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Memorandum

Date: 02.19.15

RE: Citizens Advisory Committee
February 25, 2015

To: Citizens Advisory Committee

From: David Uniman – Deputy Director for Planning DFU.

Subject: **ACTION** – Adopt a Motion of Support for the Adoption of the San Francisco Freeway Corridor Management Study Phase 1 Report

Summary

In 2014, California Department of Transportation awarded a Partnership Planning for Sustainable Transportation grant to the Transportation Authority to conduct the San Francisco Freeway Corridor Management Study (FCMS). The 2013 San Francisco Transportation Plan identified the need for the FCMS to manage expected future growth in travel along, and raise the performance of, the US-101 and I-280 corridors. In addition, several parallel efforts are underway at the regional and state levels that will shape conditions along San Francisco's freeway corridors. The FCMS will allow San Francisco to inform and be informed by these parallel efforts in a timely and effective way, and to involve San Francisco community members and regional stakeholders in these efforts. The FCMS is divided into two Phases. Phase 1, the subject of this memo, sets the foundation for the Study's Purpose and Need; proposes a goals-based evaluation framework; and identifies a range of potential freeway corridor management strategies to consider in Phase 2. These components are developed based on a review of existing relevant studies and the existing institutional setting. Phase 2 of the FCMS will be a performance-based evaluation of potential freeway corridor management strategies. **We are seeking a motion of support for the adoption of the San Francisco FCMS Phase 1 Report.**

BACKGROUND

The 2013 San Francisco Transportation Plan (SFTP) identified the need for a freeway corridor management strategy to manage expected future growth in travel along, and raise the performance of, the US-101 and I-280 corridors. The San Francisco Freeway Corridor Management Study (FCMS) will be a performance-based assessment of strategies to meet those broad goals in the near- and medium-terms.

In 2014, California Department of Transportation (Caltrans) awarded a Partnership Planning for Sustainable Transportation grant to the Transportation Authority in the amount of $300,000 to conduct the FCMS. In September 2014, the Transportation Authority approved Resolution 15-09, appropriating $300,000 in Prop K funds to serve as local match for the Caltrans grant.

The FCMS has two phases. Phase 1 sets the foundation for the technical analysis in Phase 2. It describes the existing and planned management strategies for US-101 and I-280, proposes a goals-based evaluation framework for the subsequent technical analysis, and identifies the range of potential freeway management strategies to be analyzed. Phase 2 will be the performance-based technical analysis of strategies, and will produce a recommended freeway corridor management strategy and implementation plan.

DISCUSSION

The purpose of this item is to present the findings and recommendations of the Freeway Corridor Management Study Phase 1 Report, and to seek a motion of support for adoption of the Phase 1

report which will guide our work in Phase 2.

Study Need, Purpose, and Goals Framework: The 2013 SFTP found that the greatest increases in vehicle travel by 2040 are projected to be to and from the Peninsula and South Bay. Expected vehicle travel in the Bay Bridge corridor was also very significant.

The purpose of the FCMS is to recommend a set of managed lanes and complementary strategies for the existing US-101 and I-280 corridors in San Francisco that will help the City achieve its economic competitiveness, environmental and social and equity goals, through a performance-based analysis and stakeholder consultation. The study should identify strategies that will meet the need to:

- Improve the ability of these corridors to move people and goods safely and reliably;
- Manage demand for travel on these freeway corridors sustainably; and
- Support balanced local street and freeway operations.

Section 3 of the FCMS Phase 1 Report describes the Study Need and Purpose. The six goals of the FCMS, shown in Attachment 1, are consistent with broader countywide goals identified in the 2013 SFTP. These goals will be advanced by the FCMS through supporting objectives, as described in Section 4 of the FCMS Phase 1 Report.

