



METROPOLITAN  
TRANSPORTATION  
COMMISSION

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*Memorandum*

TO: Policy Advisory Council

DATE: March 27, 2012

FR: Lisa Klein

W.I. 1114

RE: Regional Express Lane Network

MTC staff requested this meeting of the Policy Advisory Council as a means to continue discussion we initiated when submitting an application for the Regional Express Lane Network to the California Transportation Commission last fall. Through discussion at this meeting, staff hopes to

1. Respond to concerns about the Network previously raised by the Council.
2. Confirm any remaining questions or concerns the Council may have about the Regional Express Lane Network.
3. Determine a plan for reporting back to the Council.

**Background**

The region’s current *Transportation 2035 Plan* includes a Regional Express Lane Network. There are several reasons for pursuing the Network:

- **Connectivity for buses and carpools:** The region has an extensive and well used carpool-lane system, which has long been a central component of the region’s strategy for improving air quality, promoting carpooling and improving express bus services to reduce VMT. However, the system is fragmented by gaps. These gaps lengthen travel times and hinder reliability for carpools and express buses. The Express Lane Network will close gaps that cannot otherwise be closed for many decades due to lack of funds.
- **Efficiency:** Express lanes are an extension of system management tools the region is employing to optimize use of existing infrastructure and more actively manage our roadways and transit systems. The majority of the Express Lane Network would be developed by converting existing HOV lanes to express lanes to make use of any capacity not required for buses and carpools and actively manage those lanes.
- **Reliability:** Bay Area highway congestion consistently ranks among the worst in the nation. In many corridors, commute-hour travel is slow and unreliable. Express lanes offer “congestion insurance.”

In September 2011, MTC submitted an application to the California Transportation Commission (CTC) to develop and implement the Regional Express Lane Network. In October 2011, the CTC found MTC’s application eligible for implementation. With this action, MTC and partner agencies have the ability to implement a system of connected express lanes on 550 directional miles of freeway in the Bay Area: the CTC action gave MTC the ability to implement express lanes on 270 miles of freeway; in addition, the Valley Transportation Authority and Alameda County Transportation Commission are authorized under statute to implement express lanes on 280 directional miles of freeway in Alameda and Santa Clara counties. ([See map in attached slides.](#))

In conjunction with MTC’s submittal to the CTC, the Policy Advisory Council expressed to the MTC Planning Committee a number of concerns about the Network in conjunction with that application (see

Attachment 1). The attached slides explain how these concerns will be addressed in specific terms for this project in upcoming work. In the meantime, staff has included some findings from existing research as a point of reference.

### **Current Efforts**

The CTC application demonstrated the Network was feasible. MTC will need to undertake a number of steps to develop and implement the Network. These include:

1. Development of initial “Phase 1” projects, which starts with detailed engineering and preparation of an environmental document. Based on analysis for the CTC application, staff has selected an initial set of HOV “conversion” projects (see map in Attachment 1) to advance as the first phase of the Network. MTC aims to open these “Phase 1” projects, approximately 76 lane miles in total, in 2015. Engineering and environmental work will allow us to better define projects costs and operational considerations. The environmental process will include a Title VI analysis and an environmental justice analysis consistent with state and federal requirements. Because the project is on the interstate system, Caltrans will be the lead agency for the environmental documents required under state and federal law. Over the next one to two months, staff will work with Caltrans to define the scope and schedule for the engineering effort and environmental document, including the environmental justice analysis.
2. Adoption of specific tolling and operational policies. The CTC application demonstrated financial feasibility based on a range of tolling policies but did not commit the region to specific policies regarding eligibility for free use of the express lanes, toll rates or hours of operation. These policies will be the subject of future study and board action.
3. Development of a strategy to finance the Network, which likely will include seeking authorization from the California Transportation Financing Authority to issue bonds for the Network.
4. Development of and procurement of the tolling system for the Network. This involves developing software and deploying hardware to determine the toll rate, based on traffic levels in accordance with adopted policy, read the FasTrak® toll tags, and interface with the FasTrak® accounting system. BATA is presently undertaking similar work to upgrade the toll system for the bridges.

The attached material provides additional background for our discussion:

1. Attachment 1: “Express Lane Network Authority” Memorandum to the MTC Planning Committee from the MTC Policy Advisory Council, dated September 8, 2011
2. Presentation slides



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**Agenda Item 2**

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***Memorandum***

TO: MTC Planning Committee

DATE: September 8, 2011

FR: MTC Policy Advisory Council

W.I. 1114

RE: Express Lane Network Authority

In order to give input on the Express Lane Network item scheduled to go before the Planning Committee on Friday, September 9, the Policy Advisory Council moved its normally scheduled meeting up by a week and met this past Tuesday, September 6. The Council was concerned enough about this issue to meet eight days ahead of time with only three working days' advance notice in order to submit comments on this agenda item to the Planning Committee.

After hearing the staff presentation, the Council rejected a motion to support the recommendation to submit an application to the CTC. After that vote, the Council discussed the item further, with members expressing a number of concerns, including serious questions about the revenue potential from the system. Further, the Council expressed concern about being asked to approve the idea of additional express lanes as a project before adopting any kind of policies associated with the use of potential revenues. The Council did not feel the presentation included adequate justification of the need for additional express lanes, and when asked for a policy justification, staff noted that express lanes help solve future crowding in HOV lanes. That argument did not seem logical, since express lanes actually increase the potential number of cars using HOV lanes. Given the high cost of implementing the system, lack of funds for transit, and lack of a clear policy justification for expanding the express lane network, the Council moved forward with an alternate motion, as follows.

The Policy Advisory Council does not support MTC going forward with the application at this time for the following reasons:

- Previous discussions between former advisors and MTC staff focused on raising transit revenues through the Express Lane Network as a means of mitigating the inequity; now staff is saying the expectation of excess revenue from express lanes is not likely, and if there is excess revenue then use of those funds is negotiable and will be determined in the future.
- Since the only low-income means of accessing the lanes would be through carpools, there needs to be assurance that future HOV requirements are not increased so high so that the only way to use the lane is to pay for it.
- Commuters of lesser means will be priced out of using the very lanes they paid taxes to build; this is not equitable.

- There appears to be an inability to include express lanes throughout the Peninsula and San Mateo County, even though there appears to be a need. The inclusion of an express lane network in less affluent counties but not in higher income areas appears inequitable.
- There are no Project Performance Assessment results for an Express Lane Network yet. Given that the Council has spent many months discussing Plan Bay Area, it seems prudent to determine what the impact of additional express lanes would be on vehicle miles traveled and greenhouse gases associated with driving, as well as other targets.
- The network could induce a greater demand for overall driving and the use of roads, particularly in light of the statement that one of the goals of the express lane network is to create more capacity in non-priced lanes.

The above concerns were put forth as a motion, which was passed 13 to 2. A quorum of the Council was present at the meeting, and these comments represent a majority of the concerns of the Council.



# Regional Express Lane Network

Discussion with  
MTC Policy Advisory Council

April 3, 2012



# **Approach for Policy Advisory Council Feedback**

1. Respond to previously raised concerns.
2. Confirm any remaining questions or concerns the Council may have about the Regional Express Lane Network.
3. Determine a plan for reporting back to the Council.

