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MEMORANDUM

DATE: March 10, 2023

TO: John Dinunzio | San Luis Obispo Council of Governments

FROM: Jim Damkowitch | DKS Associates

SUBJECT: NCMMP: Vision Statement and Performance Measures Project #13049-000

The purpose of US 101 North San Luis Obispo County Comprehensive Multimodal Corridor Plan (CMCP) is to identify a transformative and sustainable package of multimodal transportation improvements that best address both local and regional mobility priorities and needs within the corridor that meets the needs of SLOCOG, the local agencies, and Caltrans. Study limits span from US 101 to the top of Cuesta Grade to the Monterey County line including the portion of SR 46 from its juncture with US 101 in Paso Robles to Union Road.

Key objectives include:

1. reflect the latest project information developed for several advancing projects within the study corridor (including Focus Segment 3 and Focus Segment 4 of the US 101 Mobility Master Plan, 2014);
2. add additional performance metrics to ensure consistency with the latest State planning guidelines governing corridor studies and grant programs;
3. "refresh" the benefit/cost analysis to support an SB-1 SCCP grant application; and,
4. identify new projects or modify existing improvement descriptions within the study corridor.

To best position SLCOG and key stakeholder agencies for future funding opportunities, development of the US 101 North San Luis Obispo County Comprehensive Multimodal Corridor Plan will be consistent with the following corridor planning guidance to ensure eligibility and competitiveness for grant funding:

1. Caltrans Smart Mobility Framework (Caltrans, 2010);
2. Corridor Planning Guidebook (Caltrans, 2019);
3. Comprehensive Multimodal Corridor Plan Guidelines (California Transportation Commission, 2019);

4. SB-1 Solutions for Congested Corridors Program (California Transportation Commission, 2022); and,

5. SB-1 Accountability and Transparency Guidelines (California Transportation Commission, 2019).

A key objective is to complete the plan in time to submit an SB-1 Solutions for Congested Corridors Program Cycle 4 grant application (2024-2025). However, all analyses will be scalable to allow portions to be seamlessly parsed out if pursuing other competitive grant programs (e.g., SB-1 TCEP, SB 1 SCP, SB 1 LPP, ATP, HSIP, etc.) is desired.

VISION STATEMENT

Development of the North County Mobility Master Plan is a collaborative effort involving many stakeholders with varied perspectives on how to address identified needs in the study corridor. As a "compass" for facilitating project direction, the development of a unified vision for the corridor is desired. As a starting point, the following vision statement was developed by the 2014 US 101 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.

This vision statement can be repurposed for application of the North County Mobility Master Plan which is essentially a north county "refresh" of the US 101 Mobility Master Plan (SLOCOG, 2014). However, the US 101 North County Mobility Master Plan Stakeholder Steering Committee may desire to modify this vision statement if desired.

Projects and improvements recommended in this plan are intended to improve the operational efficiency, remove multimodal bottlenecks and barriers, and reduce conflict between transportation modes so that they will provide benefit to as many users as possible regardless of the transportation mode they use.

Progress toward the plan's vision can be monitored using the following five objectives included in SLOCOG's 2018 Sustainable Communities Strategy (SCS):

- Vehicular mobility – ensuring that people and goods can move between communities efficiently.

- System safety – ensuring that US 101 and nearby roadways are safe for all users.

- Air quality – ensuring that Greenhouse Gas (GHG) emissions caused by excess delay are minimized, facilitating the use of alternative modes with lower emissions, and reducing the number of vehicle trips.

- Connectivity – ensuring that US 101 and the local roadway system work together seamlessly in serving both local and interregional traffic.

- Mode Choice – ensuring that regular travelers within the corridor are provided with reasonable, safe, and convenient alternatives to single occupant vehicle trips.

The above vision and objectives will serve as a guide for making recommendations of the multimodal improvement packages for the US 101 North County Mobility Master Plan. Performance metrics will be applied to "measure" each improvement concepts benefit towards one or more of the stated objectives. The selected transportation performance measures will also be consistent with the SB-1 Solutions for Congested Corridors Program Guidance (California Transportation Commission, 2022).

PERFORMANCE MEASURES

Recommended performance metrics identified in the above guidance documents will form the basis for the performance-based return-on-investment criteria. **Figure 1** provides the analysis tool matrix that matches the performance-based analysis to the key measure of effectiveness and analysis tools for quantifying. Although quantifiable and important to document, not all performance metrics are amenable to monetization (i.e., contribute and influence a benefit-cost assessment).

