



# US 101

## US 101 CORRIDOR MOBILITY MASTER PLAN

San Luis Obispo County, California



## EXECUTIVE SUMMARY

Development of the US 101 Corridor Mobility Master Plan was a collaborative effort involving many stakeholders with varied perspectives on how to address identified needs in the corridor. As a “compass” for facilitating project direction, the development of a unified vision for the corridor was desired. The following vision statement was developed by the US 101 Corridor Mobility Master Plan Task Force to encapsulate the core purpose of this study and to guide decisions throughout:

Connecting communities within and across the region to improve travel time reliability, safety and modal choices for the efficient movement of people and goods.

Using a performance based approach prescribed in the Smart Mobility Framework, the US101 Corridor Mobility Master Plan holistically and comprehensively examined both existing and future conditions along approximately 70 miles of the corridor (county line to county line) in San Luis Obispo County to identify improvements that address existing and future needs in the corridor. Phase I of the US101 Corridor Mobility Master Plan used performance measures to identify four Focus Segments



of greatest need spanning approximately 25 miles of the 70 mile corridor. More detailed and scale sensitive performance measure assessments were then applied in Phase II to analyze each of the various improvement concepts considered within each Focus Segment. Both Phase I and Phase II of the plan were each informed through a comprehensive public outreach process that included both traditional (i.e., workshops and presentations) and non-traditional (web-based tools and surveys) methods for maximum effectiveness.

Consistent with most recent federal transportation bill MAP-21 (Moving Ahead for Progress in the 21st Century Act (P.L. 112-141)), all identified improvements were ultimately ranked and reviewed using

a Benefit-Cost (B/C) performance metric. The final recommended list of multi-modal improvement packages for each Focus Segment were ultimately selected through a consensus building process involving the US101 Corridor Mobility Master Plan Task Force comprised of representatives of local and regional stakeholder agencies. Although the recommended multi-modal improvement packages identified in the US101 Corridor Mobility Master Plan were geographically based on the four Focus Segments, much of the anticipated benefits will be shared countywide. The final recommended list of multi-modal improvements will be considered for inclusion in future regional transportation planning and programming processes in San Luis Obispo County.

## SETTING

The project area is the 70 mile length of the US 101 corridor in San Luis Obispo County. The project area includes interchanges, adjacent frontage roads, other parallel roadways that serve as alternatives to US 101 and access points for non-motorized transportation. US 101 is a four lane facility throughout the region, with the exception of the six-lane segment over the Cuesta Grade. Special purpose lanes such as ramp-to-ramp auxiliary lanes and truck climbing

lanes are also present. Within San Luis Obispo County, US 101 traverses through the Cities of Arroyo Grande, Grover Beach, Pismo Beach, San Luis Obispo, Atascadero, and Paso Robles as well as the three unincorporated communities of Nipomo, Templeton, and San Miguel. The highway includes several sections with at grade crossings (expressway segments) as well as full freeway segments.

US 101 is the coastal link that connects the Central Coast to the urban centers of Southern California and the Bay Area and therefore carries far more traffic than any other local facility.

## ANALYSIS FRAMEWORK

The performance based framework was applied in two phases: Phase I used 12 performance measures to evaluate how well the full 70 mile corridor was performing. This phase allowed the Task Force to choose the four study segments that the second phase of analysis would focus on. Phase II of the analysis analyzed approximately 140 multimodal improvement concepts in the four focus study segments. These improvement concepts were evaluated for their benefit to the corridor. This benefit was then monetized and compared to the cost of the improvement. This provided a benefit/cost ratio that enabled the task force to make recommendations on cost-effective improvement projects.

Although the recommended improvement packages identified in the US 101 Corridor Mobility Master Plan were geographically based within the four Focus Segments, much of the anticipated benefits from the recommended multi-modal improvement packages will be shared countywide. To show the countywide benefit, baseline travel time reliability measurements were

collected for approximately four months along the entire 70 mile stretch of US 101 in San Luis Obispo County. How these baseline travel time reliability measurements on US 101 are projected to change in the future – with and without the implementation of the US 101 Corridor Mobility Master Plan recommendations was determined.