**WHY BUILD A  
REGIONAL EXPRESS LANE NETWORK?**

# Build on Success of HOV System

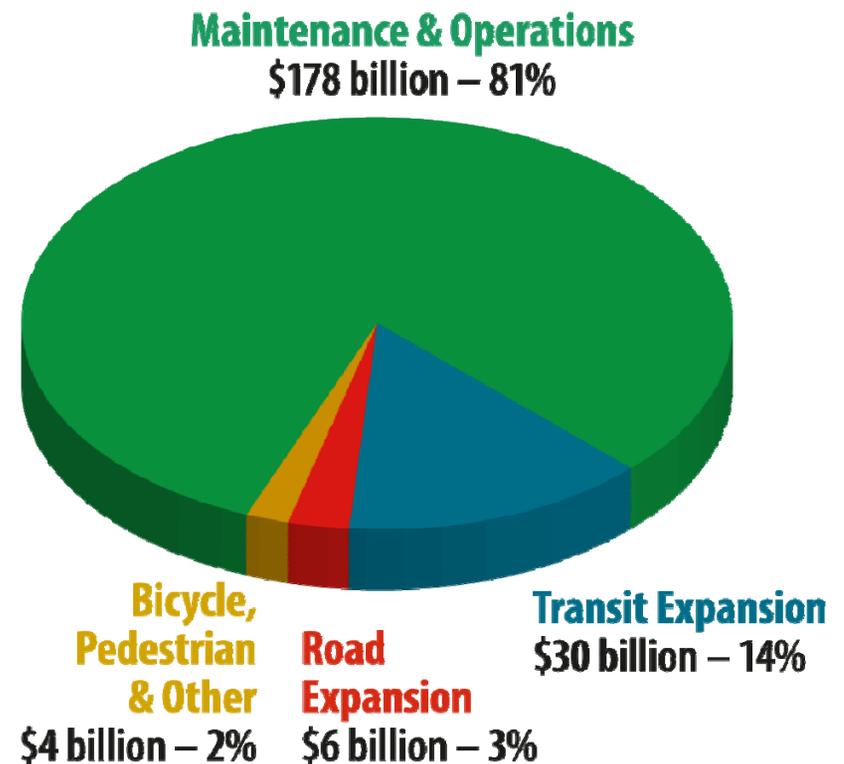
- 450 miles built in the past 20+ years
- Key strategy to improve system efficiency and air quality by providing high-quality carpooling and express bus options
- Gaps cause delays, reducing reliability for carpools and buses
- Funding is limited, making it hard to close gaps



# Region's Investment Philosophy Emphasizes Efficiency

- Fix it first
- Efficient use of existing transit and roadway assets
- Relatively limited expansion, mostly for transit to support focused growth

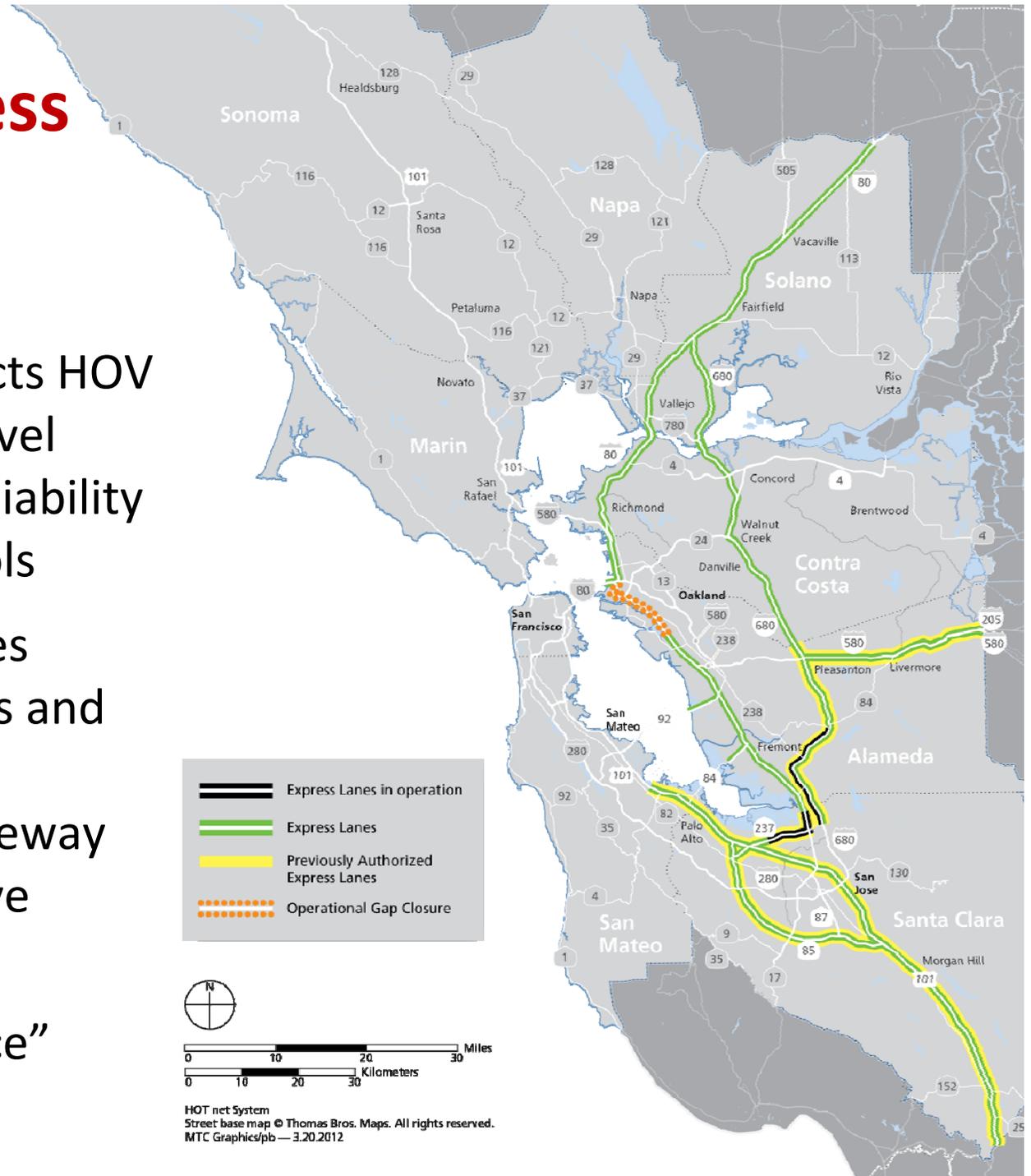
Transportation 2035 Investments



# **WHAT IS THE REGIONAL EXPRESS LANE NETWORK?**

# Regional Express Lane Network

- **Connectivity:** connects HOV system to reduce travel time and improve reliability for buses and carpools
- **Efficiency:** better uses capacity in HOV lanes and entire freeway, in conjunction with Freeway Performance Initiative
- **Reliability:** offers “congestion insurance”