Analysis Purpose	Measure of Effectiveness	US 101 North San Luis Obispo County Comprehensive Multimodal Corridor Plan															Quantifiable	Monetize for Benefit/Cost
		SLOCOG TDM	Streetlight/Replica Big Data	PeMS/Traffic/Ridership Counts	NPMRDS/PeMS	SWITRS / TIMS	Existing VISSIM Model	Level of Traffic Stress	NCHRP 552 Method	HSM Part B CMFs (Part C)	SB-1 Emissions Calculator	ArcGIS Network Analyzer	Online Mapping Tools	BRT Practioners Guide;	IMPLAN			
Baseline Travel Demand	Trips, Ridership, VMT, Throughput	■	■	■													Yes	Yes
Future Travel Demand	Trips, Ridership, VMT	■	■														Yes	Yes
Segment Operations (Baseline)	Delay, TTI, Buffer Time, BTI			■	■		■										Yes	Yes
Segment Operations (Base and Future)	Delay, Queuing, LOS, Throughput						■										Yes	Yes
Intersection Operations (Base and Future)	Delay, Queuing, LOS			■			■										Yes	Yes
Transit Ridership	Ridership, VMT	■		■										■			Yes	Yes
Pedestrian/Bike Connectivity	Access Indices							■				■					Yes	No
Mode Shift (VMT Reductions)	Trips, VMT								■			■		■			Yes	Yes
Safety	Collision Reduction & Rates	■				■				■							Yes	Yes
Air Quality	Emissions (Criteria & GHG)	■					■		■		■						Yes	Yes
EJ/Social Equity	Access, Benefit/Burden	■						■				■	■				Yes	No
Economic Development	GRP, Jobs, Income											■			■		Yes	No
Health	Vehicle Miles Traveled	■							■				■				Yes	Yes
Adaptation	Network Vulnerability	■										■	■				Yes	No

Legend ■ *Direct or Indirect Application*

Table 1 provides the proposed performance measure list for the US 101 North County Mobility Master Plan. The list is based on the Comprehensive Multimodal Corridor Plan Guidelines (California Transportation Commission 2019). This list of performance measures combined with the analysis tools and resources identified in **Figure 1** will form the starting point for this analysis.

Several metrics will be expressed in terms of net reduction between the future no-build and build conditions. Data needs for each performance metric are also provided as well as consultant team responsibilities. Some metrics identified in Comprehensive Multimodal Corridor Plan Guidelines (California Transportation Commission, 2018) are not applicable for reporting based on the mix of improvement types.