Range of Potential Strategies: Section 5 of the FCMS Phase 1 Report identifies the range of potential freeway corridor management strategies, starting from a broad framework that identifies four categories of relevant strategies. The focus of the study will be on two types of strategies that are relatively undeveloped within San Francisco: those that seek to improve the efficiency of existing infrastructure using Automated Traffic Management Systems (ATMS) and Managed Lanes. ATMS Strategies seek to move more people, more reliably, using technology and information. Examples of ATMS include adaptive signal timing, real-time system management using a Transportation Management Center (TMC), and changeable message signs. Managed Lanes strategies guide or prioritize ramp or lane space, such as for transit and other High Occupancy Vehicles (HOVs), using ramp metering, changeable overhead signs that guide merging movements (dynamic lane use control), or HOV lanes. The FCMS will focus on an evaluation of how these two categories of strategies can help meet the goals set out for freeway corridor management.

Existing Institutional Setting and Stakeholder Involvement: The FCMS Phase 1 Report identifies the institutional and implementation considerations of ATMS and Managed Lanes strategies in Appendix A-4. Each potential strategy is mapped to its development and approval process, coordination mechanisms, funding sources, and current policy setting.

Section 7 of the FCMS Phase 1 Report outlines a stakeholder (both agency and public) coordination and involvement approach. Preparation of Phase 1 included meeting with agency stakeholders – Caltrans, Metropolitan Transportation Commission (MTC), San Mateo and Santa Clara Counties, and San Francisco Municipal Transportation Agency – to share draft findings. Phase 2 will involve input from these agency stakeholders as a Technical Advisory Committee. In addition, Phase 2 will develop and implement a public outreach and input strategy.

Related Planning Efforts: Several efforts are currently underway at the regional and state levels that will shape conditions along San Francisco's freeway corridors. Among these are plans for a US-101 High HOV lane and El Camino Real "Smart Corridor" in San Mateo County, and conversion of US-101 HOV lanes to Express Lanes in Santa Clara County. In March, MTC is initiating the Bay Area Managed Lanes Implementation Plan (MLIP). In the same timeframe, the Caltrans will begin the Statewide

Managed Lanes Master Plan. The FCMS Phase 1 Report summarizes these efforts in Appendix A-3. The FCMS will allow San Francisco to inform and be informed by these parallel efforts in a timely and effective way, and to involve San Francisco community members and regional stakeholders in these efforts.

In addition, FCMS will build off current and past San Francisco resolutions and planning studies. Section 3 of the FCMS Phase 1 Report summarizes these efforts as well as the freeway corridor planning needs and strategies identified in them which support the need for the current FCMS effort.

Recommendations and Next Steps: Based on the above findings, we recommend:

- Completing a scope of work, both technical and outreach, for FCMS Phase 2, consistent with the Goals framework and range of potential strategies proposed in Phase 1. We are seeking input from our agency partners, including Caltrans, MTC, San Mateo and Santa Clara Counties, and SFMTA on the scope of work.
- Initiate technical and outreach work as FCMS Phase 2, under a schedule designed to keep pace with parallel regional and state planning efforts. The technical and outreach work of Phase 2 should conclude with a recommended freeway corridor management strategy and implementation plan, developed based on performance-based technical analysis as well as public and agency stakeholder input.
- Continuing to participate in agency coordination mechanisms around freeway corridor management strategies, including the regional Express Lanes Executive Steering Committee, regional Managed Lanes Leadership Team, and regional Arterial Operations Committee.

These recommendations constitute FCMS next steps.

ALTERNATIVES

1. Adopt a motion of support for adoption of the San Francisco Freeway Corridor Management Strategy Phase 1 Report, as requested.
2. Adopt a motion of support for adoption of the San Francisco Freeway Corridor Management Strategy Phase 1 Report, with modifications.
3. Defer action, pending additional information or further staff analysis.

FINANCIAL IMPACTS

The recommended action has no financial impact. Phase 2 of the FCMS has a budget of $500,000, which will be funded by the $300,000 Caltrans Partnership Planning Grant and the $200,000 in Prop K, appropriated in September 2014. FCMS Phase 2 is reflected in the Fiscal Year 14/15 mid-year budget revision for this year's portion of the work.