# Regional Express Lane Network Mileage

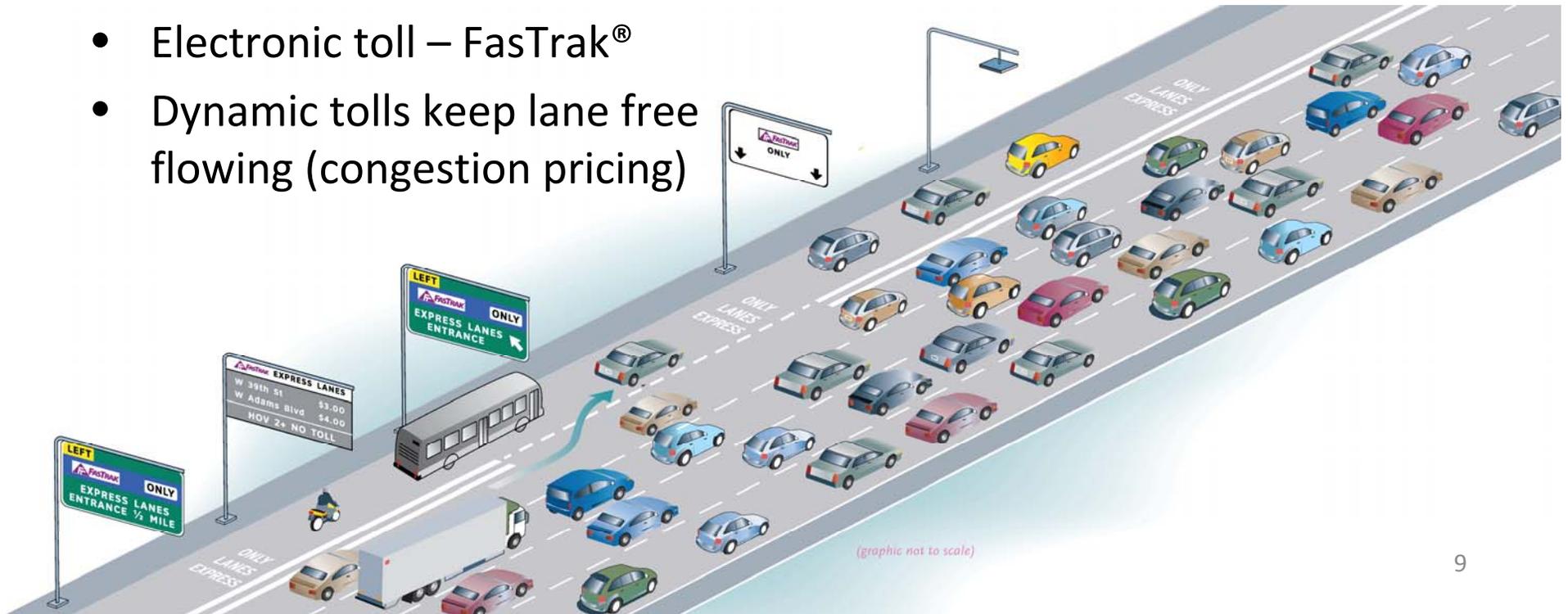
	Directional Miles		
	Previously Authorized <sup>1</sup>	New Authority	Total
Convert existing HOV lanes to express lanes <sup>2</sup>	190	150	340
Widen existing freeways to create express lanes	90	120	210
Operational gap closure	0	20	20
<b>Total</b>	<b>280</b>	<b>290</b>	<b>570</b>

<sup>1</sup> In both Alameda and Santa Clara counties

<sup>2</sup> Includes existing I-680 Sunol Express Lane (14 miles)

# How Express Lanes Work

- High Occupancy Toll (HOT) Lanes
- HOV with toll option
  - Carpools, buses free
  - Other drivers can choose to pay
  - “Congestion insurance”
- Electronic toll – FasTrak®
- Dynamic tolls keep lane free flowing (congestion pricing)



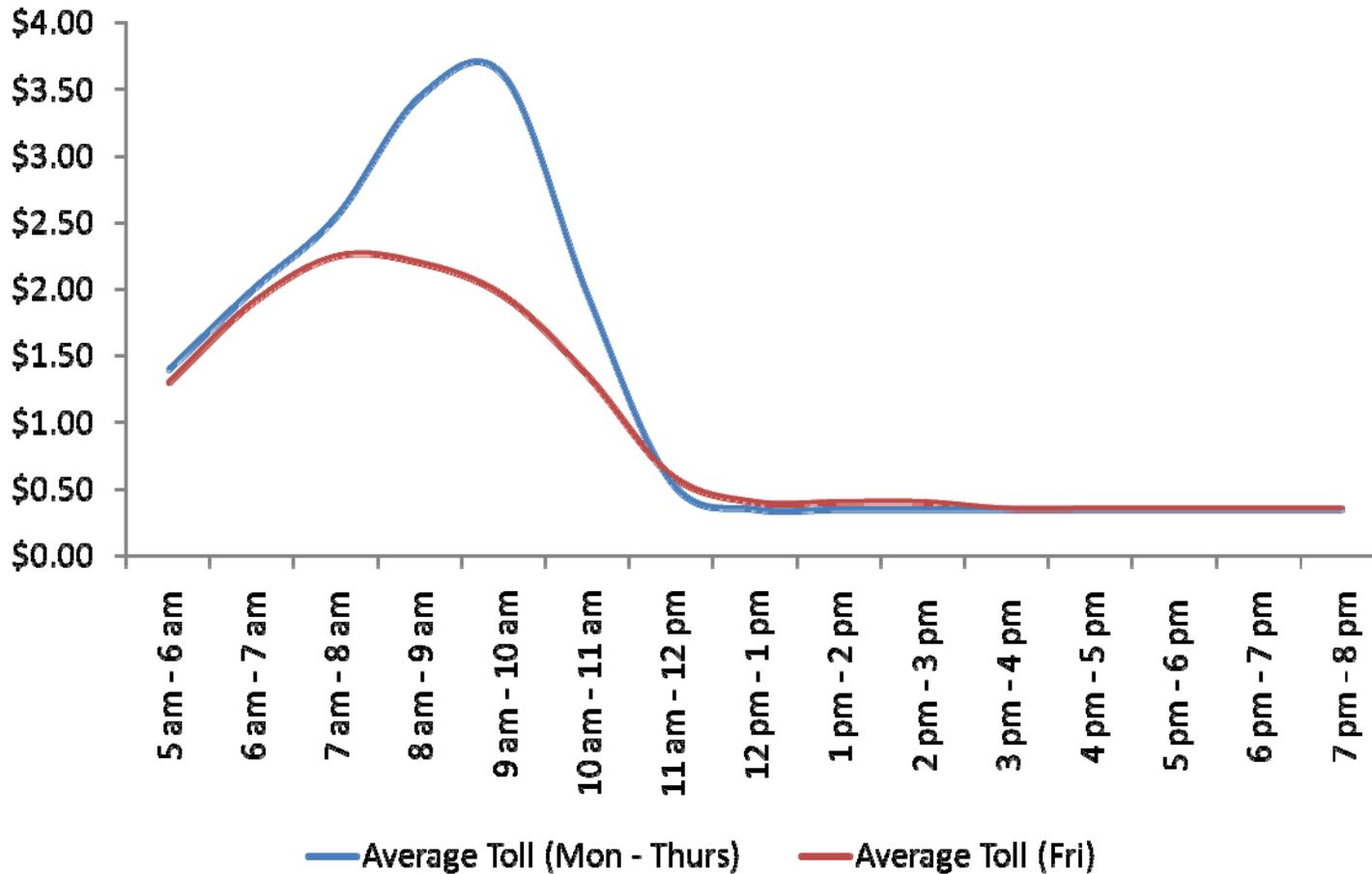
# I-680 Sunol Express Lane



- Opened September 2010
- Existing HOV lane converted to an express lane
- Challenges
  - Enforcement: 200-250 violators / hour
  - Ingress / egress access locations
  - User familiarity



# I-680 Southbound Express Lane Average Toll Rate by Hour



# Operating Policies

CTC Application explored financial and operational feasibility under several options but did not commit to specific policies

## HOV policy choices

- Maintain existing HOV occ. policies indefinitely
- Increase HOV definition when lanes fill
- Region-wide consistency at established future date
- Raise HOV definition to 3+ region-wide at outset

## Hours of operation

- Match existing HOV hours
- Expanded AM & PM peak hours
- Peak hours and mid-day
- Weekends

# Financial Analysis in CTC Application

*Total amounts through 2040 (millions of inflated dollars)*

		Base Case (compl. by 2030)	Conservative Case (compl. by 2035)
<b>Funds</b>	<b>Express Lane Toll Revenue</b>	6,500	4,400
	<b>Debt Proceeds (Bonds/TIFIA)</b>	2,100	2,400
	<b>Other*</b>	600	1,000
<b>Expenditures</b>	<b>Operations, Maintenance and Rehabilitation</b>	(1,500)	(1,300)
	<b>Capital Costs</b>	(3,000)	(3,600)
	<b>Debt Service</b>	(3,400)	(2,300)
<b>Potential Net Revenue**</b>		<b>1,300</b>	<b>600</b>

\* Composed largely of grant funding (\$400 - \$800 M), local funding (\$100 M), and other such as reserves and interest (\$100 M)

\*\* These potential surpluses emerge in the later years (after completion of the Network), and due to their bottom-line nature, are highly sensitive to variations in toll policy, revenue, cost, schedule and financing assumptions.

