landing Road to Bluff Drive segment leading to Shell Beach has been considered an alternative evacuation route. As stated in the Grand Jury Report, Cave Landing Road is a dirt road that should be upgraded and designated as exit route from Avila Beach to Shell Beach. The estimated cost to upgrade and designate Cave Landing Road as an alternative route is \$6,000,000 to \$10,000,000, largely due to the need to construct a structure to bridge a significant landslide that has closed Cave Landing Road. The County Office of Emergency Services is responsible for managing the plan.

The County Fire Chief has asserted that any additional large development, such as that proposed for the golf course, should involve a new second route constructed to County roadway standards. A new route is necessary to address that Avila Beach has "one-way in, one-way out" by a two-lane narrow road without adequate shoulders and only a parallel one-lane "designated" emergency route involving the Bob Jones Pathway. Avila's resident population of under 2,000 is swelled by five to six times during warm weather. In 2015, Cal Fire announced it would not sign off on any future large land developments in the Avila Beach area due to traffic congestion on Avila Beach Road and the lack of a secondary access road in the event of an emergency evacuation.

Widening Avila Beach Drive from the town of Avila Beach to US Highway 101 presents environmental constraints with San Luis Creek on one side and the steep hills on the other. However, widening Avila Beach Drive from San Luis Street to San Luis Bay Drive can occur along the creekside without disturbance to uphill slopes, and cost-effective retaining systems can be utilized to address the widening.

Another alternative identified emergency evacuation route often discussed consists of a northerly road from the end of Avila Beach Drive to Port San Luis. The route would begin at the heavily guarded and security gated entrance of the PG&E Diablo Canyon Nuclear Power Plant, and land owned by PG&E. The route continues on a paved road through Montana de Oro State Park, entering the town of Los Osos. The route would continue along Los Osos Valley Road to US Highway 101 in San Luis Obispo. This lengthy evacuation route has several difficulties that make it less than ideal. In summary, further study is needed to locate a new County road that meets all the requirements for a 'secondary route'.



5. **Transportation Improvement Needs and Circulation Plan Recommendations**

This section presents the results of analyses on traffic network improvements considered for construction. The analyses' intent is to use the Avila Traffic Model to test the potential improvements and determine the overall circulation benefits of the potential improvements.

5.1 **Base Network**

The effectiveness of traffic improvements were evaluated against a Build-out "base" traffic scenario that had no traffic improvements. The Build-out "base" scenario for the alternatives evaluation was a model network that superimposed the build-out land uses onto the existing traffic network. Consistent with the General Plan, a large amount of development was modeled in the single family cluster developments, multi-family developments in the core beach area, the Harbor Terrace development along Avila Beach Drive, and the Tree Cubes resort on Ontario Road. As expected, all existing capacity problems are exacerbated at build-out, particularly at the major intersections within the Avila area; e.g. US 101 interchanges with Avila Beach Drive and San Luis Bay Drive.

Interchange access to US 101 and east-west access across the freeway were projected as constrained. Avila Beach Drive and San Luis Bay Drive are particularly constrained due to high demand from US 101 north and south of Avila, respectively. Avila Beach traffic access was also constrained at the access points from Avila Beach Drive. The improvements consider traffic signalization at the major Avila Beach Drive access points into the core beach area, and improved access at the US 101 interchanges and frontage roads.

5.2 **Transportation Improvement Needs**

Avila Beach Drive west of San Luis Bay Drive

This roadway is projected to operate at LOS "D" under projected build-out conditions during the 2nd week of May. The travel conditions during September and K100 conditions (representative of the peak "shoulder") are projected to operate deficiently at LOS E/F. Roadway improvements to widen Avila Beach Drive between San Luis Street and San Luis Bay Drive to two lanes eastbound, and one lane westbound, are recommended. Widening Avila Beach Drive between San Luis Street and San Luis Bay Drive will provide additional capacity needed

Avila Beach Interchange Improvements

The Avila Beach Drive/US 101 Southbound Ramps are configured such that the on-ramp forms a T-intersection in close proximity to the US 101 Southbound Off-Ramp/Shell Beach Road intersection. Avila Beach Drive also serves as the primary arterial for traffic from the south to access Avila Beach. During peak hour periods, the intersection is severely constrained and extensive queuing occurs on the ramps, causing significant delays. The volumes are projected to satisfy peak hour warrants for a traffic signal at the Shell Beach Road/US 101 SB Off-Ramp



intersection. In May 2016, the PSR-PDS was completed for the Avila Beach Drive interchange. The tentative preferred alternative includes installing a roundabout at Avila Beach Drive/US 101 Southbound Ramps/Shell Beach Road.

Avila Beach Drive/Ontario Road

This intersection is projected to operate at deficient LOS "F" under build-out conditions. The volumes are projected to satisfy peak hour warrants for a traffic signal. Intersection improvements and traffic signal installation at this intersection are recommended.

San Luis Bay Drive Interchange Improvements

The San Luis Bay Drive/US 101 Southbound Ramps are configured such that the intersection is in close proximity to the Ontario Road intersection. During peak hour periods, the intersections of San Luis Bay Drive/US 101 Northbound Ramps and San Luis Bay Drive/Ontario Road is severely constrained and extensive queuing occurs on the side-street and ramp approaches, causing significant delays. San Luis Bay Drive also serves as the primary arterial for traffic from the north to access Avila Beach. The volumes are projected to satisfy peak hour warrants for a traffic signal under build-out conditions for the US 101 Northbound Ramps intersection. The following improvement was previously included in the Avila 2013 CIP Update, which is to improve the interchange with traffic signals, roundabouts, or additional lanes; including US 101 bridge widening and PSR. The project is currently undergoing the Caltrans ICE process. The tentative preferred alternative includes widening the San Luis Bay Drive overcrossing to install an eastbound left turn lane, and install a coordinated traffic signal system at both ramps and at Ontario Road.

Avila Beach Drive/San Luis Street

This intersection is projected to operate at deficient LOS "D" under build-out conditions. The volumes are projected to satisfy peak hour warrants for a traffic signal. Intersection improvements and traffic signal installation at this intersection are recommended.

Avila Beach Drive/San Miguel Street

This intersection is projected to operate at deficient LOS "D" under build-out conditions. The volumes are projected to satisfy peak hour warrants for a traffic signal. Intersection improvements and traffic signal installation at this intersection are recommended.