RECOMMENDATION

Adopt a motion of support for adoption of the San Francisco Freeway Corridor Management Strategy Phase 1 Report.

Attachments (3):

1. FCMS Goals and Objectives
2. Appendix A-3
3. Appendix A-4

Enclosures (2):

A. FCMS Phase 1 Report
B. FCMS Phase 1 Presentation

Attachment 1

San Francisco Freeway Corridor Management Study (FCMS) Goals and Objectives

The six goals of the FCMS are consistent with broader countywide goals identified in the 2013 SFTP. These goals are supported by an underlying set of objectives, which are outlined below:

	Goal		Objectives
1	Improve San Francisco freeway corridors' ability to move people (person throughput) to support economic competitiveness and accommodate existing and new residents and workers.	1.1	Improve freeway corridor productivity, utilization and efficiency.
		1.2	Increase vehicle occupancy levels.
		1.3	Reduce recurring delays on freeway corridors.
2	Improve **Trip Reliability** for all freeway corridor users & modes	2.1	Improve travel time predictability on freeway corridors.
		2.2	Reduce non-recurrent delay due to incidents on freeway corridors.
3	Improve **Travel Mode Choices** for trips on freeway corridors that start or end in San Francisco.	3.1	Increase transit competitiveness with the automobile in freeway corridors.
		3.2	Provide better traveler information.
4	Support **Coordinated and Integrated** strategies and plans **across Jurisdictional Boundaries**, including Caltrans, MTC, and adjacent Counties.	4.1	Integrate and coordinate FCMS recommendations with other San Francisco citywide transportation operations and demand management strategies.
		4.2	Coordinate San Francisco FCMS recommendations with the plans and projects of neighboring Counties, the Region and Caltrans.
5	Reduce per person freeway corridor traveler emissions	5.1	Reduce vehicle tripmaking through increased occupancy, mode shift, and other means.
		5.2	Reduce average per person GHG emissions in the corridor
6	Ensure safe, equitable, and balanced local arterial and freeway operations, while minimizing traffic impacts on neighborhoods.	6.1	Mitigate the impacts of through-trips on local San Francisco streets
		6.2	Ensure equitable access and avoid disparities in distribution of benefits/impacts

Attachment 2
Appendix A-3: Current Studies & Planning Activities

In addition to the references that are readily available, the following studies and planning activities are currently underway along the US-101 and I-280 corridors. These planning activities provide the setting and context for the SF FCMS. Current studies/projects are listed below:

- ☐ San Mateo County Project Study Report (PSR) for Auxiliary Lanes from Oyster Point to SF County line
    - C/CAG is studying a project to provide Auxiliary Lanes from Oyster Point to the San Francisco County Line. The purpose of this Project Study Report (PSR) is to develop the scope and budget of the Auxiliary Lane. The PSR is underway and expected to be completed late spring 2015.
- ☐ San Mateo County PSR for HOV lane / Auxiliary lane from Whipple to I-380
    - C/CAG is currently conducting a Project Study Report (PSR) for adding HOV lanes along US-101 between Whipple Avenue and I-380. The centermost lane (Lane 1) will be converted to HOV in parallel to the construction / extension of the Auxiliary Lane. The PSR is underway and expected to be completed Early summer 2015
- ☐ San Mateo County PSR for Harney Way interchange
    - The City of Brisbane leads this project to re-configure the existing interchange at Candlestick/Harney Way to a tight diamond design. A new US-101over- or under-crossing would connect the interchange's northbound freeway on- and off-ramps with Harney Way and the southbound freeway on- and off-ramps with the proposed extension of Geneva Avenue. The re-configuration is intended to support a major redevelopment project proposed for Brisbane, the Baylands Redevelopment project.
- ☐ San Mateo County / MTC Feasibility Study for US-101 HOV to HOT conversion. Two studies analyze the feasibility of HOV to HOT lane conversion on US-101 in San Mateo County.
    - C/CAG and MTC, currently under development, analyzes the demand, physical feasibility, and operations approach for converting the proposed US-101 HOV lane in San Mateo to an HOT / Express Lane. The Study is expected to be complete in early 2015.