*Does not include express lanes in Santa Clara County, which would be separately financed and operated*

# **RESPONSE TO PREVIOUSLY RAISED CONCERNS**

# How Will Low-Income and Minority Travelers be Affected?

- MTC will conduct an Environmental Justice (EJ) analysis in the environmental review, consistent with state and federal requirements.
- Next step is to define schedule and approach.
- We will start by reviewing approaches taken for other express lane projects.

# How Will Low-Income and Minority Travelers be Affected? (continued)

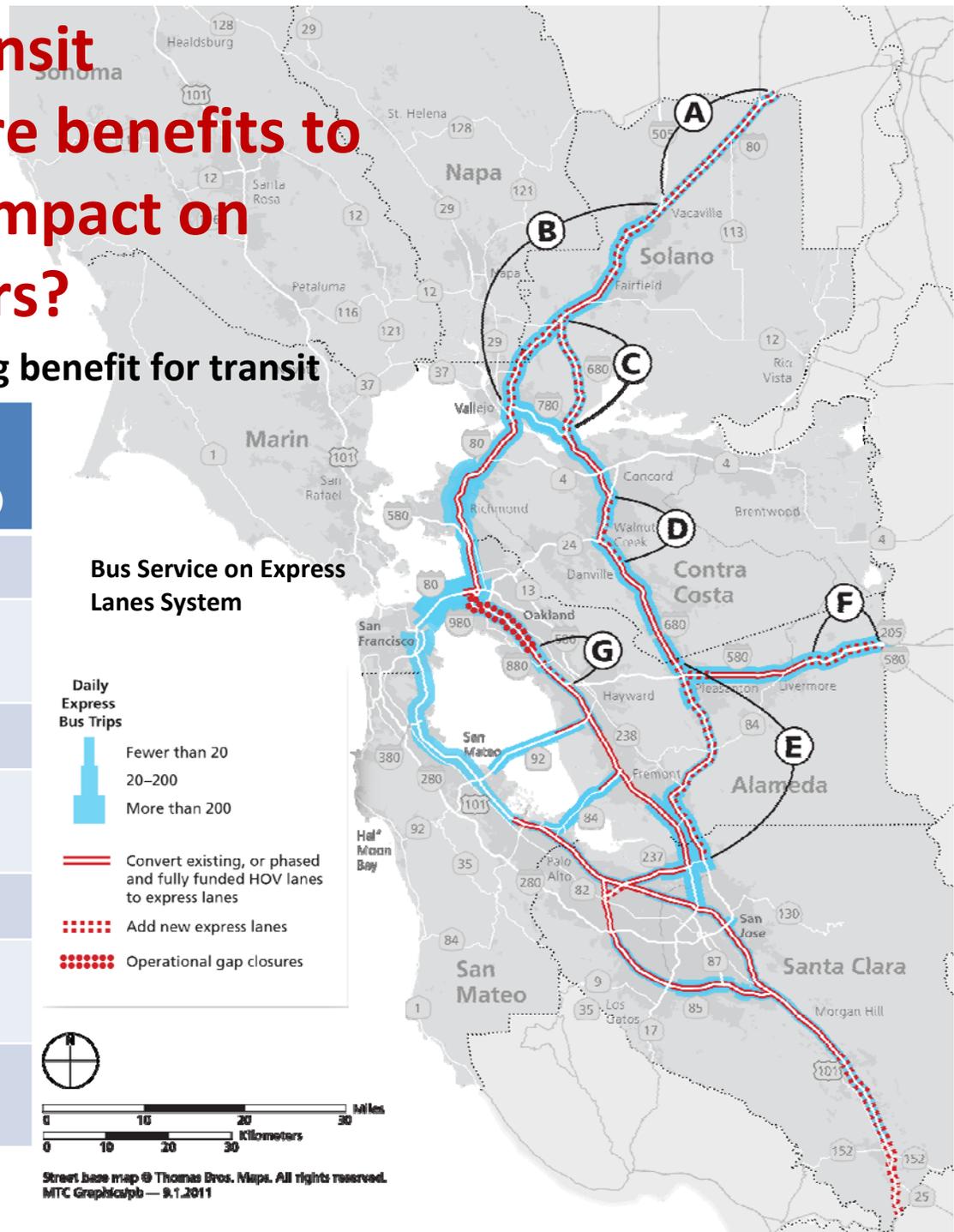
- Some topics addressed in EJ analyses for other express lane projects include<sup>1</sup>:
  1. Ability to provide input to the process
  2. Number of low-income & minority travelers expected to use the corridor and their travel patterns
  3. Travel time savings for paying and non-paying travelers in the corridor
  4. Cost to use the express lane
  5. Ability of low-income & minority travelers to acquire toll tags
  6. Direct impacts from construction, traffic, emissions
  7. Performance measures for the operations phase, e.g.,
    - Number & share of users who are low-income
    - Speeds in general purpose lanes

<sup>1</sup> Analyses by: Los Angeles Metropolitan Transportation Authority for I-10 and I-110; Georgia DOT for I-85; Washington DOT for I-405

# 1. If no funding for transit operations, are there benefits to transit to mitigate impact on low-income travelers?

Completion of the HOV system is a big benefit for transit

Route	Peak Hour Bus Trips (current service)
A. I-80 Yolo County to I-505	4
B. I-80 I-505 to Carquinez Bridge	40
C. I-680 Gold Hill Rd. to I-780	4
D. I-680 Route 242 to North Main St.	40
E. I-680 Alcosta Blvd. to SR 237	4
F. I-580 Greenville to San Joaquin County	40
G. I-880 Hegenberger to Lewelling	30



Street base map © Thomas Bros. Maps. All rights reserved. MTC Graphics/tpb — 9.1.2011



### **3. Will low-income travelers be priced out of lanes they paid taxes to build?**

While it does not substitute for the analysis we will do on the Regional Express Lane Network, there some data on use of express lanes by low-income travelers across the U.S.

