



METROPOLITAN
TRANSPORTATION
COMMISSION

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Memorandum

TO: Commission

DATE: March 19, 2014

FR: Executive Director

W. I.

RE: The Future of Freeways...Is In Whose Hands?

The focus of this workshop session is to review MTC's current experience and role in freeway management and explore what the transportation system could look like if MTC (or Caltrans) took a more aggressive approach to active freeway management. Key themes are as follows, with a detailed presentation attached:

- Future expansion investments will focus on transit, not freeways. Aggressive implementation of freeway system tools is essential to keep our freeway system moving;
- MTC has considerable experience in designing, delivering and operating freeway management programs to improve its operations;
- There are numerous missed opportunities to improve the operation of the freeway system. If MTC had more direct responsibility for freeway management and operation, we could be more actively managing the system and improving its operation.
- The state has been unable to maintain an ever-growing inventory of freeway management assets. Budget constraints curtail Caltrans from pursuing many active traffic management opportunities, and from adequately maintaining traffic operations systems after they are deployed.

If MTC is to assume a greater role in active management, opportunities co-exist with corresponding risks and costs. We plan to use this session as a forum to discuss various system ownership options, as well as a number of active management strategies (highlighting positive impacts on Bay Area traffic) and seek direction on system ownership options, if any, to investigate and pursue.

We have arranged to have some panelists join this session and provide insight based on their organization perspectives:

- Gary L. Gallegos, Executive Director of San Diego Association of Governments and
- Suzanne Smith, Executive Director of Sonoma Transportation Authority

We look forward to your input and direction.

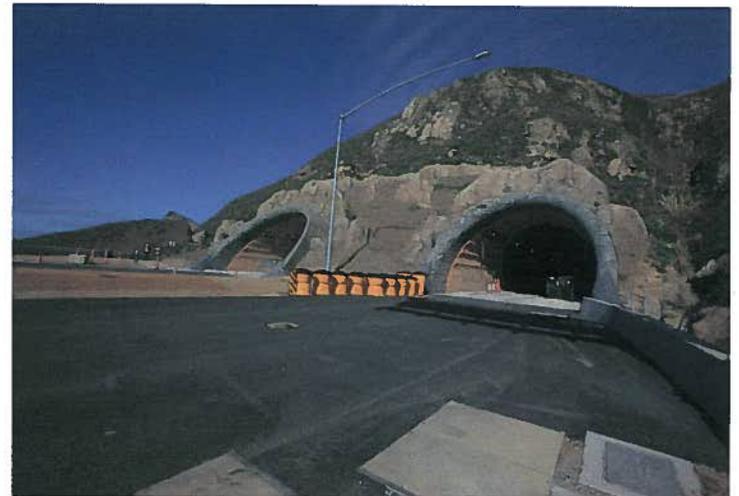
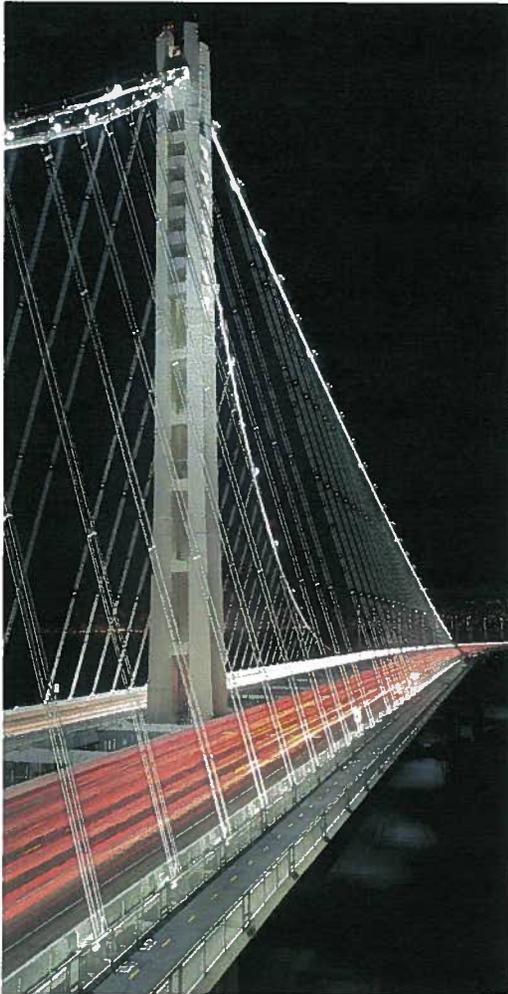


Steve Heminger

The Future of Freeways... Is in Whose Hands?