Table 1.US 101 North County Mobility Master Plan Performance Measures

Measure	Metric	Methodology	Data/Assumptions/Source	Assigned to:
Congestion Reduction	County Total Daily VMT	SLOCOG Travel Demand Model (TDM)	PeMS for US 101; Trend Station for SR 46	DKS
	Daily Person Hours of Travel Time (hrs/person/day)	SLOCOG TDM / HCS / NPMRDS / VISSIM (46)	NPMRDS Data / SLOCOG TDM	DKS
	Annual Person Hours of Travel Time (hrs/person/yr)	SLOCOG TDM / HCS / NPMRDS / VISSIM (46)	NPMRDS Data / SLOCOG TDM	DKS
	Daily Vehicle Hours of Delay (hrs/vehicle/day)	SLOCOG TDM / HCS / NPMRDS / VISSIM (46)	NPMRDS Data / SLOCOG TDM	DKS
	Annual Vehicle Hours of Delay (hrs/vehicle/year)	SLOCOG TDM / HCS / NPMRDS / VISSIM (46)	NPMRDS Data / SLOCOG TDM	DKS
	Percent Change in Non-Single Occupancy Vehicle Travel	SLOCOG TDM	SLOCOG TDM	DKS
Throughput	Peak Period Person Throughout	SLOCOG TDM / HCS / NPMRDS / VISSIM (46)	PeMS for US 101; Trend Station for SR 46 / SLOCOG TDM	DKS
	Passengers per Vehicle Service Hour	SLOCOG TDM / HCS / NPMRDS / VISSIM (46)	PeMS for US 101; Trend Station for SR 46 / SLOCOG TDM	KH/DKS
	Bicyclist/Pedestrian Screen Line Counts	Replica Data / Counts	Replica Data	KH
System Reliability	Peak Period Travel Time Reliability Buffer Time Index (BTI)	HCM Methodology; Forecast based on TTI	NPMRDS Data	DKS
	Peak Period Travel Time Reliability Buffer Time (min / person)	HCM Methodology; Forecast based on TTI	NPMRDS Data	DKS
	Total Daily Buffer Time Reduced (person hrs/weekday)	HCM Methodology; Forecast based on TTI	NPMRDS Data	DKS
	Transit Service On-Time Performance	Transit Quality of Service Handbook Elasticities	SLORTA & Paso Robles	KH
Safety	Number of Fatalities/Serious (collisions reduced / 20-yrs)	Atascedero/Paso Robles/County of SLO Crossroads Data; CMF Applications	Crossroads Data Bases: or TIMS/SWITRS	DKS
	Number of Serious Injuries	Atascedero/Paso Robles/County of SLO Crossroads Data; CMF Applications	Crossroads Data Bases: or TIMS/SWITRS	DKS
	Rate of Fatalities per 100 Million VMT	Atascedero/Paso Robles/County of SLO Crossroads Data; VMT by Facility and Facility Type	Crossroads Data Bases: or TIMS/SWITRS; Caltrans Published Volumes, SLOCOG TDM	DKS
	Number of Serious Injuries per 100 Million VMT	Atascedero/Paso Robles/County of SLO Crossroads Data; VMT by Facility and Facility Type	Crossroads Data Bases: or TIMS/SWITRS; Caltrans Published Volumes, SLOCOG TDM	DKS
	Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	CMF Application	HSM and FHWA CMF Database	DKS
	Accident Cost Savings	Societal Costs	Caltrans Economic Parameters	DKS
Economic Vitality	Jobs Created (Direct and Indirect) (Full Time Equivalent Jobs)	IMPLAN Multiplier Analysis	Multipliers from Napa County	DKS
	Gross Regional Product (GRP)	IMPLAN Multiplier Analysis	Multipliers from Napa County	DKS
Air Quality & GHG	Particulate Matter (PM 2.5/PM 10) (tons / 20-yrs)	Cal-BC/SB-1 Emissions Calculator (Freeway/Bike/TDM Improvements)	VMT Inputs: SLOCOG TDM (DKS); NCHRP 552 (KH); TRIMMS (DKS)	DKS/KH
	Carbon Dioxide (CO2) (tons / 20-yrs)	Cal-BC/SB-1 Emissions Calculator (Freeway/Bike/TDM Improvements)	VMT Inputs: SLOCOG TDM (DKS); NCHRP 552 (KH); TRIMMS (DKS)	DKS/KH
	Volatile Organic Compounds (VOC) (tons / 20-yrs)	Cal-BC/SB-1 Emissions Calculator (Freeway/Bike/TDM Improvements)	VMT Inputs: SLOCOG TDM (DKS); NCHRP 552 (KH); TRIMMS (DKS)	DKS/KH
	Sulphur Dioxides (SOx) (tons / 20-yrs)	Cal-BC/SB-1 Emissions Calculator (Freeway/Bike/TDM Improvements)	VMT Inputs: SLOCOG TDM (DKS); NCHRP 552 (KH); TRIMMS (DKS)	DKS/KH
	Carbon Monoxide (CO) (tons / 20-yrs)	Cal-BC/SB-1 Emissions Calculator (Freeway/Bike/TDM Improvements)	VMT Inputs: SLOCOG TDM (DKS); NCHRP 552 (KH); TRIMMS (DKS)	DKS/KH
	Nitrogen Oxides (NOx) (tons / 20-yrs)	Cal-BC/SB-1 Emissions Calculator (Freeway/Bike/TDM Improvements)	VMT Inputs: SLOCOG TDM (DKS); NCHRP 552 (KH); TRIMMS (DKS)	DKS/KH
Accessibility / Equity	Number of Jobs Accessible by Mode / Disadvantaged Communities	Level of Traffic Stress / Connectivity Assessmnt	Mineta Institute Methodology	KH
	Access to Key Destinations by Mode	Level of Traffic Stress / Connectivity Assessmnt	Mineta Institute Methodology	KH
	Ped/Bike Access (US 101 and SR 46 Crossings) / Disadvantaged Communities	Level of Traffic Stress / Connectivity Index / Connectivity Assessment	Mineta Institute Methodology / Connectvity Index	KH
Adaptability/Resiliency	Climate Change Vulnerability Assessment: Storm Surge, Flood, Wildfire	Caltrans Climate Change Vulnerability Web-Based Mapping Tool - Qualitative Assessment	Caltrans Climate Change Vulnerability	DKS
Cost Effectiveness	Benefit-Cost Ratio	Cal-BC	Caltrans Economic Parameters	DKS/KH

ATTACHMENT 1.