- Transform analyzed the potential benefits of converting an existing general purpose lane into a HOT lane on US-101 in San Mateo.

☐ San Mateo County Hwy 82 / El Camino Real SMART Corridor, from Santa Clara County line to I-380

- The San Mateo County Smart Corridors project sponsored by C/CAG is an Intelligent Transportation System (ITS) / Advanced Transportation Management System (ATMS) under development along El Camino Real, an arterial parallel to US-101 in San Mateo County. The project will enables CalTrans and San Mateo cities to implement ATMS :
  - Arterial changeable message signs
  - Center-to-center communication between San Mateo County and the CalTrans District 4 Traffic Management Center
  - Directional Signs
  - Television Cameras and vehicle detection systems

☐ Santa Clara County I-280 Corridor Study

- In 2013, CalTrans completed a Transportation Concept Report (TCR) for the I-280 corridor from Santa Clara County to San Francisco County. The TCR considered HOV and HOT lanes, completion of a Ramp Metering network, and implementation of a Traffic Operations System (TOS) as potential strategies for this facility. The Santa Clara Valley Transportation Authority is currently developing a scope and budget for a study that may consider the TCR recommendations as well as additional strategies if appropriate.

☐ MTC Managed Lanes Implementation Plan

- The Bay Area Infrastructure Financing Authority (BAIFA) has initiated a Managed Lanes Implementation Plan (MLIP). The purpose of the MLIP is to develop a plan for implementation of regional managed lanes on the State Highway System in the nine-county Bay Area. The focus of this study are HOV lanes, High Occupancy Toll Lanes (HOT) or Express Toll Lanes (ETL). The work is expected to be completed by March 2016.

☐ San Francisco Bay Area Core Capacity Transit Study

- While the Bay Area has a strong history of investing to develop and maintain a vibrant transit system, this system is reaching capacity along many of the key corridors serving the Core San Francisco neighborhoods. The purpose of this MTC-led study is to evaluate measures to improve the transit system serving this Core, and provide enhanced connections to the workforce within the region. New investments will be balanced against the region's continued need to invest in the transit and roadway networks' state of good repair. The study is currently underway. Project Partners include BART, SFMTA, AC Transit and the SFCTA.

☐ Statewide Managed Lane Master Plan

- CalTrans' statewide Managed Lanes Master Plan is scheduled to be completed by spring 2016. This Plan is addressing the degradation of the State Highway System, a Statewide Policy on Managed Lanes, a Statewide Tolling Policy, developing a Managed Lane System Plan, and developing new Managed Lanes Guidelines.

Attachment 3: Appendix A-5: Existing Institutional Setting for Freeway Corridor Management