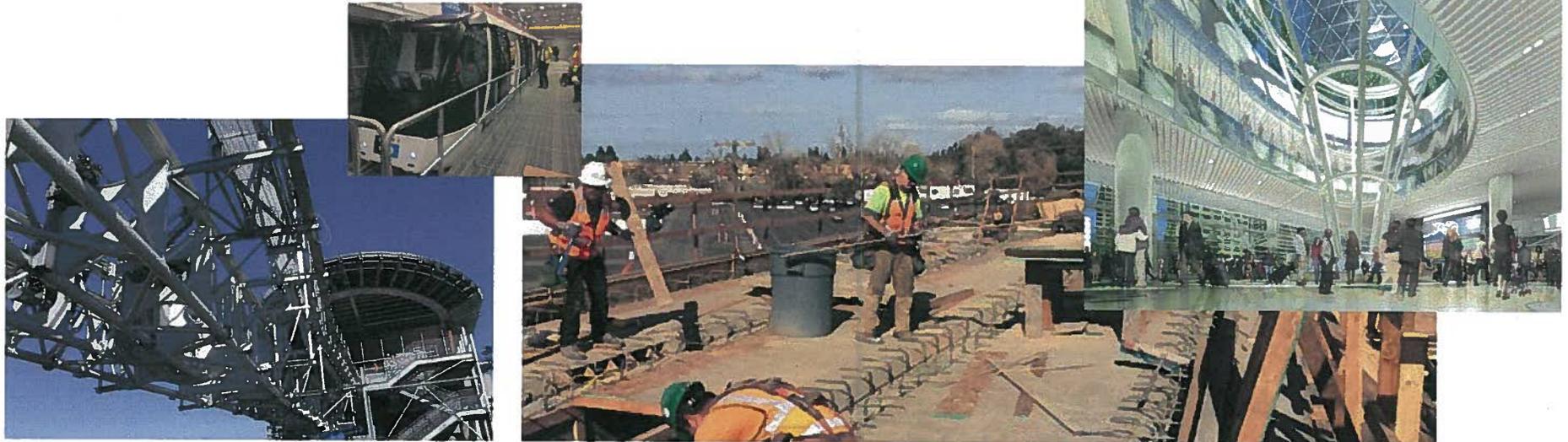
Commission Workshop
March 26 & 27, 2014

An Historic Era Is Drawing To A Close



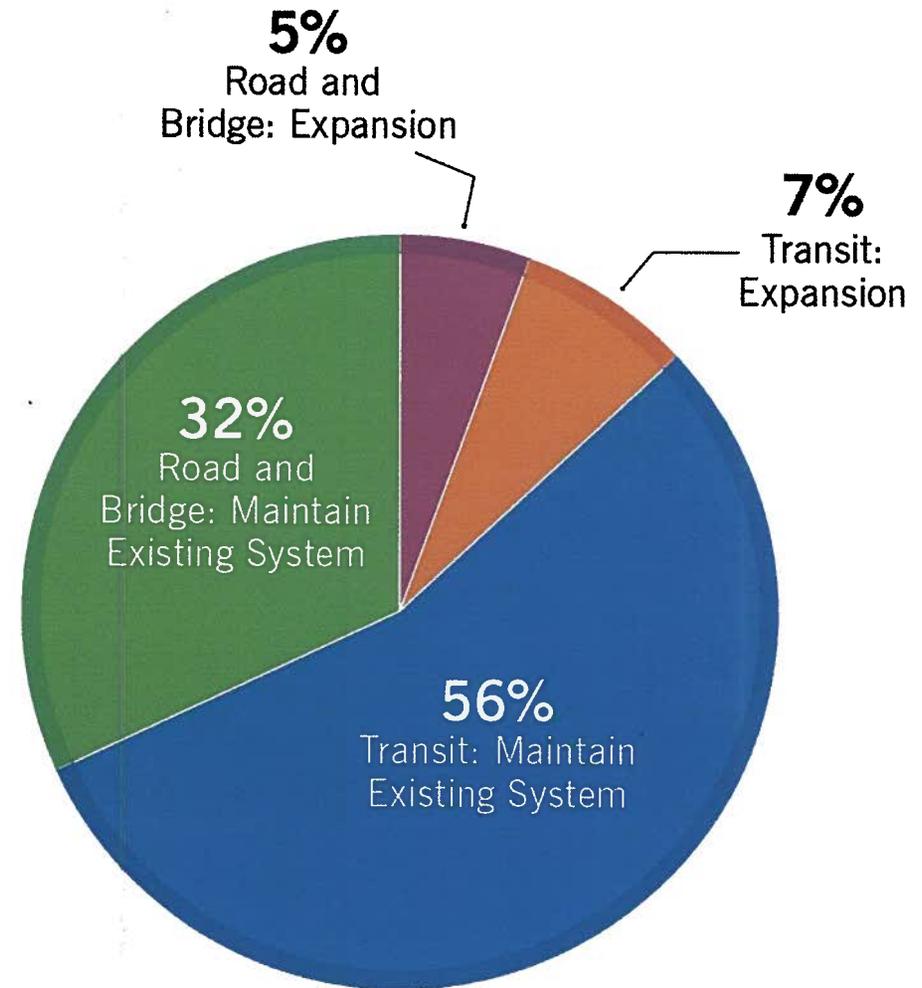
Transit Expansion Still Underway

- BART Oakland-Airport Connector
- MUNI Central Subway
- SMART in North Bay
- BART to Silicon Valley
- Transbay Transit Center