## FOCUS SEGMENTS

The entire length of US 101 through San Luis Obispo County was evaluated using twelve performance measures for both existing conditions and estimated 2035 conditions. The public was provided opportunities to submit comments on specific issues and locations along the corridor that are of concern to them. The measures that were evaluated include:

1. US 101 Mainline Level of Service
2. US 101 Merge-Diverge Level of Service
3. US 101 Weave Level of Service
4. US 101 Safety
5. US 101 Emissions
6. Parallel Connectivity
7. Parallel Roadway Volume to Capacity
8. Parallel Roadway Safety
9. US 101 Corridor Park and Ride
10. US 101 Corridor Transit Coverage
11. US 101 Corridor Bicycle Connectivity
12. US 101 Corridor Pedestrian Connectivity

Each measure was converted to a score that allowed them to be related to each other. The total scores were reviewed along with the results of the public comment process. These results were translated into a visual cartogram to allow a direct comparison between the perceived corridor needs

as expressed by the public relative to the analyzed needs of the corridor as indicated through performance measurement. This comparison informed the identification of potential focus segments for further study. Figure 1 shows the corridor scoring results for 2035.

Four focus segments were selected using the above measures and public input. They are shown in Figure 2 and include:

- The sections of US 101 between Traffic Way and Avila Beach Road through the Five-Cities
- Los Osos Valley Road and Monterey Street through San Luis Obispo
- Santa Barbara Road and Vineyard Drive through Atascadero
- The southern and northern Spring Street exits in Paso Robles.