Potential Strategies	Physical / Technical Does this strategy exist on the corridor?	Institutional - Approvals - what agenc(ies) have approval authority? What is the approval process?	Institutional - Agency Lead - What agencies are lead in project development? I ownership and operation?
Adaptive Traffic Signal Timing / Control and Transportation Management Centers (TMCs)	- SFgo technology allows for adaptive signal control. - Various local jurisdictions along the US 101 and I-280 corridors have this capability; the El Camino Real Smart Corridor and San Jose's Silicon Valley Smart Corridors are planned with the capability for adaptive signal control. - SFMTA is nearing completion of an integrated Traffic Management Center for San Francisco. The TMC consolidates five control centers: transit operations (bus and rail); transit power control; transit line management; parking control dispatch and security; amd SFGo traffic management (street traffic signals). - Many jurisdictions along the US 101 and I 280 corridors have TMCs, including Caltrans, VTA, San Mateo C/CAG, Santa Clara County, and numerous cities.	For facilities on State Highways: Caltrans has authority for signal equipment, through the simplified Encroachment Permit or PEER process. Depending on funding source, the federal systems engineering Vee process may be required. Else: Local jurisdictions.	Project development, ownership, and operation: Cities (including Belmont, Brisbane, Cupertino, Hillsborough, Menlo Park, Millbrae, Redwood City, San Bruno, San Francisco, San Mateo, South San Francisco, Woodside) or counties (Santa Clara County). Some mul city corridor projects are led through project development by sub-regional agencies (San Mateo City/County Association of Governments; Alameda CTC).
Incident Management	CHP and MTC operate a Freeway Service Patrol which identifies incidents and coordinates incident clearance with CHP. Managed lanes facilities in the Bay Area typically include supplemental incident management plans and services. The San Mateo C/CAG has led the development, ongoing, of an Integrated Transportation Incident Management Plan for San Mateo County. Many TMCs, both local and regional, integrate with local or regional emergency response communcation and command centers. For example, the City of San Jose operates a Transportation and Incident Management Center (TIMC) that coordinates incident activities with traffic, fire, and police.	MTC, Caltrans and CHP each have roles and responsibilities for incident management Bay Area-wide, executed via MOU. Express lane operating agencies have also executed supplemental incident management agreements with Caltrans and CHP.	A broad range of agencies, from state and regional (CHP, Caltrans, MTC) to sub-regional (CCAGs, Express Lane operating agencies, counties) to local cities have lead and operating roles in incident management.
Changeable Message Signs with Queue Warnings	Queue warning signs will be implemented as part of the I-80 Smart Corridor (Integrated Corridor Mobility, or ICM) Project in Alameda and Contra Costa Counties. Existing changeable message signs can also be used to warn of downstream queues; the San Francisco stretch of US-101 has one changeable message sign in place which currently reports real-time travel information.	Caltrans, using a basic basic encroachment permit and/or PEER approval process. Depending on the extent of system integration needed, the federal system engineering "Vee" process may be required.	When standalone, Caltrans leads this type of strategy. Other agencies may serve as lead when part of a larger corridor project, such as the I-80 Smart Corridor project. Caltrans also owns and operates the equipment.
Ramp Metering	Portions of US 101 and I 280 through San Mateo and Santa Clara Counties have metered ramps; Caltrans plans to extend meters to the rest of the ramps in these counties. Two locations in San Francisco are planned for ramp metering: Treasure Island and Harney Way.	Caltrans has approval authority via Ramp Metering Agreements, typically executed with the local jursidiction that is adjacent to the ramp. If ramp metering is part of a larger project, the Ageement will be executed with the lead agency on the larger project. The Ramp Metering Agreement defines the metering rates.	Ramp meters are owned and operated by Caltrans.

Appendix A-5

Potential Strategies	Institutional - Coordination What instutional mechanisms exist to coordinate around this strategy?	Financial How is the capital and O&M of this strategy funded?	Policy Are policy changes currently being considered that would affect the application of this strategy in SF?
Adaptive Traffic Signal Timing / Control and Transportation Management Centers (TMCs)	MTC's Arterial Operations Committee (AOC) meets once every two months: http://www.mtc.ca.gov/services/arterial_operations/aoc.htm. The AOC has a role in reviewing Next Gen funding applications (see next column). MTC has developed a Regional ITS Architecture (http://files.mtc.ca.gov/MTC-ITS/), which provides an inventory of ITS deployments in the Bay Area; a framework for integrating ITS systems within the Bay Area; and conceptual diagrams of individual projects' systems and integration paths.	Typically, signal projects are funded with local STP, CMAQ, TFCA, or sales tax funds. Through 2013, MTC's Program for Arterial System Synchronization (PASS) for regional arterial projects provided ~1M/year for development and implementation of signal timing plans. Starting in 2015, MTC will administer the Next Generation Arterial Operations Program. "Next Gen" will provide up to $3M annually in federal funds for adaptive traffic control systems and active traffic management strategies (transit signal priority, real time traffic monitoring, queue jump lanes, etc) that improve arterial operations.	2015 will be the first year for administration of the Next Gen funding program.
Incident Management	MTC chairs a Bay Area Incident Management Task Force (IMTF). The Task Force is a staff committee of the Freeway Management Executive Committee (FMEC), a policy committee of executive staff of Caltrans, CHP and MTC. Www.timbayarea.org	Sources include Caltrans' operating funds (for Caltrans services); regional vehicle registration fees; CMAQ; and FPI. Specialized Incident Management programs led by local agencies are funded by local funds and Express lane revenues.	A point of negotiation is the reimbursment to CHP and Caltrans for incident management on Express Lanes facilities.
Changeable Message Signs with Queue Warnings	Unknown	Where standalone, Caltrans has funded these systems through their operations budget. Where part of a larger corridor strategy, Caltrans will likely seek reimbursment for the capital and operating costs of changeable message signs, including queue warnings.	N/A
Ramp Metering	Unknown	When Caltrans is the lead agency, the capital and operating costs of ramp meters are borne by Caltrans. When a different agency is lead, that agency bears the capital costs, typically through the funding program for the larger project that the meters are a part of. MTC's Freeway Performance Initiative program can fund the capital cost of ramp meters. In these situations, Caltrans will seek reimbursment for the operating costs.	N/A