5.3 Transportation System Management

Transportation System Management (TSM) programs help to reduce traffic and parking congestion while avoiding the need for high capital cost improvements. TSM programs are oriented for commuting traffic, with policies or incentives implemented at major employment sites, downtown areas, or on regional highways with a large percentage of commuter trips.

Avila is primarily a recreational area, with Diablo Canyon Nuclear Power Plant as the only large employer, which is large enough to warrant an on-site TSM program. However, the focus of TSM programs would need to address the recreational travel for the beach during seasonal peaks,



special events, or holidays to reduce auto trips into town and the associated parking congestion. The General Plan update process would also include identification of TSM programs and travel demand management strategies. The following TSM measures may be used:

- Public Transit Service Improvements
- Bicycle/Transit facilities
- Intercept Parking with Shuttle Transit Service and Bus Transport
- Employee Parking Areas/Incentives
- Parking Management
- Special Event Parking Management
- Travel Demand Management
- Spot Roadway Improvements to remove localized bottlenecks
- RV Parking Management
- Golf Cart Provisions

5.3.1 Parking Management

A satellite parking facility near US 101 with bus or shuttle service to Avila beach is warranted based on various reasons. Buses which transport people from intercept parking to the beach and remain nearby would be desirable. Buses on standby near the beach can also be used during emergency evacuation situations. Since the demand for beach use is projected to grow and be greater than the parking supply, the excess parking demand can only be satisfied off-site. Currently, parking in Avila Beach is already at or near capacity during the summer weekends and holidays. As described in the 2009 Circulation Study, the estimated development of the planned land uses in Avila will result in an excess of parking demand by about 200 stalls. Avila Beach is accessed via two points from US 101, and routing drivers to an intercept parking facility could be easily implemented. Two locations are suggested for the intercept parking facilities. The first location is at the PG&E visitor center on Ontario Road to intercept traffic from the north, which has 75 stalls and would greatly minimize capital cost associated with parking lot development. This lot could also be used as a park & ride lot for commuters into San Luis Obispo. A lease agreement between the County and PG&E would have to be completed for seasonal use. The second location is near the Avila Beach Drive interchange with a 60 stall lot that would need to be constructed to intercept traffic from the south.

The shuttle bus would be used to transport people from the intercept parking lots to Avila Beach, town, and harbor. Changeable message signs and/or dynamic parking wayfinding signs could be placed at each of the interchanges to inform drivers of alternative parking options when the downtown Avila parking is at or near capacity, or when there is a special event. For Park & Ride development, appropriate signage would also be in place on the freeway ramps.



Avila Beach Parking Study (July 2019)

The parking study provides recommendations for near-term, mid-term, and long-term solutions to utilize the current parking supply more efficiently. Short-term actions recommend the County to proceed with improving staging and loading by implementing commercial and beachgoer loading/drop-off zones in Town, and implement an employee permit parking program. The County may also consider offering employee parking at remote lots during peak season weekends or holidays. Changes to parking in the downtown Avila area will need to be pursued under a coastal development permit issued based on a Parking Management Plan. The most recent Parking Management Plan was conducted in 2013 for the Port San Luis Harbor District. Long-term solutions should be further discussed within the community and evaluated prior to commitment.

Near-term Solutions

- Commercial loading zones and beachgoer drop-off zones
- Employee Permit Parking Program
- Expand 3-hour parking areas on-street
- Increase enforcement
- Parking wayfinding / dynamic signs

Mid-Term Solutions

- Convert portions of Front Street, San Miguel Street, San Juan Street, and San Rafael Street into one-way streets
- Provide additional parking spaces within Town, including along Front Street and San Rafael Street
- Combination of back-in and front-in angle parking, parallel parking, and perpendicular parking
- Weekend/Holiday employee parking at remote lots with shuttle

Long-Term Solutions

- Smart meters and demand-based pricing
- Smart phone payment
- Parking structure on Harbor District lot

Long-term parking solutions include augmentation of parking within the Town core by developing a new lot within Town, or constructing a parking structure on the Harbor District lot on First Street. A parking structure in Town would require a number of critical approvals prior to development, including the California Coastal Commission. The parking structure will provide the additional parking capacity needed during the summer months and special events, but would likely be underutilized during the other times of the year. Further consideration will need to be given, as parking revenues based on summer parking demand alone will not suffice the high cost for constructing a parking structure. Potential funds could come from the public facilities district, or a



Public-Private Partnership. The county of San Luis Obispo In-Lieu Parking Fund, administered by the Department of Planning and Building, is comprised of fees for commercial development in downtown Avila Beach in-lieu of providing onsite parking. A fee is required for newly constructed parking spaces, as well as for occupancy changes to existing parking spaces.

A potential location for a new parking lot would be on the north side of Avila Beach Drive at First Street (50 spaces). Another option is to develop the Unocal property along Avila Beach Drive just west of Cave Landing Road to provide intercept parking with a shuttle into Town. Additional improvements for access on Avila Beach Drive would also be needed to accommodate right and left turns and safely address any sight distance concerns.

5.3.2 Special Event Travel Demand Management

The Port San Luis Harbor District currently has in place requirements for permits for special events on District property. Outside the Harbor District however, it is recommended for the County to consider a special event ordinance for events such as concerts, festivals, special events related to the Golf Course, etc. Traffic management at all special events should be handled through the County permit process, and aim to implement Goals 2 and 3 of the Circulation Study. Implementation should include a requirement for the preparation of a traffic management plan for each event.

Special events which occur during the peak summer season add to the parking demand in Town, and result in congested travel conditions along Avila Beach Drive. As previously discussed, the intersection of Avila Beach Drive at First Street experiences congestion, especially during special events, because it serves as the parking access for event attendees. The recommendations and travel demand management measures related to special events within Avila are summarized below, and are further detailed in a separate memorandum, which is included in Appendix G.

- Consider satellite parking lots with shuttle buses for special events with over 2,000 attendance during the Peak Season (May 1 to September 30), and over 3,000 attendance during the Off-Peak Season.
- Incentivize use of satellite parking lots by providing a free shuttle from the remote/satellite lots, and having food trucks/stands or bike rentals at the satellite lots. Encourage carpooling.
- Schedule the start time of special events to be before 1:00 pm and after 4:00 pm on weekends, and after 5:00 pm on weekdays, to avoid conflict with peak traffic patterns.
- Avoid scheduling events that coincide with other events in Avila (such as the Friday Avila Beach Farmers Market).
- Consider limiting the number of events with attendance of 2,000 people or more during the Peak Season, scheduling to be during the off-peak season.
- Install changeable message signs prior to the intersection of Avila Beach Drive/San Luis Bay Drive to inform drivers of parking occupancy in Town, and direct people to satellite lots. Message signs should also inform people when there is a special event in Town.