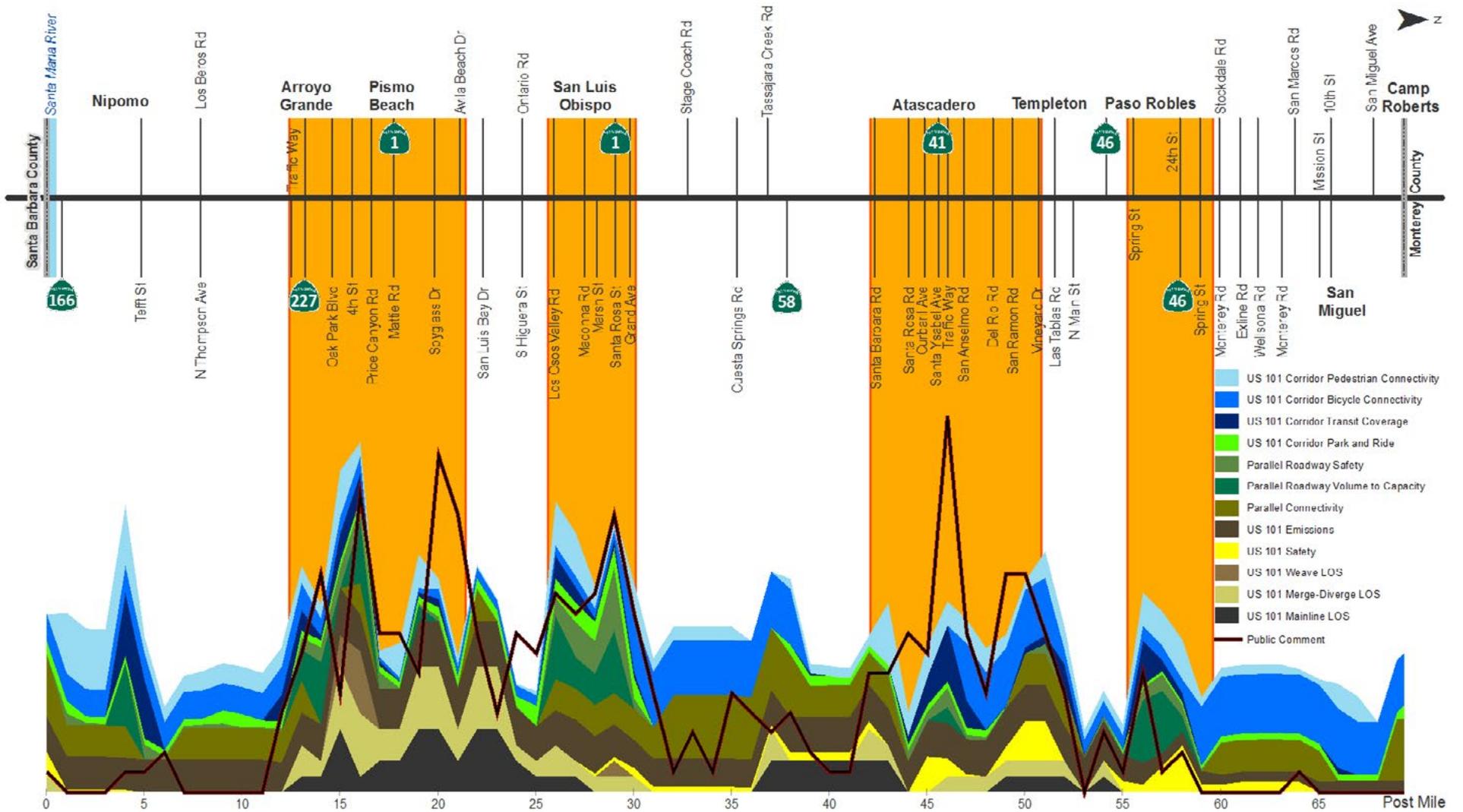


Figure 1. US 101 Phase I 2035 Performance Measure Results

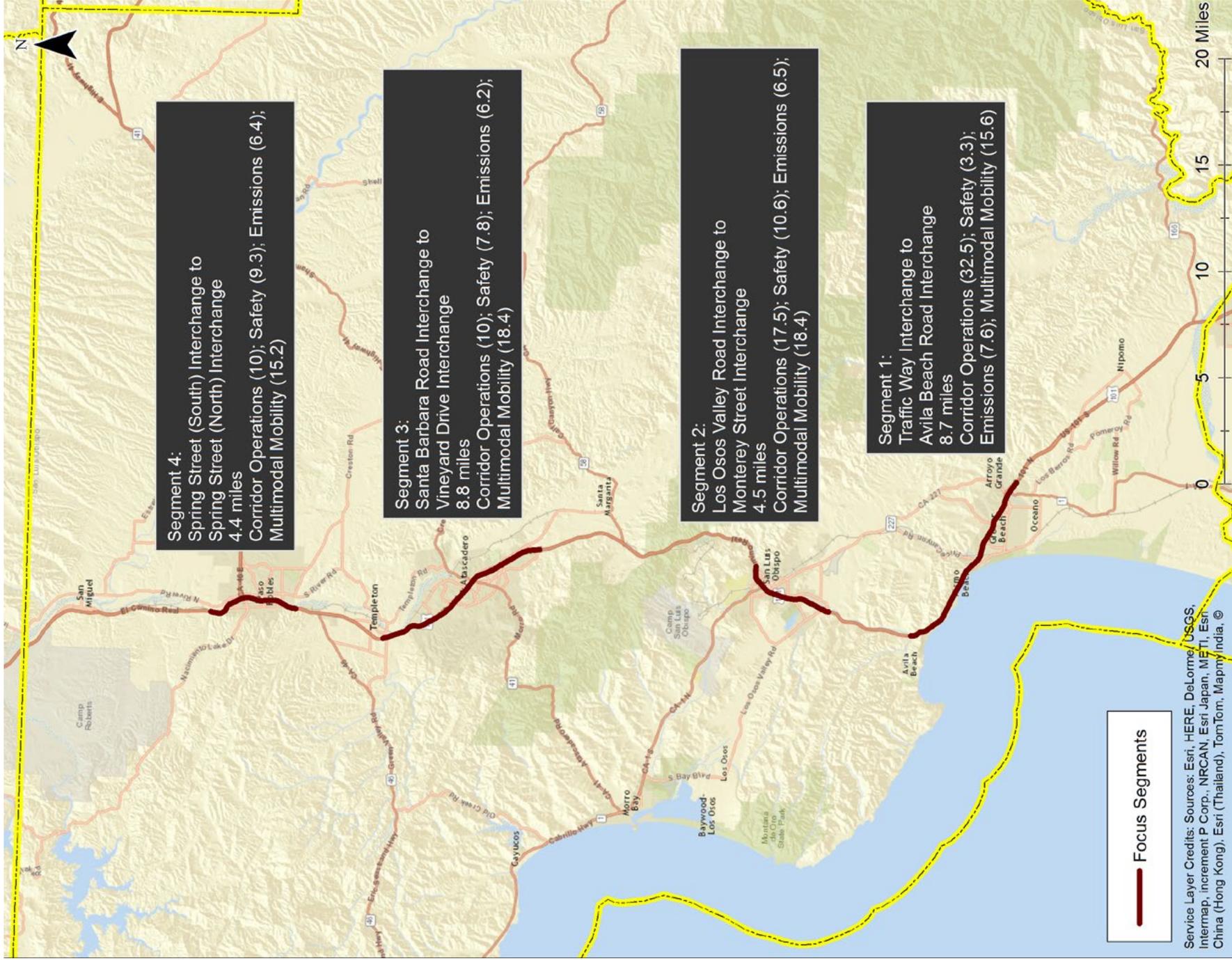


Figure 2. US 101 Corridor Mobility Master Plan Focus Segments

## IMPROVEMENT RECOMMENDATIONS

Specific localized needs were identified throughout each focus segment and were paired with potential solutions and concepts that are in the existing Regional Transportation Plan and other regional and local plans. The needs were then matched with potential solutions that which were shared with the public. The value of the anticipated benefits and the projected cost for each solution were estimated using several factors. The project Task Force then weighed the benefit cost ratio for each potential solution in conjunction

with qualitative assessments of each solution's ancillary benefits, support or consistency with existing regional policies, environmental and institutional feasibility, community support, and social equity to ultimately select a package of multi-modal improvement projects for each focus segment. In addition to general traffic mobility along the corridor, these improvements are expected to significantly enhance bicycle and pedestrian access across US 101 as each interchange improvement will include

significant investment in bicycle and pedestrian amenities. Similarly, emergency response and incident clearance times will be improved as a result of these highway enhancements.

The improvement packages are to be considered for inclusion in future Regional Transportation Plan and Federal Transportation Improvement Program updates.

The projects that were included in the US 101 Corridor Mobility Master Plan package are listed in Table 1.