Potential Strategies	Physical / Technical Does this strategy exist on the corridor?	Institutional - Approvals - what agenc(ies) have approval authority? What is the approval process?	Institutional - Agency Lead - What agencies are lead in project development? I ownership and operation?
Adaptive Ramp Metering (ARM)	Adaptive ramp metering is a new strategy for the Bay Area; the first applications of this strategy will be as part of the I-80 Smart Corridor Project (Integrated Corridor Mobility, or ICM) in the east bay, and in San Mateo County on US 101 and SR 82 as part of the El Camino Real SMART Corridor Project.	Caltrans has approval authority via Ramp Metering Agreements, typically executed with the local jursidiction that is adjacent to the ramp. If ramp metering is part of a larger project, the Ageement will be executed with the lead agency on the larger project. The Ramp Metering Agreement defines the metering rates. Approval process includes the federal systems engineering Vee process and a Caltrans PID.	The I-80 SMART Corridor project was led by Alameda CTC, and is a cooperative effort between The California Department of Transportation (Caltrans); the ten municipalities along the corrido AC Transit; WestCAT; Alameda County Transportation Commissior (Alameda CTC); Contra Costa County Transportation Authority (CCTA); West Contra Costa Transportation Advisory Committee (WCCTAC); and the Metropolitan Transportation Commission. Caltrans typically retains ownership of the equipment. Per Frank: "For the I-80 ICM project, while the lead agency was the AC CTC, Caltrans was steadfast in the requirement that the operational authority remain with Caltrans."
Dynamic Lane Use Control, including Merge/Shoulder	US-101 and I-280 do not employ this strategy today. The I-80 Smart Corridor project will have the ability to use dynamic lane control through the use of gantry mounted lane control signs.	Caltrans; approval process includes the federal systems engineering Vee process and a Caltrans PID.	The I-80 SMART Corridor project is an example of agency roles and responsibilities in project development for this type of strategy.
Dynamic Speed Limits / Advisories	US-101 and I-280 do not employ this strategy today. The I-80 Smart Corridor project will be the first application of this strategy in the Bay Area; the limits will be advisory only.	Caltrans has approval authority; an agreement with CHP is required to identify the enforcement approach	The I-80 SMART Corridor project is an example of agency roles and responsibilities in project development for this type of strategy; CI will provide enforcement.
High Occupancy Vehicle (HOV) Conversion	- The Bryant/Essex street on-ramp to eastbound I-80 in downtown San Francisco has an HOV2+ bypass lane. - The San Mateo C/CAG is developing at least one HOV configuration for US101 between the Santa Clara County line and Interstate 380. The project is currently preparing a PID document. - VTA operates 36 miles of HOV lanes on US 101 from San Mateo County line to Morgan Hill in Santa Clara County.	FHWA approval is required to designate right of way on interstate route as an HOV. For routes on the State Highway System, California Vehicle Code Section 21655.5 gives Caltrans the authority to designate a lane as HOV; this code also requires Caltrans to obtain the MPO (MTC's) and/or county transportation commission's approval. Caltrans requires a PID document (PSR and PR) for a project of this magnitude.	