- Consider a secondary access to the golf course parking for special events at or in between San Miguel Street and Cave Landing Road. A traffic signal at San Miguel Street is part of this CIP update, and partially funded by the RIF. Advancing the special event parking and access to be located prior to downtown Avila could help alleviate some of the congestion.

5.3.3 Bicycle Provisions

Bicycling should be encouraged as an alternative means of transportation within Avila. The provision of bike lanes on Avila Beach Drive and San Luis Bay Drive should be included as an element of any roadway widening. Providing alternative transportation to the beach and Town areas is recommended, including the improvements or addition of bicycle facilities. Bicycle access from the beach is facilitated by the Bob Jones Pathway parking lot (Park & Ride) on Ontario Road. This lot overflows on weekends and parking expansion is need.

The County Bikeways Plan was updated in 2010 and encourages the use of walking and bicycling within the Avila Beach area. The Plan shows a Class II Bikeway connecting Avila Beach and the Harbor. County Parks is pursuing a beachfront Class I. The plan entails closing existing gaps, removing existing perceived barriers for commuters, providing links to public transportation, and connecting to surrounding communities. The plan also encourages additional bicycle parking and storage facilities in the unincorporated areas at retail, office, school, public agencies, or other locations.

5.3.4 Public Transit Improvements

Avila Beach is relatively isolated with a limited residential population base and public transit would not likely play a major role for an average weekday. This would be difficult for families transporting beach equipment. However, during the summer weekends and holidays public transit could reduce traffic levels to and from the beach area. It is recommended that as parking becomes more difficult in town, a regional transit strategy be implemented, operating seasonally between the Five Cities area, Avila Beach, and San Luis Obispo. It is recommended that future transit service also possibly provide service between intercept parking facilities and Avila Beach with 30-minute headways. Implementation will be dependent on discretionary transit funds and travel demand.

The Avila Trolley provides free transit services from Pismo Beach Premium Outlets to various destinations in Avila Beach, including Avila Beach Drive at Ontario (Hot Springs Resort), Bob Jones Bike Trail at Ontario Road, Avila Beach at 1st (Near Golf Course), and Port San Luis at Fat Cats.

5.3.5 PG&E Diablo Canyon Power Plant Shuttle Service

The Diablo Canyon Power Plant, operated by PG&E, is located approximately 6 miles west of its gated entrance at Avila Beach Drive, and has approximately 1,500 employees. Avila Beach Drive west of San Luis Bay Drive reaches capacity during build-out conditions. In an effort to reduce the amount of traffic on Avila Beach Drive, solutions include moving the automobile employee trips (PG&E) to employer-based shuttle buses and provide parking via a Park & Ride lot as previously discussed. Shuttle buses and Park & Ride lots provide a relatively low-cost solution for both



participating employees and the reduction of improvements to the roadway. The participants would save cost in their personal vehicle maintenance and operation, and would reduce vehicular volumes on Avila Beach Drive.

5.3.6 RV Parking Management

Changeable message signs at arterial intersections with Ontario Road should be installed to inform whether RV parking spaces are available. This would deter unnecessary trips for unavailable spaces at the Harbor. When the approved Harbor Terrace development with additional RV spaces becomes operational this measure will have increased benefit.

5.3.7 Golf Cart Provisions

There have been several discussions about Golf Cart Use in downtown Avila. The California Vehicle Code sections 21115, 21115.1 and 21716 govern Golf Carts on local roads. A summary of what is allowed under these statutes is provided below.

1. This allows the board to approve ordinances that would allow the following on County maintained roads:
 - a) Golf carts can be used on roads posted at 25 mph or less within a "real estate development that offers golf facilities."
 - b) Golf Cart crossings to be established on roads with a speed limit of 45 mph or less.
2. There is also a designation for a "low-speed vehicle" in the vehicle code, some golf carts might comply with this definition, as well as neighbourhood electric vehicles (NEV's). Low Speed Vehicles are defined in the Code of Federal Regulations and have to have minimum safety features, such as lap belts. They also must be registered with the DMV (unlike golf carts) and have a license plate issued. These vehicles are allowed to operate on any road with a posted speed limit of 35 mph or less and can cross roadways with posted speed limits in excess of 35 mph at any intersection, unless it is a state highway.

Speed reduction on Avila Beach Drive could result in licensed golf carts or NEV's being allowed to travel on the arterial between San Luis Bay Estates, downtown Avila Beach, and the Harbor District. However, local use of golf carts or NEV's will be challenging, as they would still require a place to park. County staff is insufficient to develop and implement such a plan at this time.

5.3.8 Summary TSM Recommendations

The primary objective of the TSM program should be to effectively manage traffic and parking in the future. Key elements for the program that should be considered for implementation are intercept parking with bus or shuttle service, loading zones, an employee permit parking program, public transit service improvements, and continuous bicycle facilities. The following are the recommended TSM programs:

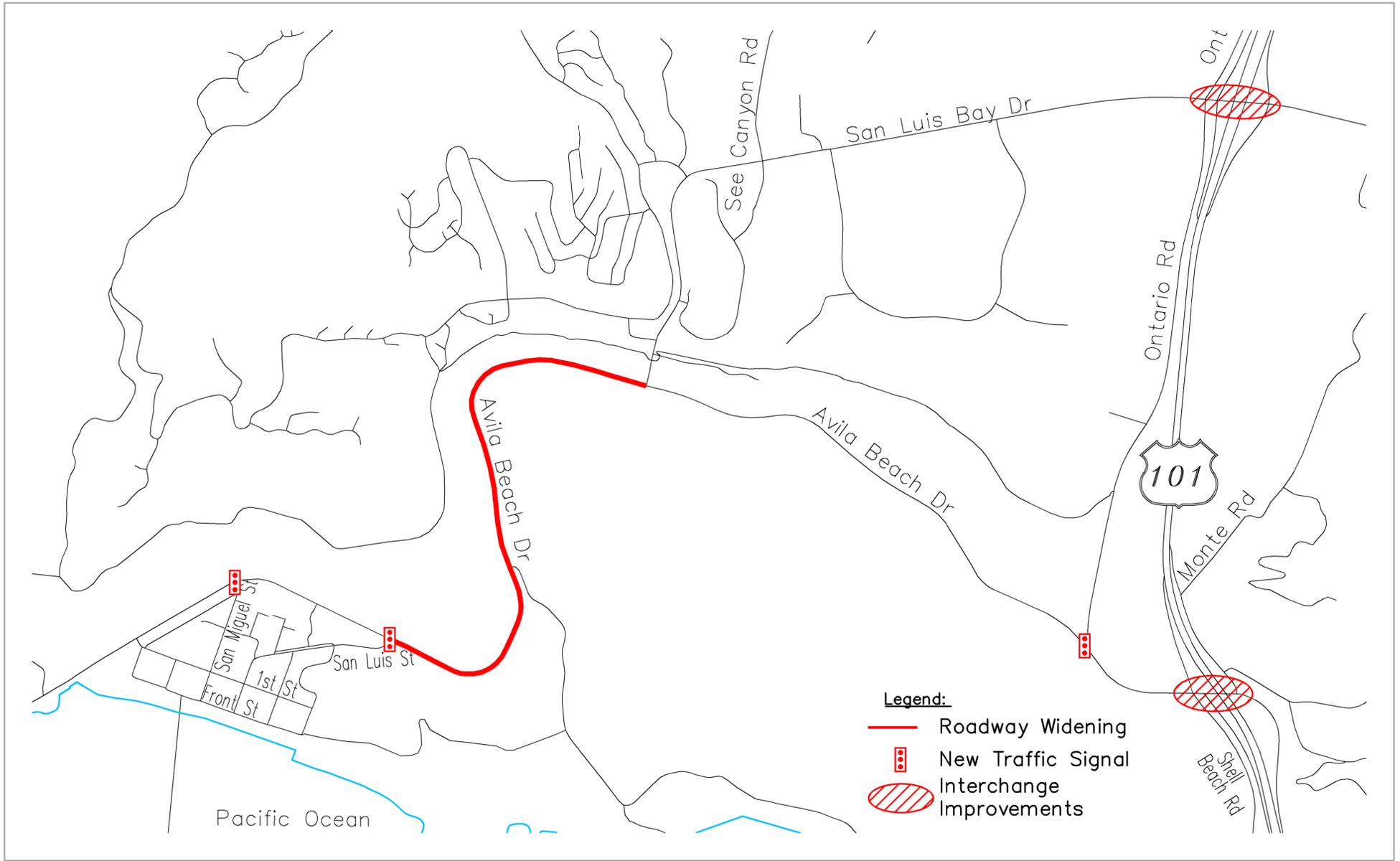
- Implement commercial/beachgoer loading zones



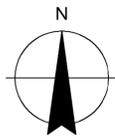
- Implement Employee Permit Parking Program
- Improve downtown streets for additional parking spaces
- Implement satellite parking lots with shuttle service
- Utilize changeable message signs or dynamic wayfinding signs for special events and parking occupancy in Town
- Implement changeable message signs directing to satellite parking facilities
- Improve bicycle facilities and routes – Bob Jones Trail, bike lanes
- Initiate direct bus service linking San Luis Obispo, Avila Beach, Pismo Beach
- Implement a County permit process for all special events
- Establish a parking district for Avila Beach for on-going improvements, or encourage the Community Services District to include parking
- Consider constructing parking structure (second level) on the Harbor District Lot in Town

5.4 Circulation Plan Analysis and Recommendations Summary

This section presents a summary of the roadway and intersection improvements, and the projected traffic operations with implementation of the proposed improvements. Figure 5.1 presents a map of the recommended network improvements, as previously identified.



- Legend:**
- Roadway Widening
 - ▣ New Traffic Signal
 - ▨ Interchange Improvements



County of San Luis Obispo
 Avila Circulation Study & TIF Update
TRANSPORTATION IMPROVEMENTS

Project No. 11177690
 Report No. 009
 Date 07.15.2019

FIGURE 5.1



Build-out Conditions roadway LOS at the deficient locations, with the recommended improvements, is presented in Table 5.1. Build-out Conditions intersection LOS at the deficient locations, with the recommended improvements, is presented in Table 5.2.

Table 5.1 Build-Out Improved Conditions: Peak Hour Roadway Levels of Service

Roadway	Location	Facility Type (# of Lanes)	Target LOS	Build-out Peak Projection	Build-out Peak LOS
September 2035 Estimate					
Avila Beach Drive	W of San Luis Bay Drive	Avila Three-Lane Arterial (w/LTL)	C	1,660	B
May 2035 Estimate					
Avila Beach Drive (May Count)	W of San Luis Bay Drive	Avila Three-Lane Arterial (w/LTL)	C	1,436	A
100th Highest Hour (projected 3-year average)					
Avila Beach Drive (K100 Estimate)	W of San Luis Bay Drive	Avila Three-Lane Arterial (w/LTL)	C	1,743	B
<i>Notes:</i>					
1. BOLD = Unacceptable operations					
2. w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.					
3. No LTL indicates arterials without left turn lanes (LTL) at most major intersections.					
4. Peak Projections based on average factor for ADT/Peak Hour, May estimates based on factor of Avila Beach Drive projections					

Table 5.2 Build-Out Improved Conditions: Intersection Levels of Service

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak Hour		PM Peak Hour		Signal Warrant Met? ³
				Delay	LOS	Delay	LOS	
2	San Miguel Street & Avila Beach Drive	Signal	C			13.0	B	Yes
3	San Luis Street & Avila Beach Drive	Signal	C			18.7	B	Yes
5	Ontario Road & Avila Beach Drive	Signal	C			7.5	A	Yes
6	Shell Beach Road/US 101 SB Off Ramp & Avila Beach Drive	Intersection geometrics to be determined. Interchange improvement subject to Caltrans ICE process and approvals.						
7	US 101 SB On Ramp & Avila Beach Drive ⁴							
10	Ontario Road & San Luis Bay Drive	Widen overcrossing, install left turn lane, and install traffic signals. Interchange improvement subject to Caltrans ICE process and approvals.						
11	US 101 SB On/Off Ramp & San Luis Bay Drive							
12	US 101 NB On/Off Ramp & San Luis Bay Drive							
<i>Notes:</i>								
1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control								
2. LOS = Delay based on average of all approaches for Signal								
3. Warrant = Based on California MUTCD Warrant 3								
4. NC = No Control as it is an on-ramp only intersection. Synchro software does not provide LOS for uncontrolled intersections.								

