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MEMORANDUM

To: 101-MAP Project Team

From: Nelson\Nygaard

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Subject: 101-MAP Actions Assessment Scoring Protocols

Introduction

Phase One of the 101-MAP identifies over 50 actions to address project goals through programs policies. To inform the future implementation of each action, the MAP team assessed the directness of each action's impact on each of 13 performance metrics associated with project goals.

Figure 1   Performance Metrics

Goal	Metric
Reliability: Offer reliable travel times for all people regardless of how they travel on US-101	▪ Consistency of average travel time at AM peak (+) ▪ Percentage of time Express Lanes operate at >45 mph (+) ▪ On-time performance (OTP) of transit using US-101 (+) ▪ Customer-perceived reliability of US-101 (+)
High-capacity options: Prioritize high-capacity mobility options for all, such as buses and carpools	▪ Person throughput in general purpose lanes on US-101 (+) ▪ Person throughput in Express Lanes on US-101 (+) ▪ Average vehicle occupancy on US-101 (+) ▪ Transit ridership on parallel corridors (such as El Camino Real, I-280, Potrero Ave, Bayshore Blvd, 3rd Street in SF) (+)
Healthy and sustainable communities: Foster healthy and sustainable communities near US-101	▪ Collisions, including bike and pedestrian, at highway access points (-) ▪ Biking mode share (+) ▪ Walking mode share (+) ▪ Rate of asthma attacks (-) ▪ Traffic density (-)

To inform the ultimate prioritization and implementation details of each action, the MAP team also identified several "readiness" factors for each action. These include:

- **Implementation readiness**
- **Cost factors**
- **Potential implementing entities**

Performance Scoring

Because many of the actions have not yet been tested on the US-101 corridor, the assessment process relies on research, case studies, example pilot programs in other locations, and professional judgement to estimate the impact of each action on the performance metrics. These estimates of likely impact are represented with a numerical score that can be compiled and summed for each goal, ranging from -1 to 3, according to the following score definitions:

Actions' Impact on Performance Metrics

- **DETRACTS (-1)** – Evidence to suggest this strategy may negatively impact the desired outcome for this metric
- **NEUTRAL (0)** – No known impact from this strategy on the outcome of the metric, or there is evidence to suggest this strategy has no impact
- **INDIRECT (1)** – Evidence to suggest this strategy has a measurably positive but secondary or peripheral impact on the outcome for this metric
- **DIRECT (3)** – Evidence to suggest this strategy has a measurably positive and primary impact on the outcome of this metric

Each action gets an extra point when survey responses indicate support for the idea. Each action can receive up to 10 total points in this framework.

To create an aggregate score of each action, performance metric have equal weighting within each goal, and each goal has equal weight to one another. For example, Goal 1 (Reliability) includes four performance metrics, each of which is weighted 25 percent toward the overall Goal score. For each strategy, scores are aggregated by goal and overall.

To score each of the 50+ actions according to their likely impacts on the 13 metrics, the project team developed scoring criteria for each metric. These are summarized below, grouped by goal, with a definition for each of the four possible number scores. The -1 score was not commonly assigned in the scoring process; as such, "N/A" is noted for metrics that did not receive any -1 scores.

Figure 2   Assessment Score Definitions

Goal	Score definition			
Metric	DETRACTS -1	NEUTRAL 0	INDIRECT 1	DIRECT 3
Reliability				
Consistency of average travel time at AM peak (+)	Makes average travel time less consistent (N/A)	Has no known or potential impact on average travel time	Supports high-occupancy transit modes that could shift vehicle trips off the freeway	Directly reduces unpredictability of peak travel

Goal	Score definition			
Metric	DETRACTS -1	NEUTRAL 0	INDIRECT 1	DIRECT 3
Percentage of time Express Lanes operate at >45 mph (+)	Makes Express Lane travel slower (N/A)	Has no known or potential impact on Express Lane operations	Supports high-occupancy transit modes that could shift vehicle trips off the freeway and reduce competition for Express Lane space	Directly expands continuity/improves operations of Express Lane network
On-time performance of transit using US-101 (+)	Makes Express Lane travel slower (N/A)	Has no known or potential impact on transit service operations	Supports transit operations on streets and highways	Directly addresses transit operations on streets and highways
Customer-perceived reliability of US-101 (+)	Creates a perception of additional traffic on US-101 (N/A)	Has no known or potential impact on perception of US-101 operations	Supports predictability of travel times	Visibly reduces elements that make travel time unpredictable Involves a high-profile program that has widespread applicability or eligibility
High-Capacity Options				
Person throughput in general purpose lanes on US-101 (+)	Induces additional single occupancy vehicle (SOV) trips (N/A)	Has no known or potential impact on mode choice or operational efficiencies on US-101	Increases convenience of carpool of 2+ passengers in general purpose lanes	Directly incentivizes carpool of 2+ passengers or directly increases operational efficiency
Person throughput in Express Lanes on US=101 (+)	Induces additional SOV trips (N/A)	Has no known or potential impact on mode choice on US-101	Potential ability to increase convenience of 3+ passenger carpool trips or transit use	Directly incentivizes carpool (3+ passengers) or transit use or directly increases operational efficiency of Express Lanes
Average vehicle occupancy on US-101 (+)	Induces additional SOV trips (N/A)	Has no known or potential impact on mode choice on US-101	Increases convenience of higher capacity modes	Financially incentivizes highest capacity modes