- When local funds are the main funding source, the local agency v often lead project development. In the Bay Area, Alameda, Contra Costa, Santa Clara, San Mateo and Solano agencies have all led HC projects. In Alameda County, the City of Fremont was designated the lead agency for a portion of the I-880 HOV lane project. Caltra will allow a local agency to be the lead in project development provided they can meet the oversight requirements that are speci in the Caltrans design manual and the Caltrans Cooperative Agreement that is required for design of the facility. - Caltrans owns and operates all HOV facilities in the Bay Area (HO Express Lanes are different; see next row), regardless of which agency led/leads project development; this is because Caltrans is t only agency with legislative authority to do so. No legislation has been passed in California that authorizes an agency other than Caltrans to "implement and operate" an HOV lane. Express lanes different; see next row.
Congestion Pricing/HOT Conversion	- A congestion pricing toll is authorized for Treasure Island; the project is in the systems engineering phase. - No HOT/Express Lanes exist today on 101 or 280. Elsewhere in the Bay Area, HOT/Express Lanes are in place along I-880/SR-237, operated by VTA; and on I-680, operated by Sunol JPA. Additional HOT / Express Lanes are under construction on I-580, to be operated by the Alameda CTC (opening in 2015) and on I-680 in Contra Costa County, to be operated by BAIFA. - VTA is planning to convert 36 miles of US 101 into Express Lanes. The project is currently in the Design phase, and is expected to be open in Late 2018. - MTC and CCAG are currently studying the feasibility of Express Lanes on US101 in San Mateo, between the Santa Clara County line and Interstate 380.	- A federal tolling agreement is required for tolling on interstate highways. FHWA also requires that Express Lanes projects follow the Federal Systems Engineering "Vee" process. - State legislative authority is required for implementing a toll facility in California. State law prohibits converting mixed use lanes directly into Express Lanes; only HOV lanes may be converted into HOT or Express Lanes. - Caltrans must approve a PID document for Express Lanes. In San Francisco, this would also likely require Caltrans approval of design exceptions. - VTA tolling authority (and Alameda's) was originally specified in AB 2032 (Dutra 2004) which added sections 149.5 (Sunol JPA) and 149.6 (VTA) to the Streets and Highway Code allowing demonstration HOT lane projects. AB 574 (Torrico 2007) made these projects permanent. - AB 1467 in 2006 allowed regional transportation agencies to request approval from the CTC to operate HOT lanes. - MTC obtained the authority from CTC in 2011 to develop and operate 270 miles of express lanes in Bay Area in 2011 (AB 1467, 2006). In April 2013 MTC delegated this authority to "develop and operate" to BAIFA through a cooperative agreement. BAIFA was formed in 2006 by MTC and BATA to finance the state contribution to the bridge seismic program and "to plan, develop and fund transportation related projects." The BAIFA Board has representatives from MTC, BATA, and Alameda, Contra Costa, and Solano Counties. - In 2010, AB 798 established the California Transportation Finance Authority (CTFA), which was granted the power to authorize Caltrans or other regional transportation agencies to use tolls as a means of financing a transportation facility.	- SFCTA, as the Treasure Island Mobility Management Agency, has authority to own and operate the TI congestion pricing program through AB980 (2008) and AB141 (2014). -The I-680 Express Lanes are operated by Sunol JPA. Caltrans own the right of way; the Sunol JPA owns the tolling equipment. This arrangement also applies to the Express Lanes operated by VTA. Similarly, the I-580 Express Lanes will be owned by Caltrans and operated byAlameda CTC. The Sunol JPA and Santa Clara both operate in a similar manner: these agencies have operational cont and day to day responsibilities for the staffing, setting of tolls and maintenance of toll related equipment. Each has an agreement w Caltrans specifying roles and responsibilities; in these cases, Caltra maintains the pavement.