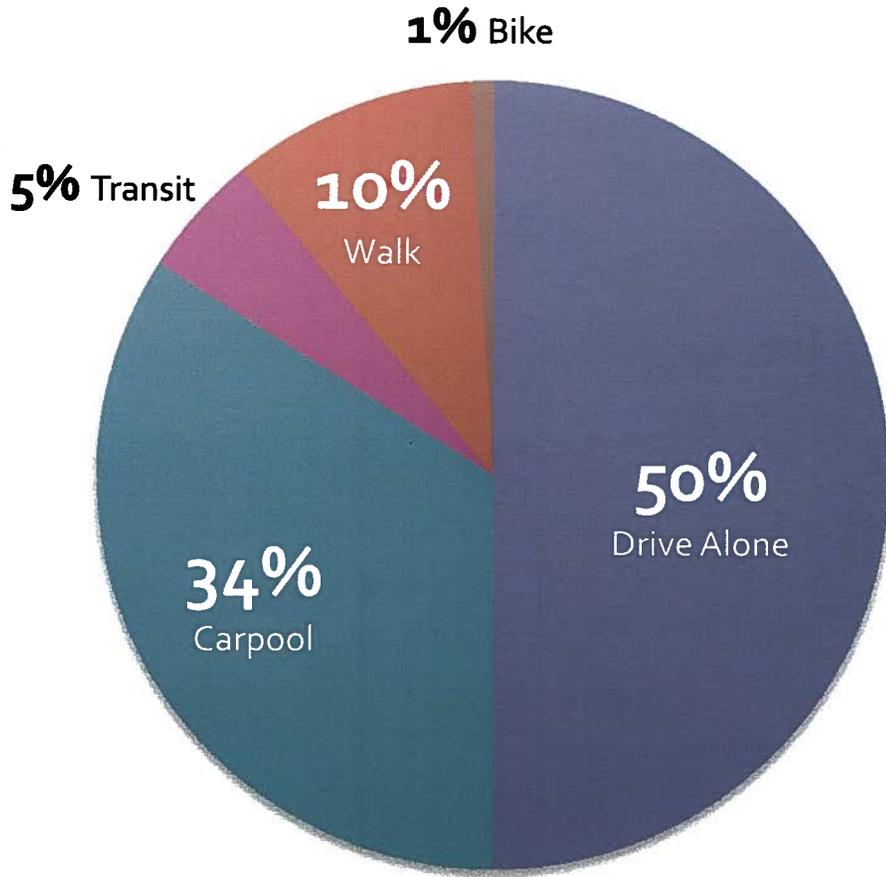


Plan Bay Area Is In Maintenance Mode

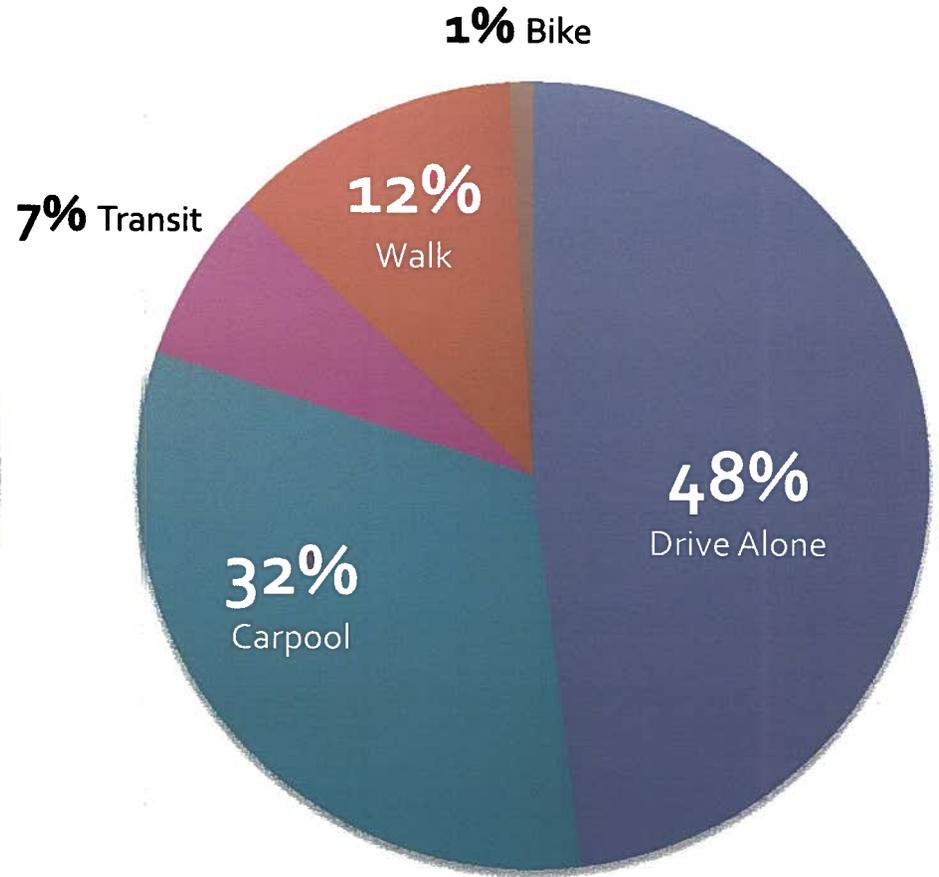
Total Investment by Function
\$292 billion (YOE\$)