The interchanges of Avila Beach Drive, and San Luis Bay Drive with US 101 are currently undergoing the Caltrans ICE process. In May 2016, a PSR-PDS was completed for the Avila Beach Drive interchange. Tentative preferred alternatives include installing a roundabout at Avila Beach Drive/US 101 Southbound Ramps/Shell Beach Road, and widening San Luis Bay Drive overcrossing at US 101 to include an eastbound left turn lane, and installing traffic signals.

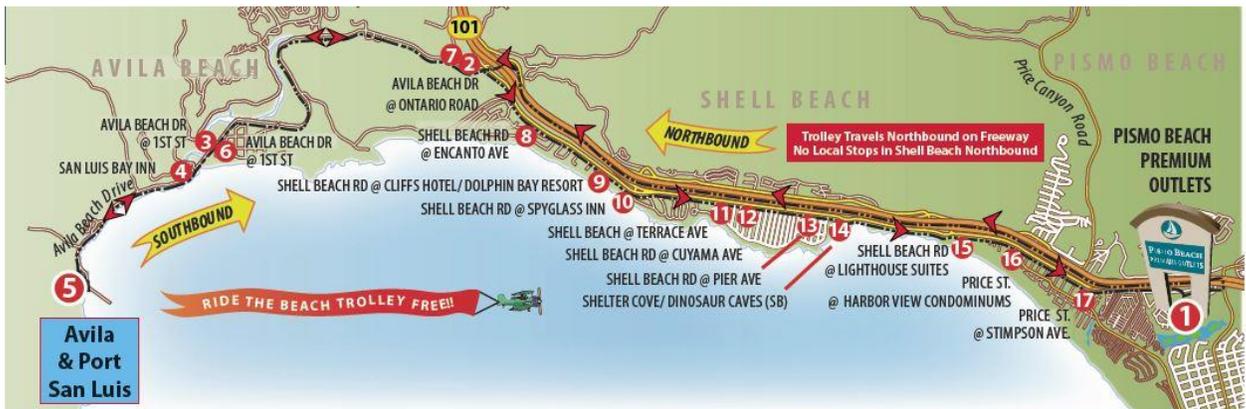


6. Alternative Transportation Modes

6.1 Public Transportation

The only public transportation within the Avila Beach area is provided by the Avila Beach Trolley and the Fish and Farmer's Market Trolley. The Avila Beach Trolley is a free seasonal trolley that provides service from Pismo Beach Premium Outlets to Port San Luis. The trolley is in service only on Saturdays and Sundays from late March to mid-October, and on Thursdays and Fridays with extended hours from June 5th to September 1st. The Fish and Farmer's Market Trolley is free and in service on Friday evenings from April through September. Figure 6.1 shows the Avila Beach Trolley route and service times.

Figure 6.1 Avila Beach Trolley



Avila to Pismo Beach Trolley: 2014 Timed Stops										
Spring & Fall (March 29th - October 12th): Saturday through Sunday, 10am to 4pm + Extended Summer Service (June 5th - September 1): Thursday through Sunday, 10am to 6pm										
BOLD = PM	Northbound				Southbound					
	Pismo Beach	Avila Beach		Avila Port	Avila Beach		Shell Beach	Pismo Beach		
	Pismo Beach Premium Outlets <i>Connect with RTA 10 and SCT</i>	Avila Beach Dr. @ Ontario Road <i>Avila Hot Springs Resort</i>	Avila Beach Dr. @ 1st St. <i>(Near golf course)</i>	Port San Luis <i>(Near Fat Cats)</i>	Avila Beach Dr. @ 1st St.	Avila Beach Dr. @ Ontario Road <i>Avila Hot Springs Resort</i>	Shell Beach Rd. @ Spyglass Dr. <i>(Spyglass Inn)</i>	Price @ Stimson	Pismo Beach Premium Outlets <i>Connect with RTA 10 and SCT</i>	
Saturdays - Sundays + Thursdays and Fridays in Summer	1 10:00a	2 10:11a	3 10:17a	5 10:20a	6 10:28a	7 10:31a	10 10:35a	17 10:47a	1 10:56a	
	11:00a	11:11a	11:17a	11:20a	11:28a	11:31a	11:35a	11:47a	11:56a	
	12:00p	12:11p	12:17p	12:20p	12:28p	12:31p	12:35p	12:47p	12:56p	
	1:00p	1:11p	1:17p	1:20p	1:28p	1:31p	1:35p	1:47p	1:56p	
	2:00p	2:11p	2:17p	2:20p	2:28p	2:31p	2:35p	2:47p	2:56p	
Extended Summer Hours	3:00p	3:11p	3:17p	3:20p	3:28p	3:31p	3:35p	3:47p	3:56p	
	4:00p	4:11p	4:17p	4:20p	4:28p	4:31p	4:35p	4:47p	4:56p	
	5:00p	5:11p	5:17p	5:20p	5:28p	5:31p	5:35p	5:47p	5:56p	

Trolley does NOT operate in Winter (October 13, 2014 through Spring 2015)



6.2 Bicycle and Pedestrian Routes

San Luis Obispo recently updated the Bikeways Plan in 2010. The plan encourages the use of walking and bicycling and recognizes three classes of bikeways:

Class I Multi Use Path. Typically known as bike paths, Class I facilities are multi-use facilities that provide a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.

Class II Bike Lane. Known as bike lanes, Class II facilities provide a striped and signed lane for one-way bicycle travel on each side of a street or highway. The minimum width for bike lanes ranges between four and five feet depending upon the edge of roadway conditions (curbs). Bike lanes are demarcated by a six-inch white stripe, signage and pavement legends.

Class III Bike Route. Known as bike routes, Class III facilities provide signs for shared use with motor vehicles within the same travel lane on a street or highway. Bike routes may be enhanced with warning or guide signs and shared lane marking pavement stencils. While Class III routes do not provide measure of separation, they have an important function in providing continuity to the bikeway network.

6.2.1 Existing Pedestrian and Bicycle Facilities

The current bicycle and trail network consists of Class I, Class II, and Class III bicycle facilities. The County currently has 6 bike facilities throughout the County consisting of 1 Class I, 3 Class II, and 2 Class III facilities. The County has a pavement management program and regularly makes repairs as needed. According to the 2010 Bikeways Plan, the Class I bike paths within the area consists of the Bob Jones Bike Trail, which goes from San Juan Street through the Avila Beach golf resort, continues on Blue Heron Drive, then heads east to Ontario Road, and will eventually parallel US 101 toward the City of San Luis Obispo. The traffic signal located on Avila Beach Drive at First Street connects to the Bob Jones Trail.