Potential Strategies	Institutional - Coordination What instutional mechanisms exist to coordinate around this strategy?	Financial How is the capital and O&M of this strategy funded?	Policy Are policy changes currently being considered that would affect the application of this strategy in SF?
Adaptive Ramp Metering (ARM)	Unknown	The I-80 Smart Corridor Project is funded by state CMIA funds, the Traffic Light Synchronization Program, Alameda County Measure B funds, and Contra Costa County Measure J funds. This is an "actively" managed project, requiring staff to monitor and provide oversight. For projects of this type (with an ongoing operations obligation) that are sponsored by a local agency, Caltrans will require a funding plan to cover Caltrans oversight and operations costs. An annual operating agreement will be required specifiying the roles and responsiblities and budget.	N/A
Dynamic Lane Use Control, including Merge/Shoulder	Unknown	The I-80 Smart Corridor Project is an example of how this type of strategy can be funded when part of a larger package of improvements.	N/A
Dynamic Speed Limits / Advisories	Unknown	The I-80 Smart Corridor Project is an example of how this type of strategy can be funded when part of a larger package of improvements.	N/A
High Occupancy Vehicle (HOV) Conversion	A Committee comprised of Caltrans, MTC and CHP oversees HOV lanes management in the Bay Area; another name for this Cmte is the Freeway Mgmt Executive Cmte. Historically, the Committee reviews and approves requests to modify Bay Area HOV lane policies (e.g., hours of operation, eligibility) to meet the legislative requirement of CVC 21655.6. A staff level version of this Cmte will oversee the technical aspects of the MLIP.	Traditional state fund sources such as STIP funds – both county share and inter-regional share – have been used to fund HOVs throughout the state. Federal CMAQ and STP funds have also been used. One-time state programs such as Corridor Mobility Improvement Account (CMIA) and Traffic Congestion Relief Program (TCRP) have also provided HOV funding. As the availability of state and federal funds has decreased, development of HOV facilities as been increasingly dependent on local funding for development and construction. These funds are primarily county sales tax measures but also may include developer impact fees and other local funds.	Caltrans is updating Deputy Directive 43 (Managed Lanes) that outlines roles, responsibilities and implementation requirements, and states the policy purpose for managed lanes on the SHS.
Congestion Pricing/HOT Conversion	- The California Toll Operators Committee (CTOC) is responsible for coordinating and setting interoperability guidelines for California Toll Facilities. The SFCTA joined CTOC in 2014. - The Express Lanes Executive Steering Committee has a similar function for the Bay Area Express Lane network. The Committee has several Technical Working Groups. The SFCTA joined the ESC in 2014. - The "HOV Committee" (see above) will provide staff and executive oversight of the MLIP.	- Capital Costs – Project development and capital costs for have been funded with VPPP, local sales tax and other state and federal discretionary funds. O&M Costs – Funded by toll revenues, typically with supplemental funding for operations during the initial years. The cost of services provided by other agencies - e.g., BATA for transaction processing; CHP for incident management; Caltrans for pavement maintenance - is negotiated. E.g., on the I-680 and I-880 Express Lanes, a portion of the Caltrans maintenance is reimbursed by the operating agencies per agreement. - Current proposed legislation, AB 194, would require that (1) HOT revenues pay for maintenance, administration, and operation of HOT lanes, and (2) that any remaining HOT revenues be spent within the corridor they are generated.	- SB 983, failed 2014 legislation, would have removed the limit on the number of allowable HOT facilities in CA; limited the implementation and operation of new HOT lanes to the RTA (MTC) and VTA; and prohibited the conversion of mixed use lanes into HOT lanes, among other provisions. Current proposed legislation, AB 194, is identical to SB 983. - The California State Transportation Agency (CalSTA) issued a White Paper in January 2015, titled "Tolling and Pricing for Congestion Management and Transportation Infrastructure Financing," with recommendations on: use of tolling to manage congestion and fund transportation infrastructure. It also proposes new legislation that would provide for the CTFA to authorize tolling for mobility management, not just financing.