Not Surprising That Overall Mode Shares Shift Little

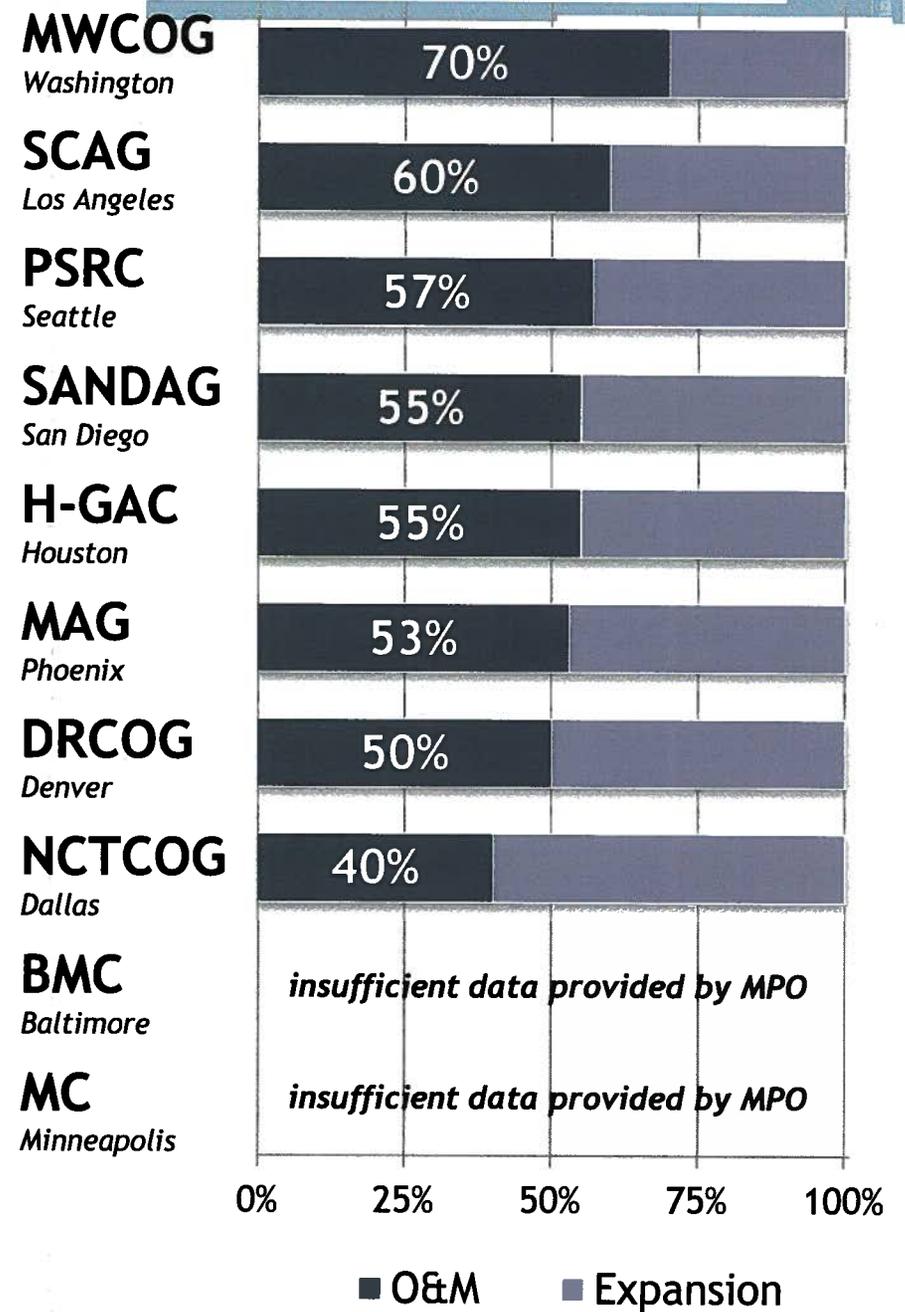
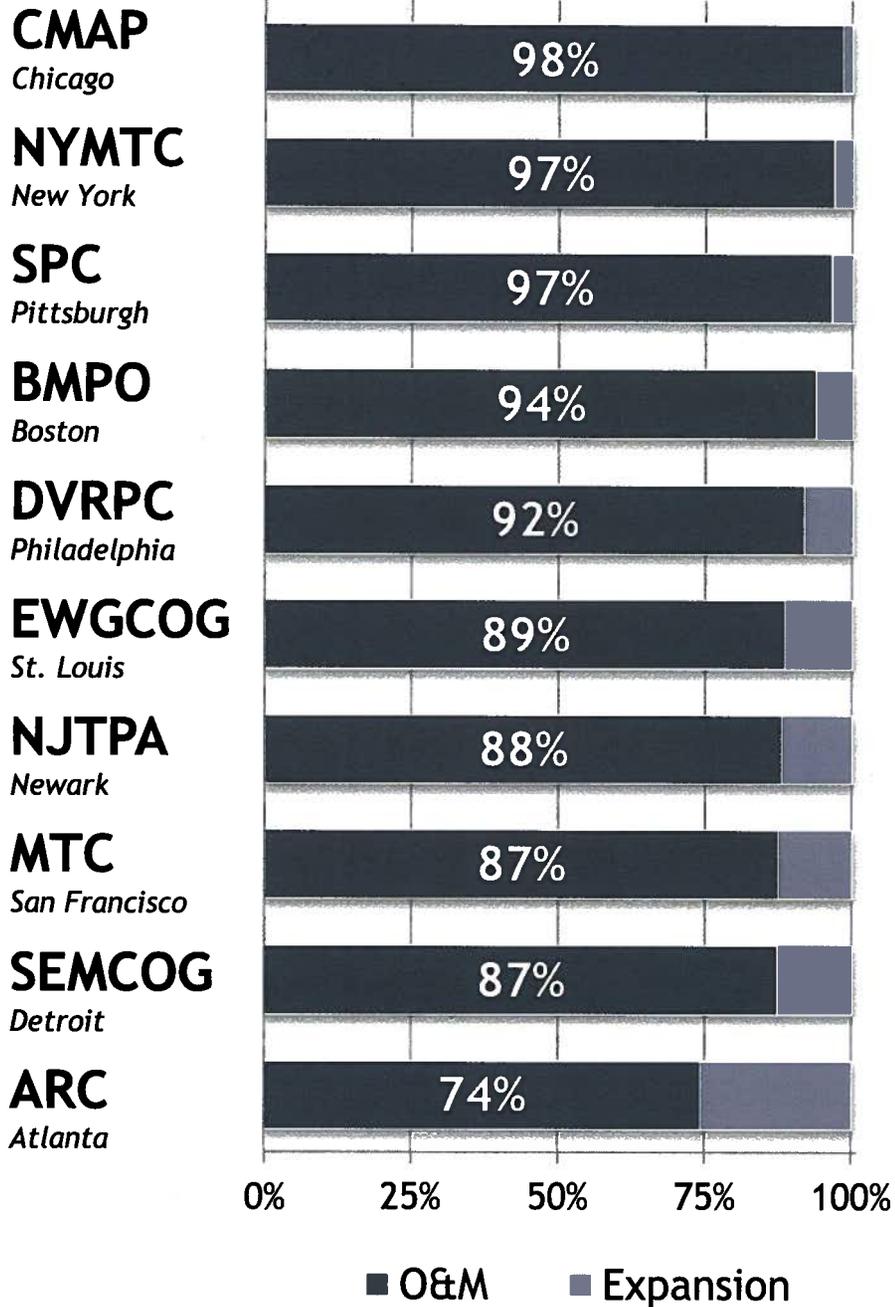