# Average Peak Period Tolls on Express Lanes

Project	Length 1-way (miles)	Average Price Paid for Peak Period Trip
I-15 in San Diego	12	\$1.50
SR-91 in Orange County	10	\$6.00
I-25 in Denver	7	\$4.50
I-394 in Minneapolis	11	\$1.50
SR 167 in Seattle	9	\$1.75
I-10 in Houston	13	\$1.60
I-95 in Miami	7	\$2.00
I-85 in Atlanta	16	\$2.35
I-680 in Bay Area	14	\$2.97

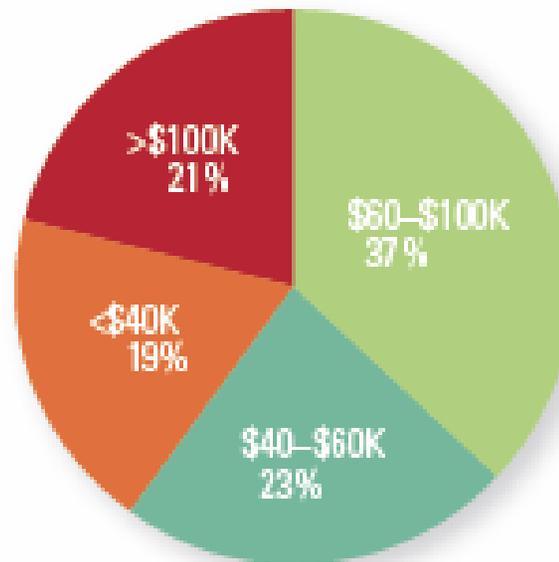
Information collected March 2012

## What does the research show?

### *Who is using the express lanes currently in place?*

- Lower-income households are using the toll lanes at higher than expected rates
- Generally, higher-income households travel by car more frequently than lower- and middle-income households, but use of toll lanes is prevalent across all groups

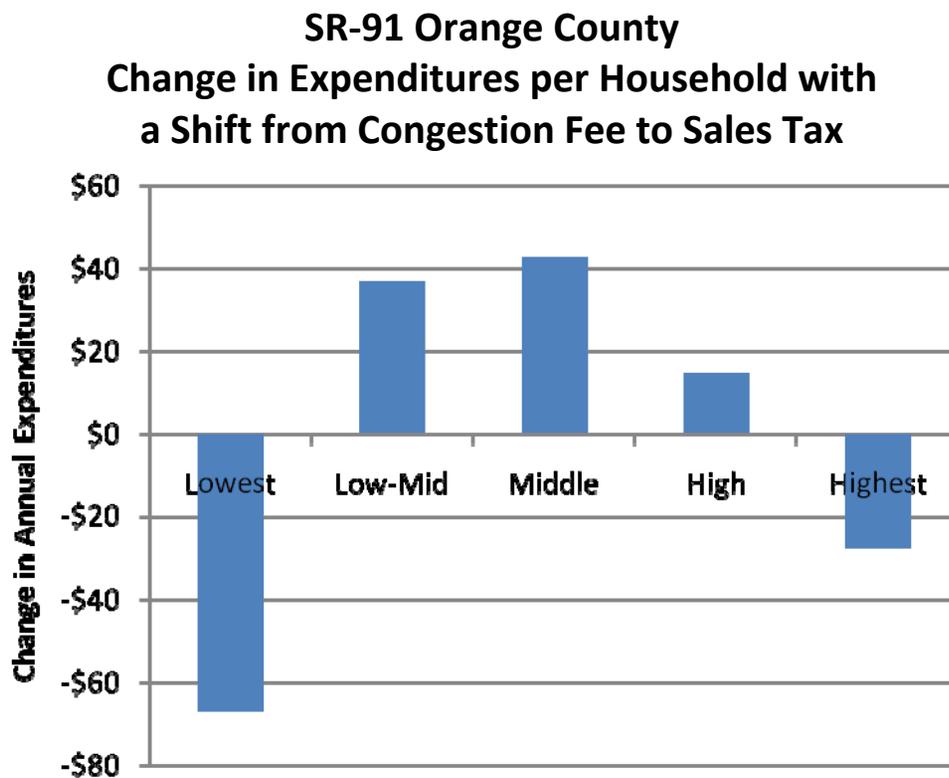
**SR-91 Orange County, CA**  
**Annual Household Income Peak Period Express Lane Users x(1999 study)**



## What does the research show?

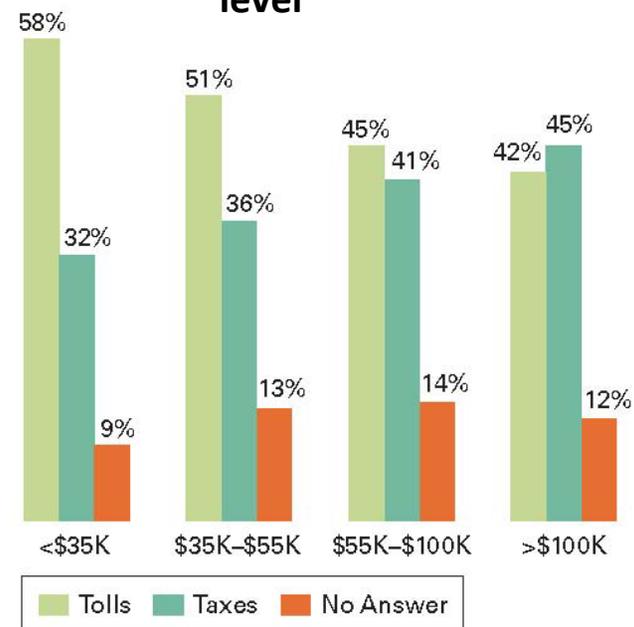
### *Do tolls place a higher burden on low-income residents than other funding mechanisms?*

- Sales taxes are not tied to the amount of driving and may pose a higher burden than express lane tolls
- Lower-income households prefer tolls to taxes.



Source: Brian Taylor and Lisa Schweitzer, 2008

**King County, WA**  
Support for tolls versus taxes by income level



Source: Income-Based Equity Impacts of Congestion Pricing: A Primer, FHWA (December 2008)

## 4. Why are no express lanes planned on US 101 on the Peninsula?

An HOV system gap exists north of Whipple Ave.

- Caltrans, MTC and San Mateo County are conducting an initial feasibility assessment of an HOV lane extension on this segment.
- Widening to add a lane could have significant environmental impacts and is prohibitively expensive.
- Converting a mixed flow lane would increase corridor delay substantially.
- Study is now considering a “hybrid” alternative.
- Anticipate study completion in 2012.