SB-1 Solutions for Congested Corridor Guidelines – Performance Metrics

CMCP CHECKLIST			
#	**CMCP Key Elements**	**Yes or No**	**Page #**
1	Demonstration of state, regional, and local collaboration as applicable.		
2	Inclusion of specific corridor objectives.		
3	Identification and evaluation of performance impacts of recommended projects and strategies.		
4	Discussion of induced demand analysis for highway and local road projects as applicable.		
5	Discussion of travel options for all modes of travel within the corridor, including streets and highways, transit and intercity rail, and bicycle and pedestrian modes.		
6	Application of a range of performance metrics for the set of recommended projects and strategies.		
7	Recommendations and prioritization of multimodal improvements for funding.		
8	Identify a timeline for implementation (e.g., short, medium, and long-term projects).		
9	Discussion of potential funding sources for transportation improvements.		
10	Inclusion of strategies for preserving the character of the local community and creating opportunities for neighborhood enhancement projects.		
11	Description of how the plan incorporates the principles of the federal Congestion Management Process and the intent of the state Congestion Management Program for designated Congestion Management Agencies.		
12	Description of how the plan incorporates the principles of the California Transportation Plan, the Interregional Transportation Strategic Plan, the Caltrans Smart Mobility Framework, California's Climate Change Scoping Plan, and climate adaptation plans.		
13	Description of how the plan is consistent with the goals and objectives of the regional transportation plan and the Sustainable Communities Strategy, where applicable.		
14	Description of how the plan is consistent with other applicable regional or local planning frameworks such as local jurisdiction land use plans.		
15	Incorporation of broadband planning, and Intelligent Transportation Systems (ITS) strategies, as applicable.		
16	Explanation of how community representatives and the general public were engaged throughout the development of the plan.		
17	Explanation of how engagement with planning partners and stakeholders was conducted for the plan.		
18	Description of how disadvantaged communities were specifically engaged.		
19	Description of how feedback received influenced the final plan.		

Approval by CMCP Agency Director			
FIRST AND LAST NAME	**TITLE**	**SIGNATURE**	**DATE (MM/DD/YYYY)**

Existing Average Annual Vehicle Volume on Project Segment	
Estimated Year 20 Average Annual Vehicle Volume on Project Segment with Project	

Measure	Metric	Project Type	Build	Future No Build	Change	Increase/ Decrease
Congestion Reduction	Change in Daily Vehicle Miles Traveled (VMT)	All				
	Person Hours of Travel Time Saved					
	(Optional) Change in Daily Vehicle Hours of Delay	Highway				
	(Optional) Percent Change in Non-Single Occupancy Vehicle Travel	Local Road, Highway				
	(Optional) Per Capita and Total Person Hours of Delay per Year					
	(Optional) Other Information	All				
Throughput	(Optional) Peak Period Person Throughput – by applicable mode	All				
	(Optional) Passengers Per Vehicle Service Hour	Transit Rail and Transit Bus				
	(Optional) Other Information	All				
System Reliability	Peak Period Travel Time Reliability Index (“No Build” Number Only)	National and State Highway System Only				
	Level of Transit Delay	Transit Rail and Transit Bus				
	(Optional) Other Information	All				

Measure	Metric	Project Type	Build	Future No Build	Change	Increase/ Decrease
Safety	Number of Fatalities	All				
	Rate of Fatalities per 100 Million VMT					
	Number of Serious Injuries					
	Rate of Serious Injuries per 100 Million VMT					
	(Optional) Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries					
	(Optional) Other Information					
	(Optional) Number or Rate of Property Damage Only Collisions	Local Road, Highway				
	(Optional) Number or Rate of Non-Serious Injury Collisions					
	(Optional) Accident Cost Savings					
Economic Development	Jobs Created	All				
	(Optional) Other Information					
Air Quality and Greenhouse Gases	Particulate Matter (PM 10)	All				
	Particulate Matter (PM 2.5)					
	Carbon Dioxide (CO_2)					
	Volatile Organic Compounds (VOC)					
	Sulphur Oxides (SO_x)					
	Carbon Monoxide (CO)					
	Nitrogen Oxides (NO_x)					

Measure	Metric	Project Type	Build	Future No Build	Change	Increase/ Decrease
Accessibility	(Optional) Number of Jobs Accessible by Mode	All				
	(Optional) Access to Key Destinations by Mode	All				
	(Optional) Percentage of Population Defined as Low Income or Disadvantaged within ½ mile of a rail station, ferry terminal, or high-frequency bus stop	Transit Rail and Transit Bus				
	(Optional) Other Information	All				
Cost Effectiveness	Cost-Benefit Ratio	All				
	(Optional) Other Information					