2010



2040

TOP 20 MPOs: WE HAVE PLENTY OF COMPANY

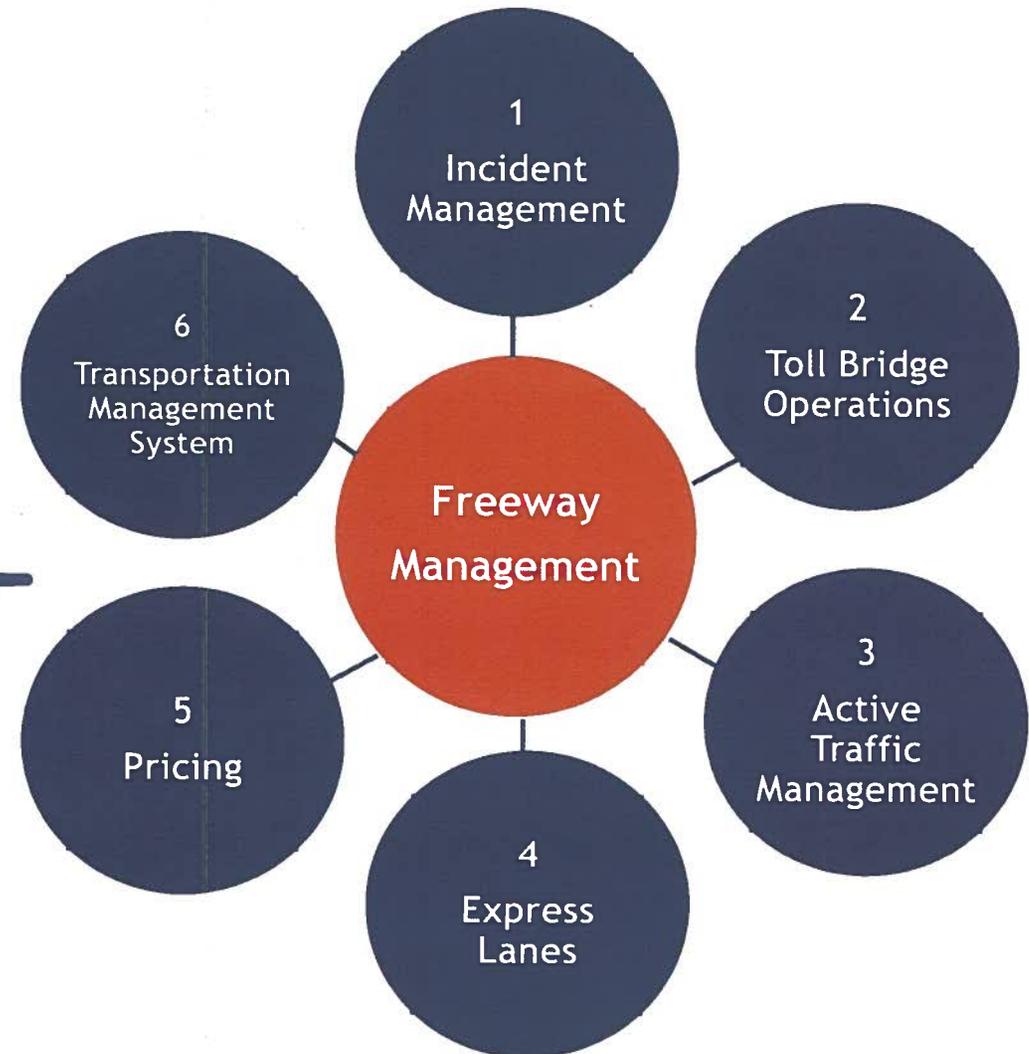
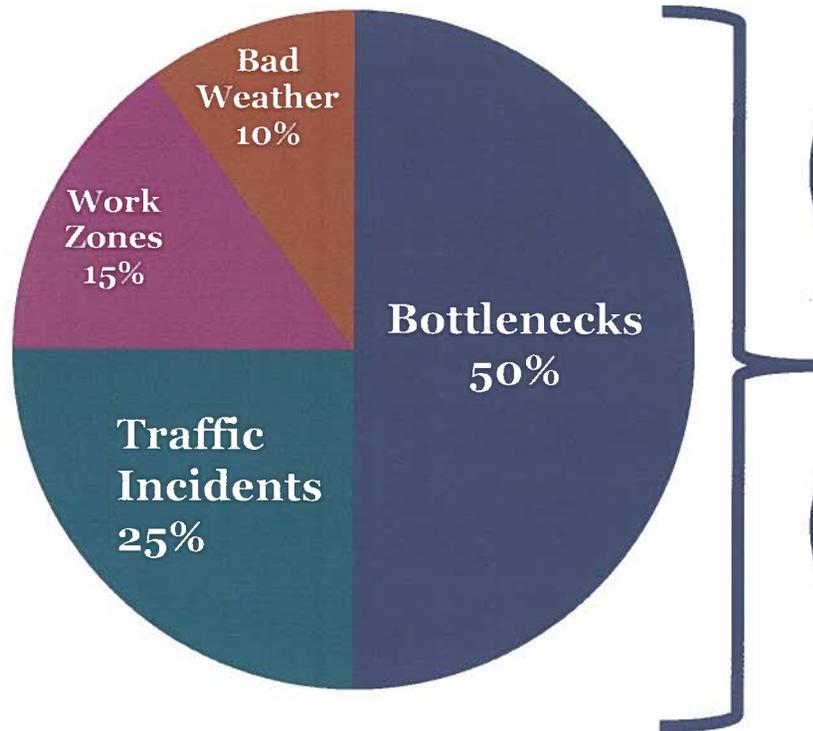