The following segments currently have Class II Bike Lanes where:

- Ontario Road from Avila Beach Drive to Bob Jones Trail connection
- Avila Beach Drive from San Luis Street to San Luis Bay Drive
- Shell Beach Road from Avila Beach Drive to Ontario Ridge Trail

The following segments currently are Class III Bike Routes, where Class II does not exist:

- Avila Beach Drive
- Ontario Road

Avila Beach has two proposed Class II facilities. The proposed facilities include upgrading Ontario Road north of the Bob Jones Trail from Class III to Class II. Also, a Class II Bike Lane is proposed for San Luis Bay Drive and Avila Beach Drive. The 2010 Bikeways Plan existing and proposed facilities for Avila Beach are shown in Figure 6.2.

COUNTY Bikeways Plan 2010 UPDATE

Figure 6.2

Avila Beach

County Roadways

- Existing Class I Bikeway
- Proposed Class I Bikeway (Conceptual Alignment)
- Existing Class II Bikeway
- Proposed Class II Bikeway
- Existing Class III Bikeway
- Proposed Class III Bikeway
- County Maintained Road

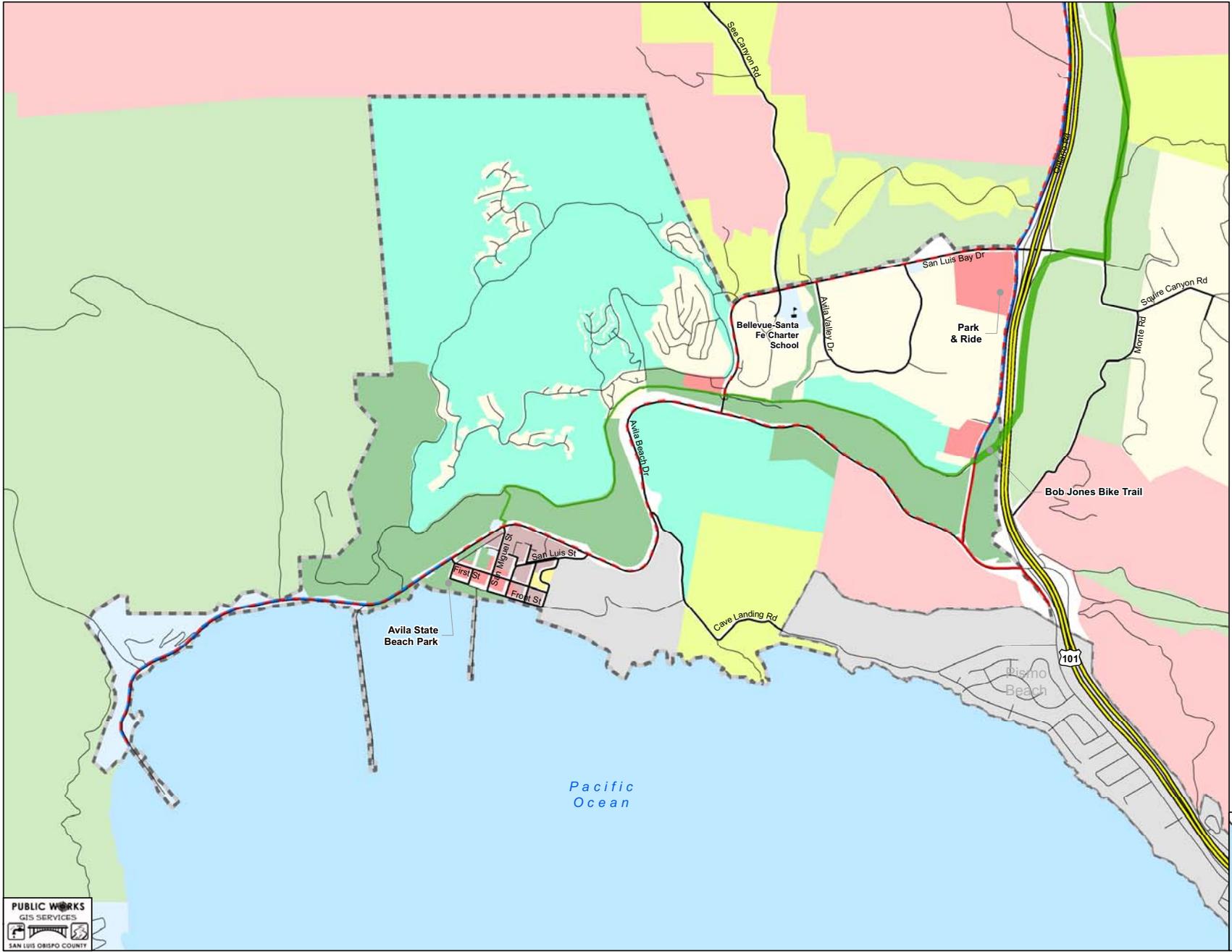
Cal Trans Roadways

- (For Bikeways See Appendix G)
- US Highway
 - State Highway

Land Use Category

- Agriculture
- Commercial Retail
- Commercial Service
- Industrial
- Multi-Land Use Category
- Office Professional
- Open Space
- Public Facility
- Recreation
- Rural Lands
- Residential Multi Family
- Residential Rural
- Residential Suburban
- Residential Single Family

- Non-County Road
- Rail Road
- City Limit
- U/R Boundary
- School





6.3 Truck Routes

Truck routes are intended to carry heavyweight commercial, industrial, and agricultural vehicles through and around the community with minimum disruption to local auto traffic and minimum annoyance to residential areas. The 1982 Surface Transportation Assistance Act set standards for large trucks, known as STAA trucks, and set minimum truck sizes that states must allow on the National Network including the Interstate System and other defined routes. US 101 is the only designated truck route in the Avila Beach area, and statewide is a National Truck Network.

6.4 Rail Operations

No commuter rail transportation (AMTRAK) is currently located in the Avila Beach area. The nearest Amtrak is located in the City of Grover Beach and San Luis Obispo. These facilities are 9 miles and 10 miles away, respectively, from Avila Beach.

6.5 Airports

Oceano County Airport is approximately 11 miles south of the Avila Beach area, located in the unincorporated community of Oceano, southwest of Arroyo Grande. The airport is mainly used for recreational activities and is accessible off of Highway 1.