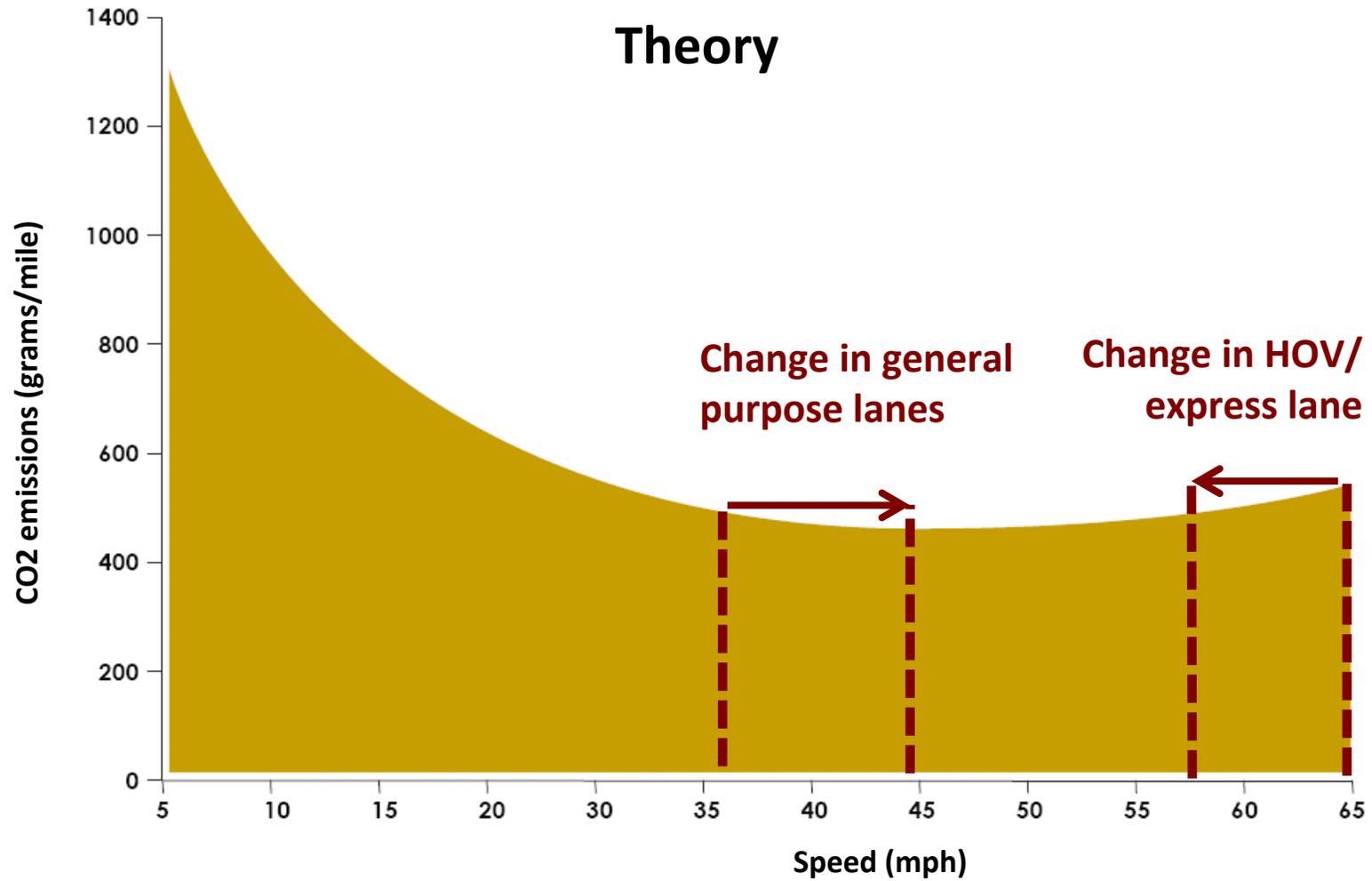
HOV lanes already exist south of Whipple Avenue. VTA has the ability to implement express lanes on this portion under state statute.

## 5.&6. Will the Network increase CO<sub>2</sub> emissions or vehicle miles traveled?

- MTC will assess air quality in the Environmental Document
  - Climate change effects
  - Criteria pollutants, including particulate matter (PM10 and PM2.5) and mobile source air toxics
  - Conformity with State Implementation Plan
- Analysis of existing express lane projects is limited (US GAO, 2012) but provides some reference points

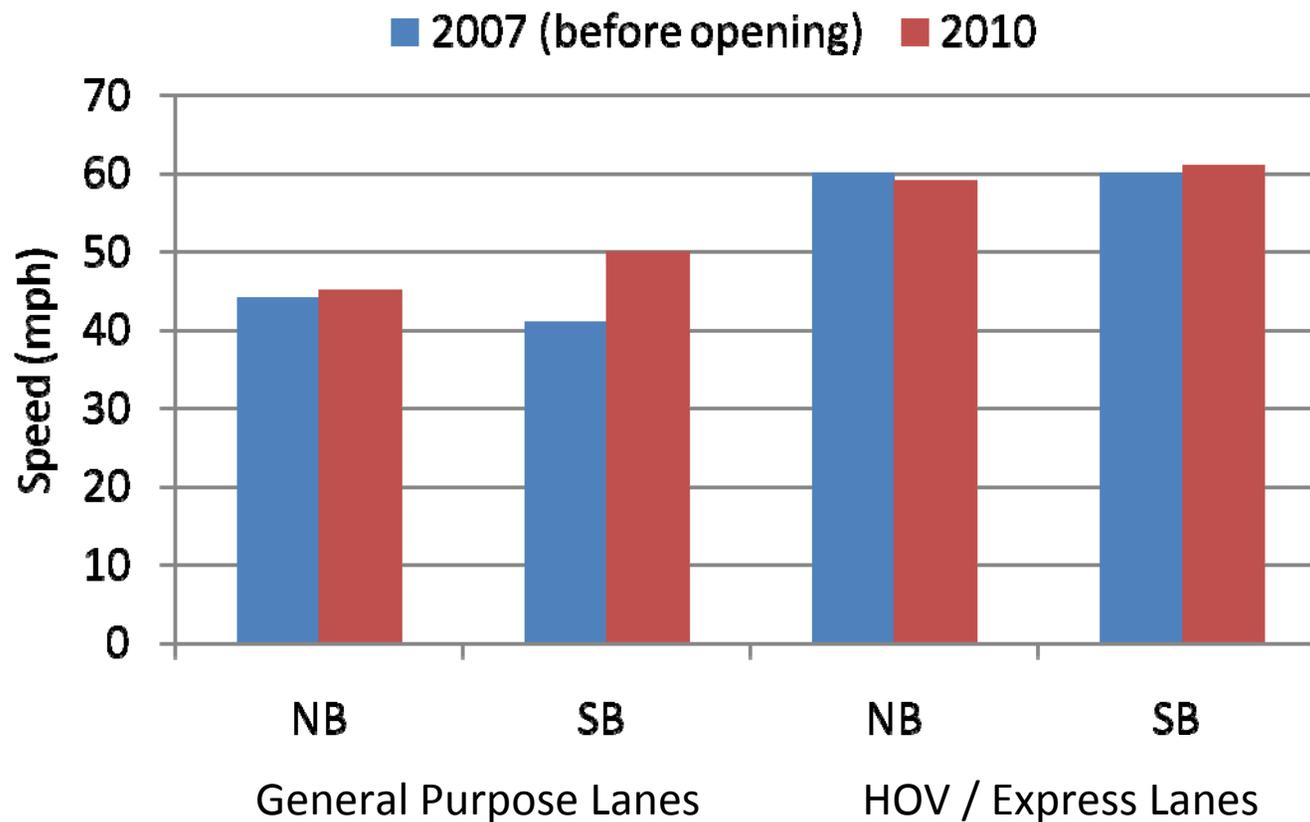
## What does the research show?