**Table 1. US 101 Corridor Mobility Master Plan Improvement Package**

	Location	Benefit Analysis	Benefit / Cost Ratio	Total Benefit	Total Cost	Ancillary Benefits*	Consistency with Caltrans / SLOCOG Policy	Environmental/ Institutional Sensitivity	Community Support	Social Equity / Low Income & Minority Populations
Improve Fair Oaks Boulevard / Orchard Avenue Intersection	Arroyo Grande	Delays, Emissions, Safety	1.18	\$1,843,200	\$1,564,850		● ●			
Price Street Extension	Pismo Beach	Delays, VMT, Emissions	0.19	\$2,266,850	\$11,676,500	●	● ●	●		
Broad Street Ramps	San Luis Obispo	Delays, Emissions, Safety	4.61	\$12,960,501	\$2,810,100	●		●		●
Santa Rosa Street Interchange	San Luis Obispo	Delays, VMT, Emissions, Safety	0.27	\$11,144,250	\$40,685,550	●	● ●	●		
Prado Road Interchange	San Luis Obispo	Delays, Emissions	0.60	\$31,497,300	\$52,438,500		● ●			
San Anselmo Road Interchange	Atascadero	Delays, Emissions, Safety	1.42	\$10,238,250	\$7,218,050		● ●		●	
Del Rio Road Interchange	Atascadero	Delays, Emissions, Safety	0.01	\$3,128,550	\$11,650,000		● ●		●	
Traffic Way / Rosario Avenue Interchange	Atascadero	Delays, Emissions, Safety	1.05	\$9,266,100	\$8,826,500		● ●		●	
Curbaril Avenue Interchange	Atascadero	Delays, Emissions, Safety	0.85	\$3,128,550	\$3,687,000		● ●		●	
SR 46 E Interchange	Paso Robles	Delays, Emissions, Safety	0.24	\$709,100	\$2,927,000		● ●		●	
Add HOV Lanes to US 101 (25.3 lane miles)	Five Cities Area, San Luis Obispo	Delays, Emissions, Safety, Travel Time Reliability	0.39	\$220,122,200	\$564,028,500	●	● ●	●		
Add Auxiliary Lanes to US 101 (15 aux lanes and 25 of accel/decel lanes)	Five Cities Area, San Luis Obispo, Atascadero	Delays, Emissions, Safety, Travel Time Reliability	0.83	\$163,451,000	\$196,313,400		● ●			
New or Improved Park and Ride (12 lots, 262 new spaces)	Five Cities Area, San Luis Obispo, Atascadero, Paso Robles	VMT, Emissions	2.92	\$5,887,300	\$2,014,700		● ●	●	●	
Add Ramp Meters to US 101 (10 meters)	Five Cities Area, San Luis Obispo, Atascadero, Paso Robles	Delays, Emissions, Safety	18.57	\$29,406,500	\$1,584,000		● ●			
Implement Travel Demand Management Strategies	County-wide	Delays, VMT, Emissions	14.67	\$153,989,400	\$10,485,800		● ●	●	●	
Increase Vanpool Subsidy Program	County-wide	Delays, VMT, Emissions	1.98	\$3,052,500	\$1,560,000		● ●	●	●	
Increase Service Frequency to RTA Routes 9 and 10	Corridor-wide	VMT, Emissions	4.17	\$17,317,700	\$4,158,100		● ●	●		●

No Dot: Project assumed to have no or neutral affect; ●: Does not conflict with or support agency policy; ●: Project assumed to be consistent or have positive effect; ●: Project assumed to be inconsistent or have negative effect; ●: Project has both positive and negative effects \*Ancillary benefits include better emergency response time, more efficient goods movement, bicycle and pedestrian connectivity, and faster incident clearance.

## FINDINGS & RECOMMENDATIONS

Based on the findings of this comprehensive and holistic analysis of the US 101 corridor within San Luis Obispo County, the following recommendations are proposed for future consideration by SLOCOG and its member agencies during future planning and programming cycles. The following timelines for recommended improvements are generalized and provide an indication of priority based on available funding and lead times required for project implementation.



### Short-Term (within 5 years)

The following four corridor wide demand management and system management enhancements are recommended for immediate consideration as Tier I improvements in the RTP. These improvements provide a corridor wide benefit and result in a significant return on investment (i.e. high Benefit/Cost (B/C) ratios) relative to other projects.

1. Enhancing the corridor-wide Transportation Demand Management Program.
2. Increase capacity of the Vanpool programs through increased subsidies.
3. Increasing peak hour bus service frequencies on routes 9 and 10.
4. New and/or improved Park & Ride lots at 12 locations totaling 262 new spaces.
5. Installation of smart ramp meters at 12 on-ramp locations identified in the plan.
6. Establish policies that ensure shorter-term improvements are constructed to be supportive of longer-term improvements (i.e. interchange modifications will not preclude future widening of US 101).

7. Continue to support local agencies in the development of bicycle and pedestrian improvements that will encourage non-motorized circulation along and near the US 101 corridor.
8. Expedite project initiation documents to develop “shelf ready” high priority Tier 1 projects.





### Medium-Long Term (10-20 years)

The following four US 101 infrastructure enhancements are recommended for consideration as potential Tier I improvements in the RTP. These broader systematic infrastructural improvements to US 101 and the adjacent roadway network to enhance corridor-wide multimodal mobility reflect numerous individual “spot” improvements i.e., specific ramp junctures and interchanges.