The San Luis Obispo County Regional Airport, also known as McChesney Field, is located in the City of San Luis Obispo about 10 miles north of Avila Beach. It is served by two commercial airlines providing services to Los Angeles, Phoenix, and San Francisco. It is also home to full service general aviation and corporate facilities. McChesney Field is located on the west side of SR 227, about 2 miles east of US 101.



7. Cost Estimates and Funding Mechanisms, Including Road Improvement Fees

This chapter presents the cost estimates developed for the recommended transportation improvements and discusses possible funding mechanisms.

7.1 Cost Estimates

A series of planning level cost estimates have been prepared by County Public Work Staff for projects discussed in Chapter 4 and 5. The cost estimates are necessary to determine the funding amount required to implement the transportation improvements. A summary of the recommended projects, cost estimates, recommended funding sources, and expected project completion dates are shown in Table 7.1.

All cost estimates include the cost of construction, right-of-way, design, administration, environmental considerations, and inspection. All costs for construction activity were determined from typical experiences in San Luis Obispo County. Construction costs include clearing and grubbing, paving, storm drains, lighting, signing, and striping. Roadway edge improvements like curb, gutter, and sidewalk are generally excluded since they are usually constructed at the time of adjacent development.

7.1.1 Funding Mechanisms

Implementation of the elements of the transportation plan for Avila will require sources of revenue dedicated to infrastructure investment. Local government has traditionally provided for public facilities, with the costs being financed by revenues derived from gasoline tax and state and federal funds. In the recent past, the traditional revenue sources have shrunk to inadequate levels through a combination of growth, aging capital facilities, State realignment of property tax revenues, construction cost inflation, increasing costs of environmental mitigation and competing needs for limited public dollars.

I. Impact Fees – The California Government Code (Sections 66001-66025) grants authority to local agencies to establish, increase, or impose fees as a condition of approval of a development project within their jurisdictional boundaries. California courts require that such fees be reasonably related to the contributing development's impact on community facilities. Provided that the impact fees are used to finance construction of specific facilities, impact fees are not considered taxes and, therefore, do not require electorate approval. San Luis Obispo County adopted Ordinance No. 2379 in 1988 to provide for the collection of roadway impact fees. A fee program has been established for the study areas of the San Luis Bay (Avila Valley), North Coast (Cambria), Los Osos, San Miguel, South County (Nipomo Mesa), and Templeton. The impact fee is collected at the time of development and held in an account dedicated for road improvements within the area of benefit. Credits toward the fee are provided to landowners who dedicate right-of-way and/or construct facilities listed on the capital improvements table (Table 7.1).



Table 7.1 Avila Circulation Study 2019 Update Capital Improvements Projects

#	Type	Road	To/From	Recommended Improvement	Estimated Total Project Costs 2016	FUNDING		% TIF	RIF spent (as of 6/30/19)	Expected Const.
						Other Sources	Impact Fees			
Road Improvement Fee Projects										
300506	Interchange Improvements	Avila Beach Drive	Shell Beach Road to Monte Road	Roundabout and/or other intersection improvements	\$7,920,000	\$3,960,000	\$3,960,000	50%	\$179,087	2020
	Road Widening	Avila Beach Drive	San Luis Street to San Luis Bay Drive	Two (2) eastbound lanes, one (1) westbound lane, turn lanes at intersections and bike lanes	\$4,000,000	\$2,960,000	\$1,040,000	26%		2035
	Signal Installation	Avila Beach Drive	at San Luis Street	Signalization and intersection improvements	\$450,000	\$225,000	\$225,000	50%		2025
300554	Signal Installation	Avila Beach Drive	at San Miguel Street	Signalization and intersection improvements	\$450,000	\$225,000	\$225,000	50%	\$673	2025
	Signal Installation	Avila Beach Drive	at Ontario Road	Signalization and intersection improvements	\$450,000	\$225,000	\$225,000	50%		2025
	Interchange Improvements	San Luis Bay Drive	Ontario Road to Monte Road	Widen overcrossing, add turn lane, signalize	\$4,800,000	\$2,400,000	\$2,400,000	50%	\$63,153	2035
	Circulation Study			Circulation Study Updates thru 2035	\$500,000	\$0	\$500,000	100%	\$187,428	
Discretionary Projects										
	Road Widening	Avila Beach Drive	First Street to San Luis Street	Widening for bike lanes	\$1,000,000	\$1,000,000	\$0	0%		-
	Road Widening	Avila Beach Drive	San Luis Bay Drive to Ontario Road	Widening for bike lanes	\$3,000,000	\$3,000,000	\$0	0%		-
	Parking Lot	Avila Beach Drive		60 stall intercept parking lot	\$1,093,178	\$1,093,178	\$0	0%		-
	Pedestrian Improvements	Avila Beach Drive	Port San Luis to Unocal Pier	Pedestrian Walkway (Study Only)	\$300,000	\$300,000	\$0	0%		-
	Trail	Cave Landing Road	Avila Beach to Pismo Beach	Construct trail in existing easement	\$379,000	\$379,000	\$0	0%		-
	Road Widening	San Luis Bay Drive	Avila Beach Drive to Bay Laurel Place	Widening for bike lanes	\$822,824	\$822,824	\$0	0%		-
	Parking Structure	Harbor District Lot	at 1st Street	2nd Deck	\$12,250,000	\$12,250,000	\$0	0%		-
	Parking	Parking Management Plan			\$60,000	\$48,000	\$12,000	20%		-
Completed Projects										
300364/ P12A702	Bridge Widening	San Luis Bay Drive	Avila Valley Drive to Ontario Road	Bridge Replacement and Widening to three (3) lanes	\$6,785,310	\$5,185,470	\$1,599,840	24%	\$1,599,840	Complete
300349	Signal Installation	Avila Beach Drive	at First Street	Signalization and intersection improvements	\$245,602	\$245,602	\$0	0%	\$0	Complete
P12A125	Road Widening	Avila Beach Drive	at Cave Landing Road	Intersection Improvements	\$50,000	\$0	\$50,000	100%	\$50,000	Complete
-	Road Widening	Ontario Road	Higuera Street to Bob Jones Trailhead	Widening for bike lanes	\$650,600	\$650,600	\$0	0%	\$0	Complete
TOTAL CIP (All projects)					\$45,206,514					
TOTAL CIP (uncompleted projects)					\$37,475,002					
TOTAL RIF (uncompleted projects, less amount spent)					\$8,156,659	(used for fee calculation)				



For the Avila area, impact fees were established in Fiscal Year 1990/91 to fund the portion of roadway needs that are attributable to new development within the study area. These improvements were explicitly determined for the likely types of development that will occur in this area over the next 50 or more years. The following discussion highlights the considerations involved in establishing an equitable basis for impact fees in the Avila area.