### *Express Lanes Should Moderate Speeds and Reduce Emissions*



# What does the research show?

## One Example: SR-167 in Seattle



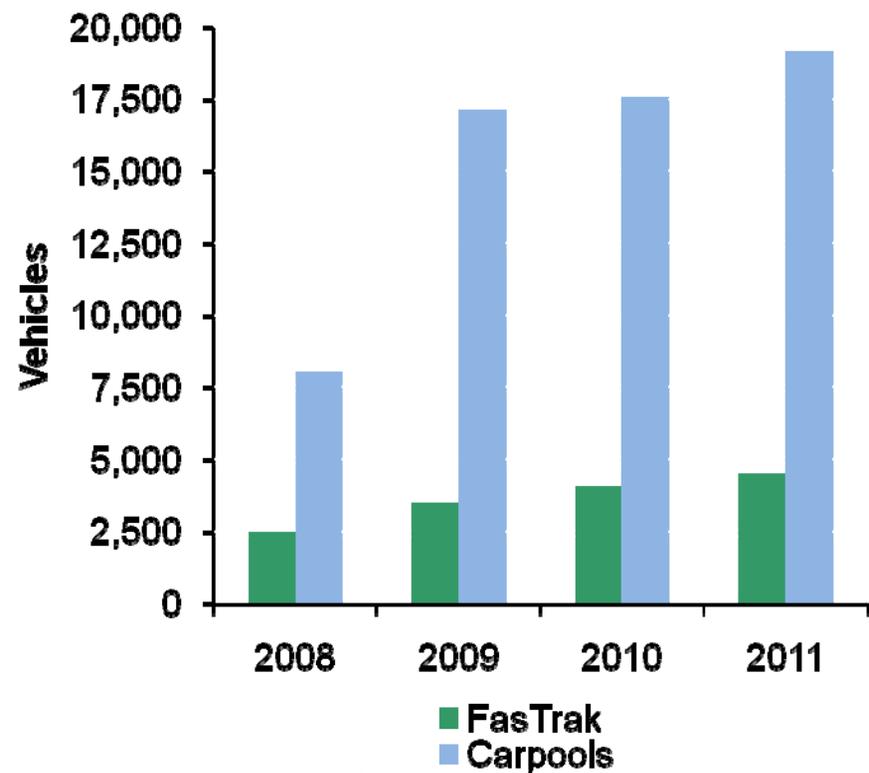
Source: SR167 HOT Lanes Pilot Project Second Annual Performance Summary

## What does the research show?

### *What is the impact of express lanes on carpooling?*

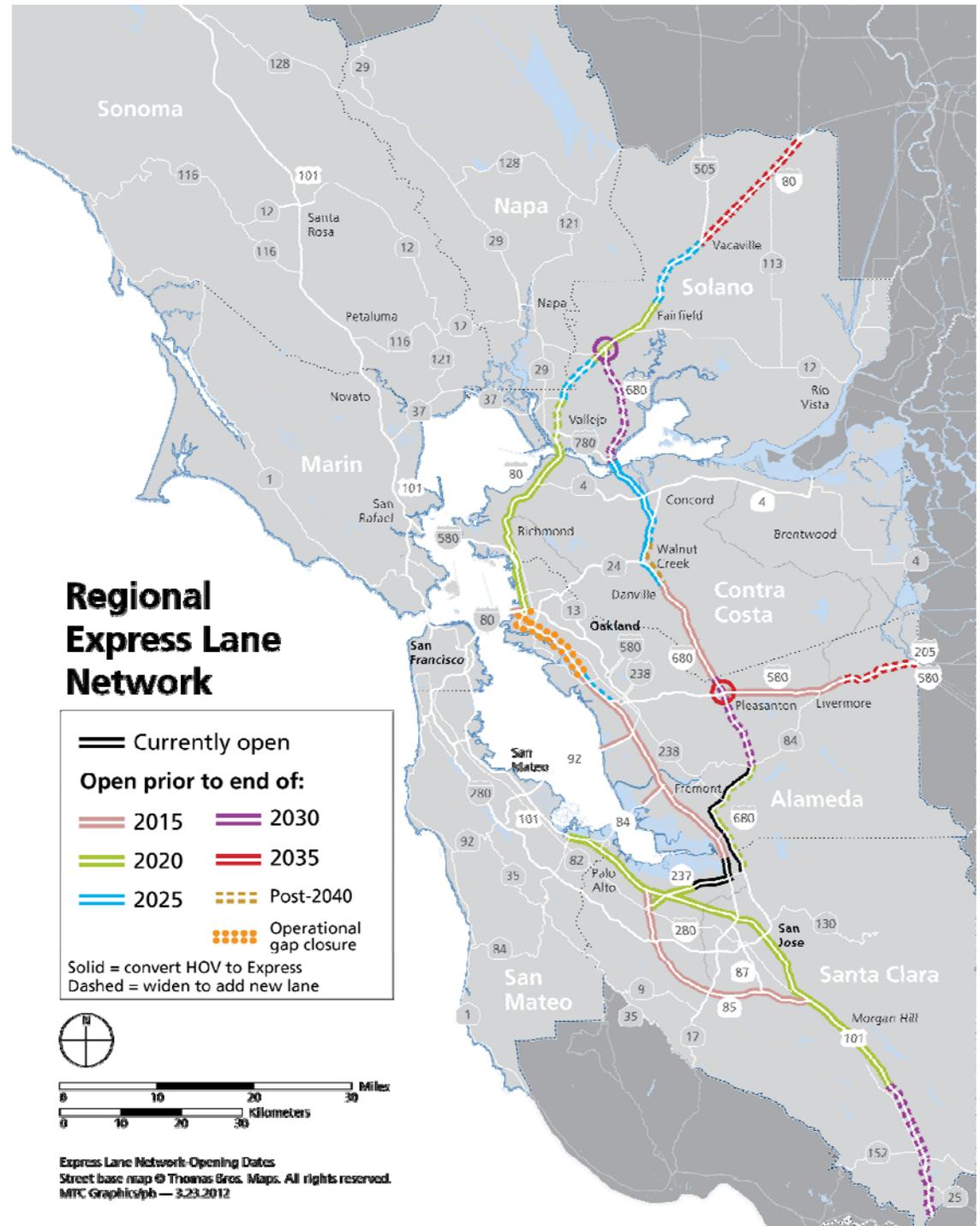
- State and Federal law do not allow paid vehicles to congest the lanes.
- Carpooling has increased on I-15 in San Diego and SR-91 in Orange County.
- Decreases in average vehicle occupancy levels have been documented for I-394 Minneapolis and I-95 Florida.
- Travel models do not predict this behavior well.