It is recognized that based on anticipated funding, not all of the individual improvement locations can be financially constrained at this time. In the short-term, SLOCOG, Caltrans and the affected local agencies are encouraged to use the technical information embodied in this plan to inform how these improvements should be prioritized for inclusion as either Tier I (constrained) or Tier II (unconstrained) RTP improvements. As funding becomes available, the Tier II improvements can be advanced to Tier I status as part of future RTP planning cycles.

1. Extending length of on/off-ramps and additional ramp-to-ramp auxiliary lanes to reduce restrictions and improve flow to maintain efficient operations on US 101 in the most congestion prone areas (Focus Segments 1-3).

### Short – Medium Term (5-10 years)

The following localized infrastructural improvements needed to maintain efficient operations on US 101 in the most congested areas are recommended for immediate consideration as Tier I improvements in the RTP. These include:

1. Focusing on implementation of initial operational improvements to US 101 in the Pismo Beach area

by extending acceleration and deceleration lanes or building auxiliary lanes as identified in this plan (Focus Segment 1).

2. Support Caltrans on improvements to the north-bound US 101/SR 46 East off-ramp to address Sunday PM Peak interregional traffic (Focus Segment 4)



2. Reconstruction of identified interchanges including the Prado Road interchange and the US 101/State Route 1 (Santa Rosa) interchange in San Luis Obispo.
3. Reconstruction of the San Anselmo, Traffic Way, Curbaril and Del Rio interchanges in Atascadero.
4. A connection between San Ramon and Vineyard along northbound US 101 is recognized as a multi-modal need. While analysis doesn't indicate a strong need for an auxiliary lane at this location, there would be a strong multimodal benefit to pursuing an auxiliary lane and adjacent bike facility at this location. In addition, all interchange construction improvements will require plans to include consideration of how provisions to address all modes of transportation, including:
  - a. Safe bicycle and pedestrian access and operation
  - b. Access to Park and Ride lots
  - c. Provision of access to public transit service
5. Continue to evaluate opportunities to fill gaps in the frontage road system to maximize safe operation, multimodal use including non-motorized modes, and provide local connectivity off the US 101 mainline (Focus Segments 1 - 4).
6. Providing a local multimodal roadway connection between northern Pismo Beach and Five-Cities Drive (i.e., Price Street Extension).



## Long term (20+ years)

Significant infrastructure investments will be needed to ensure future US 101 corridor mobility in the southern portion of San Luis Obispo County. Given the estimated high cost of these improvements, the following US 101 infrastructure enhancements are recommended for consideration as RTP Tier II improvements at this time. If future funding materializes that significantly increases the revenue cap for regional transportation improvements in San Luis Obispo County (e.g., countywide sales tax measure for transportation, federal/state funding authorizations etc),

these improvements (or phases of these improvements) could be considered for inclusion as Tier I improvements. These include:

1. Providing a local multimodal roadway connection between northern Pismo Beach and Five-Cities Drive (i.e., Price Street Extension).
2. Construction of an HOV lane in each direction from the Cities of San Luis Obispo to Arroyo Grande. Considerations for project phasing can include considering HOV widening specifically within Focus

Segment 1 and 2 first; connecting these sections by extending the HOV facility between Focus Segments 1 and 2 second; and possibly extending the HOV south to the Santa Barbara County Line. Coordinate with Caltrans and affected local agencies to consider that all widening occurs within the inside median as physically feasible.

## FURTHER CONSIDERATIONS

Although many of the recommendations above are specific to the identified Focus Segments, the US 101 Mobility Master Plan also endorses corridor improvements outside the four Focus Segments that are consistent with the findings and recommendations presented herein. These improvements will be evaluated as part of future programming cycles. The US 101 Mobility Master Plan also endorses the Caltrans goal of converting US 101 within San Luis Obispo County to full freeway standards where feasible and cost effective. The expressway portions of US 101 are characterized by at-grade intersections and are primarily located on non-Focus Segment sections. The additional recommendations are also proposed for future consideration by SLOCOG and its member agencies during future planning and programming cycles.