Goal	Score definition			
Metric	DETRACTS -1	NEUTRAL 0	INDIRECT 1	DIRECT 3
Transit ridership on parallel corridors (+)	Disincentivizes transit use or reduces transit efficiency (N/A)	No known or potential ability to address attractiveness or efficiency of transit	Supports but does not directly affect transit use	Directly incentivizes more transit trips
Healthy and sustainable communities				
Collisions, including bicycle and pedestrian, at highway access points (-)	Increases vehicle speeds and traffic exposure (N/A)	No known or potential ability to impact traffic patterns or multimodal access on local street network	Increases awareness for safe driving at highway access points and local streets	Reduces speed and severity of traffic conflicts (impacting all modes) at highway access points and local streets
Biking mode share (+)	Disincentivizes bike trips (N/A)	No known or potential ability to address local street operations for people on bikes	Encourages or incentivizes bicycle use	Protects and enhances bicycle use and access
Walking mode share (+)	Incentivizes shift away from walk trips (NA)	No known or potential ability to address local street network for people walking	Encourages walking	Protects and enhances walking
Rate of asthma attacks (-)	Increases pollution from vehicle emissions by decreasing electric vehicle incentives or increasing SOVs	Has no known or potential impact on pollution levels from vehicle emissions	Encourages shift to high-occupancy modes, especially for regular commute trips that use US-101	Measurably reduces traffic density on local streets or vehicle emissions levels on highway or local streets

Goal	Score definition			
	DETRACTS -1	NEUTRAL 0	INDIRECT 1	DIRECT 3
Metric				
Traffic density (-)	Incentivizes dispersal of SOV trips across local street network	Has no known or potential ability to change traffic patterns on local street network	Encourages shift to high-occupancy modes primarily on US-101	Reduces vehicle volumes on local streets and incentivizes shift to high-occupancy modes in communities adjacent to the highway

Readiness Scoring

The MAP team also assessed each action's readiness for implementation by examining two main factors. The approach is summarized in Figure 3. The outcomes of this assessment are included in the MAP Scorecard.

Note that this readiness assessment does not include a judgment of political readiness. Each action's political readiness should be assessed by the lead implementing agency closer to the time of implementation as contextual variables can change quickly.

Figure 3   Readiness Scoring Protocol

	Low Score = 1	Moderate Score = 2	High Score = 3
Readiness How ready is this action for implementation? What external variables might impact its readiness?	▪ Action requires a regulatory or state-level legal change ▪ Action requires a technology that does not yet exist	▪ The implementing entity would need to be created ▪ Implementation would require new coordination between multiple existing entities ▪ The technology has been implemented elsewhere	"Shovel ready" ▪ No new technology or legislative changes required ▪ Action is ready to start in the next two years but for funding identification
Cost How easy will it be to identify funding for this action? Does the action highly rely on operational or capital funding?	▪ High cost (operating and capital)	▪ More capital or one-time costs than annual operating costs	▪ Only capital/one-time costs ▪ No operating costs

Identification of Potential Implementing Entities

Many of the 101-MAP actions identified in Phase One are inherently multidisciplinary and could require multiple implementing entities to start making impact. The process of identifying specific lead agencies for each action is outside the scope of Phase One of the project. As such, the

scorecard identifies potential leaders to be considered in Phase Two. These potential lead agencies include:

- Transit agencies
- Transportation Management Associations (TMAs)
- Managed Lanes agencies (includes the JPA, MTC, VTA, Alameda CTC, SFCTA)
- Regional agencies (includes MTC, BATA, ABAG, BAAQMD, Caltrans District 4)
- Employers
- Cities
- Advocates / community organizations
- Congestion Management Agencies (CMAs)
- County departments (e.g., County Office of Education)
- State agencies (e.g. Caltrans, state legislature, CARB, Coastal Commission)