Use by Carpools and Tolled Vehicles on I-15 San Diego



# Regional Express Lane Network Build Out

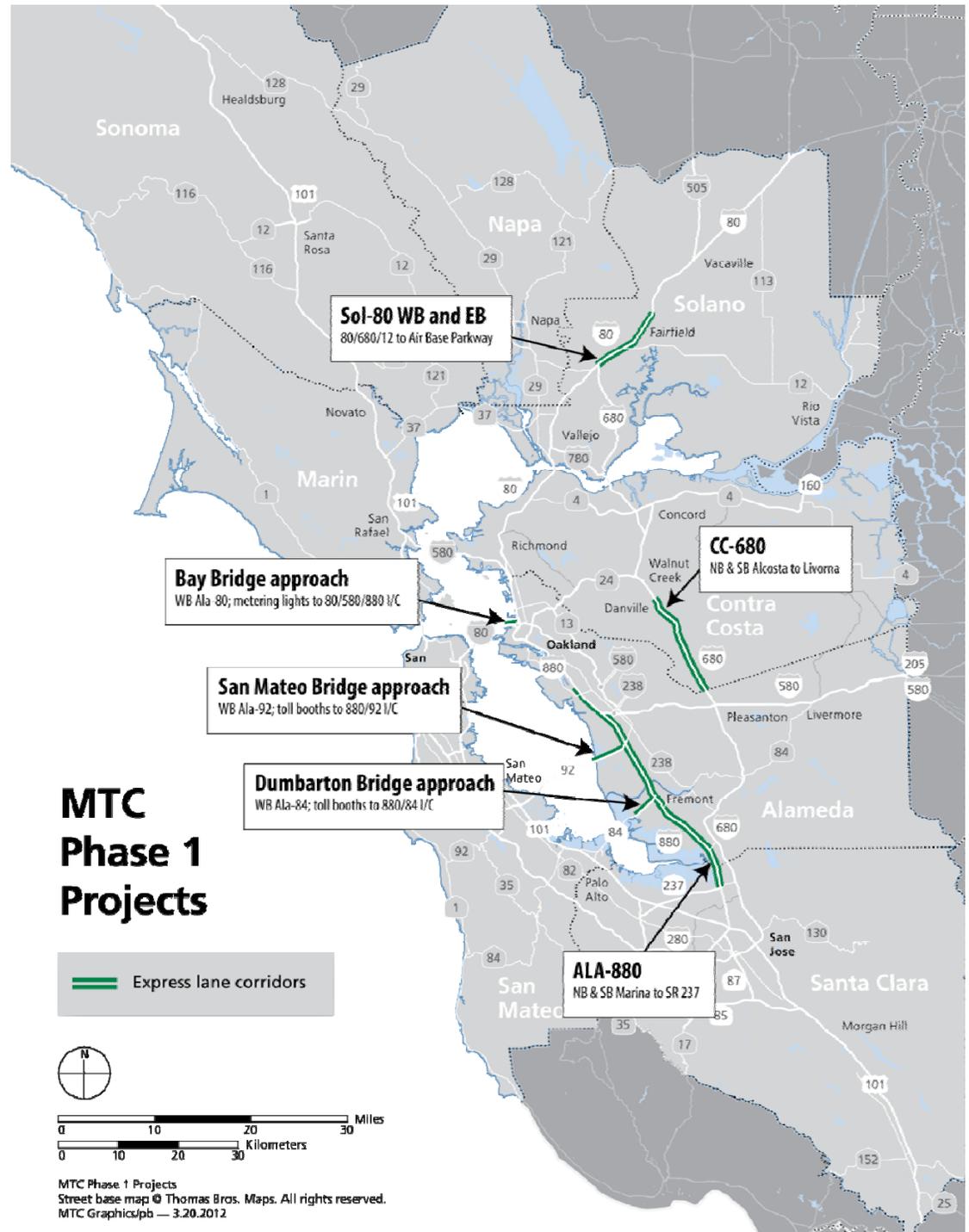
- Over 60% of express lane system miles are conversions of existing HOV lanes.
- Phasing leaves widenings for last.



# **NEXT STEPS**

# MTC Phase 1 Projects

- Environmental studies and engineering are getting underway  
Caltrans is lead agency for CEQA & NEPA
- Define scope and schedule spring '12
- Open by 2015



# Activity by Others

## Alameda County Transportation Commission & Sunol Smart Carpool Lane Joint Powers Authority

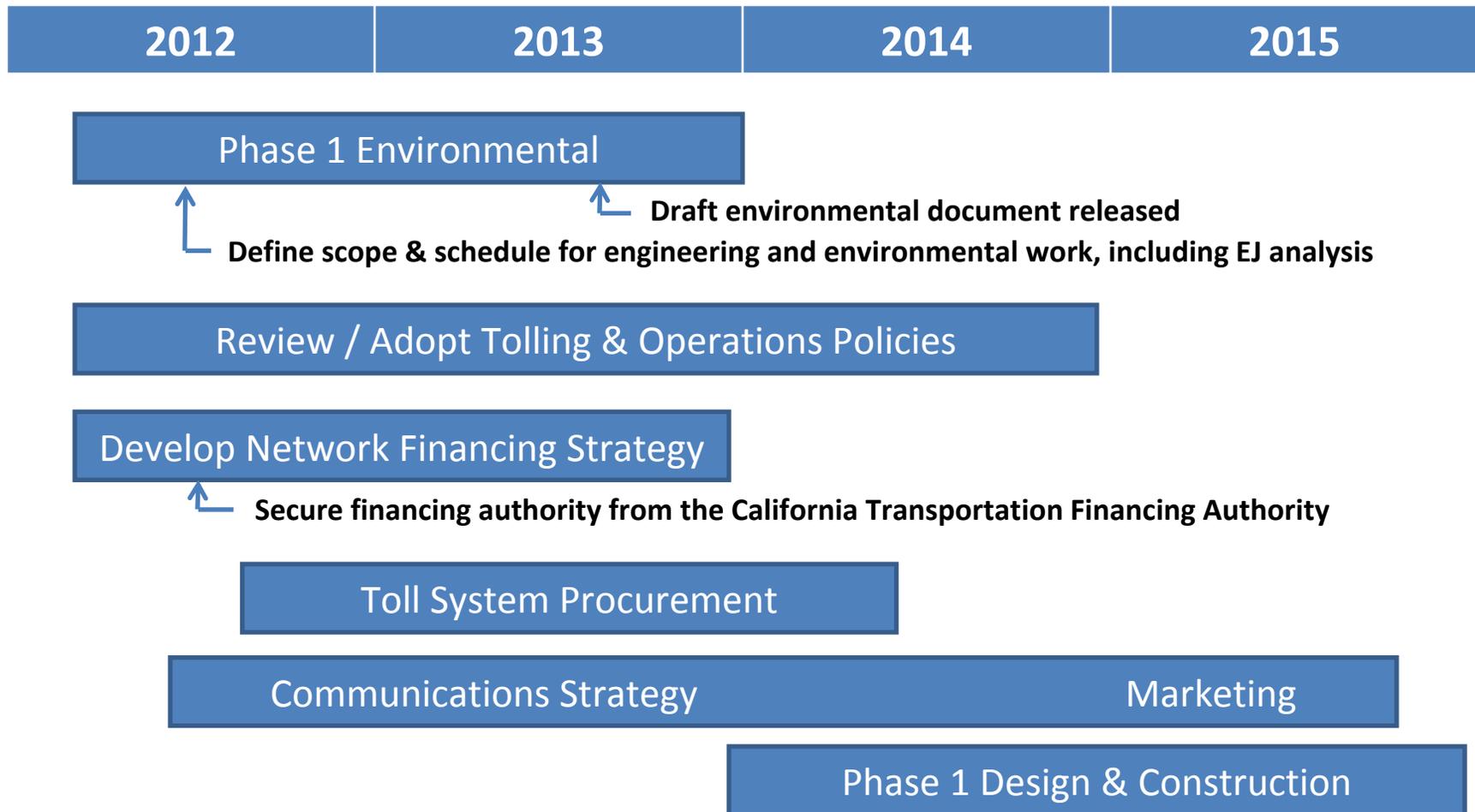
- 1 I-680 southbound express lane operations
- 2 I-580 eastbound and westbound express lane development Livermore to Pleasanton (open 2015)
- 3 I-680 northbound express lane development Calaveras to SR-84 (open 2018)

## Valley Transportation Authority

- 4 SR-237/I-880 express lane operations
- 5 US 101 and SR-85 express lane development Cochrane to Oregon Expressway (open 2015/2016)
- 6 Planning and authorization for lanes on I-880, I-280 I-680 & SR-87



# Preliminary Timeline for MTC Phase 1 Projects



Open for Service 

# Milestones for Returning to Policy Advisory Council

Spring / Early Summer 2012	<ul style="list-style-type: none"><li>• Update on scope and schedule for Phase 1 environmental review, including EJ analysis</li></ul>
Subsequently (dates TBD)	Status reports based on updated schedule, with dedicated items for: <ul style="list-style-type: none"><li>• Proposed approach to environmental justice analysis</li><li>• Draft results of environmental justice analysis</li><li>• Prior to board actions on key tolling and operations policy decisions</li><li>• Prior to release of draft environmental document</li></ul>

# Discussion

## **Approach for Policy Advisory Council Feedback**

1. Respond to previously raised concerns.
2. Confirm any remaining questions or concerns the Council may have about the Regional Express Lane Network.
3. Determine a plan for reporting back to the Council.