A. Public/Private Share of Costs – In determining an appropriate level for the impact fees, improvement costs must first be apportioned among the public and private sectors according to the benefits provided to existing and future traffic sources. Existing deficiencies are not eligible for correction with impact fee funding, and such costs must be subtracted from the cost estimates. Existing deficiencies are defined as problems present at the time of initial roadway or intersection construction (i.e. vertical and horizontal curves).

The next step in assigning eligible costs to the impact fee calculation is to estimate the portion of roadway improvement costs attributable to through traffic. These costs are not eligible for funding by impact fees. In Avila, most through traffic uses Highway 101. “Local” traffic, i.e. traffic generated within the Avila Valley, creates the need for improvements at the freeway interchanges. For this reason, the improvements to the Avila Beach Drive and San Luis Bay Drive interchanges are partially included in the impact fee calculations. Also, the need for improvements at intersections along Avila Beach Drive is a result of local development and, therefore, has been included in the impact fee calculations. The recommended impact fee schedule is shown in Table 7.4.

B. Fee Area – The Avila study area is characterized by a core area that is accessed from US 101 by either San Luis Bay Drive or Avila Beach Drive, thereby forming a natural transportation barrier or “traffic shed” into the beach town. For the most part, the recommended transportation improvements are concentrated in the urban area, and in the east portion near US 101. The Fee Area is a subset of the model area, using the See Canyon and Davis Canyon areas to the north, residential developments along Lupine Canyon and immediately east of US 101, the Avila Beach area, and extending west to include the Diablo Canyon Power Plant as the primary boundary. Figure 2.2 shows the boundary of the fee area.

C. Distribution among Future Traffic Sources. When the total private share of costs has been established, these costs must be further distributed among the various land uses that contribute to traffic growth. The calculated fees are based on the amount of traffic generated during the weekday afternoon (PM) peak hour by each type of new development. The amount of traffic is determined from the Institute of Transportation Engineers (ITE)-published *Trip Generation (9th Edition)*. The change in land use and corresponding number of equivalent trip units, PM peak hour trips, has been calculated to reflect year 2015 conditions.

Table 7.2 shows the projected future land use growth for residential, non-residential, and miscellaneous land uses between the year 2015 and 2035 models.



Table 7.2 2015 Model Update Land Use (Non-Summer Weekdays Peak Hour Trips)

Fee Area Land Use		Land Use					Peak Hour Trips		
Residential	Units	Existing	Added	Build-Out	EDU	Existing	Added	Build-Out	
Single Family	DU	968	133	1,101	1.00	968	133	1,101	
Multi Family	DU	253	27	280	0.62	157	17	174	
Total Residential	DU	1,221	160	1,381		1,125	150	1,275	
Non-Residential	Units	Existing	Added	Build-Out	EDU	Existing	Added	Build-Out	
Agriculture	Acres	6,987	0	6,987	-	0	0	0	
Commercial	KSF	196	75	272	3.71	727	279	1,006	
Golf/Recreation	Acres	428	0	428	2.74/hole	49	0	49	
Industrial	KSF	627	150	627	0.97	608	146	754	
Public Facility/Other	Acres	973	3	976	1.30	1,265	4	1,269	
Harbor Terrace	Acres	0	35	35	<i>(From EIR)</i>		181	181	
Total Non-Residential	KSF	9,211	280	9,346		2,650	610	3,260	

Notes:
 EDU - Equivalent Dwelling Unit
 PHT - Peak Hour Trips

As shown in Table 7.2, the growth in peak hour trips for build-out is largely due to single family dwelling units, commercial/retail, and public facility/other uses which include RV lots. The total projected growth for the Avila Fee Area is 760 PM peak hour trips.

To calculate the recommended fees, the eligible improvement costs are divided by the total number of new trip ends. Table 7.3 summarizes the funding from impact fees, the funds already contributed by existing development, and the added peak hour trips projected for future development within the Fee Area. The fees for any new development are calculated at the time of building permit issuance. Table 7.4 presents the recommended fee schedule.

Table 7.3 Avila Project Costs and Area Trip Share

	Total Required Funding From Impact Fees	Fund Balance (As of 6/30/2019)	Net Funding Required From Impact Fees
Fee Area Total	\$8,156,659	\$325,687	\$7,830,972
Peak Hour Trips:	760	Cost per/PHT:	\$10,304

Table 7.4 Recommended Fee per Peak Hour Trip

Type	2014 Fee	Proposed Fee	Fee Increase
Retail	\$3,846	\$10,304	\$6,458
Residential	\$3,846	\$10,304	\$6,458
Other	\$3,846	\$10,304	\$6,458



As shown in Table 7.4, the fee schedule as proposed results in more than a two-fold increase from the existing fee schedule. The fee schedule as proposed will result in a fully-funded fee program (\$7,830,972) upon build-out of all remaining vacant General Plan land uses.

It is recommended that the County modify the Avila Road Improvement Fee based on the recommended fee structure shown in Table 7.4. Residential is defined as all places where people begin or end their day. (i.e. single family dwelling units, multi-family dwelling units, mobile home dwelling units). Retail is defined as all businesses such as retail, offices, and commercial service. Other includes anything not included in residential or retail. Transportation improvements identified in the CIP, and funded through the proposed fee program, are designed to accommodate peak weekday conditions during non-summer months. It is anticipated that some congestion will still occur at the peak of seasonal fluctuations. However, designing the transportation system to eliminate all congestion during peak seasonal demand would result in a system that is oversized for most times of the year. Additional revenue from fee and non-fee sources would be required to eliminate congestion during peak summer conditions.



Appendix

- A. Existing Traffic Counts
- B. Synchro Reports
- C. Traffic Signal Warrants
- D. Model Land Uses and Growth by TAZ
- E. Existing Conditions Calibration Report
- F. Avila Beach Drive Capacity Metric Memorandum
- G. Impact of Special Events & TDM Recommendations Memorandum
- H. Peak Hour Intersection Counts Comparison (2014 – 2019)



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