MTC's Evolving Roles



Managing Congestion

Causes of Congestion



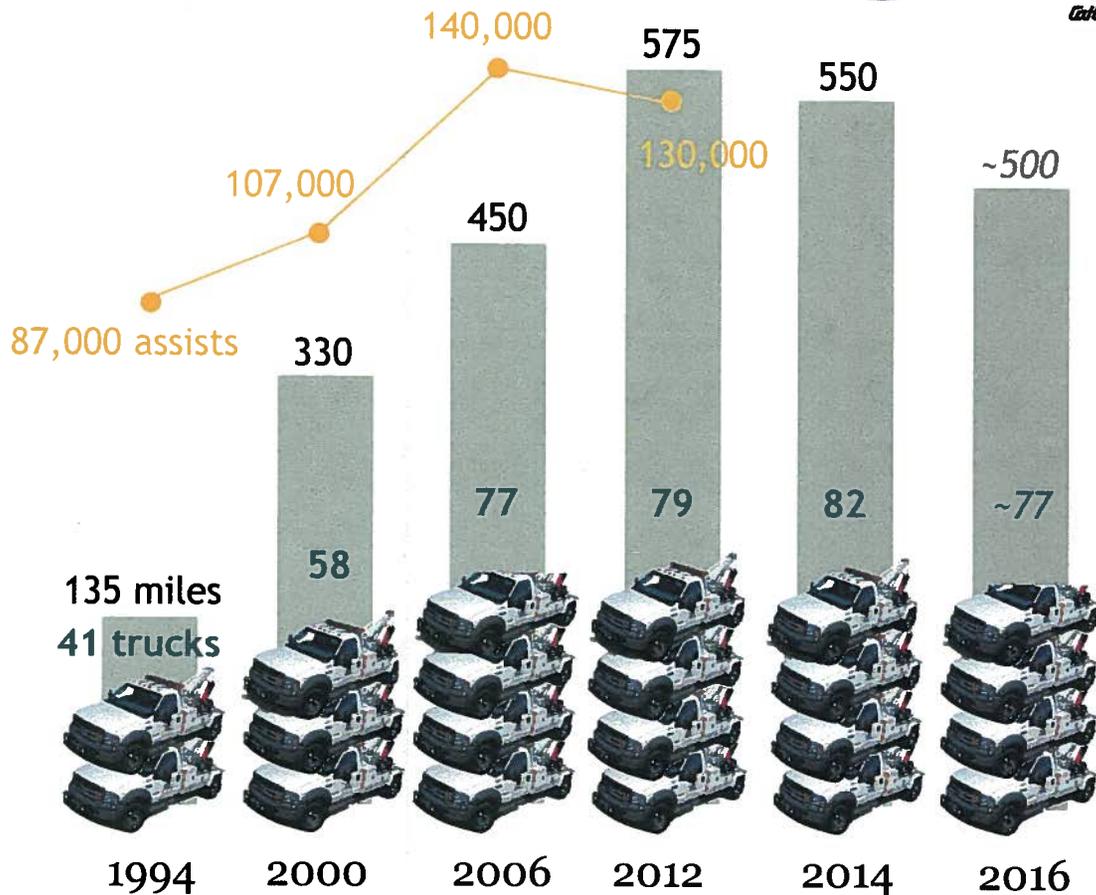
1 Freeway Management - What We've Done Incident Management

Freeway Service Patrol (since 1993)

Most popular program with 99% rating service as excellent

Service coverage peaked in 2012 while number of assists declined.

Current and future focus: Make adjustments to service that accurately reflect regional congestion and incident patterns.



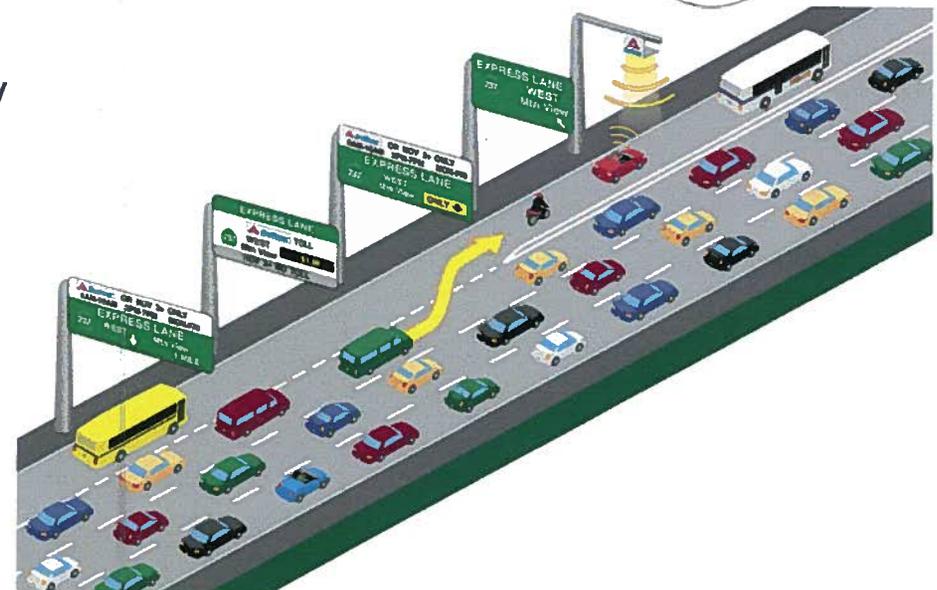
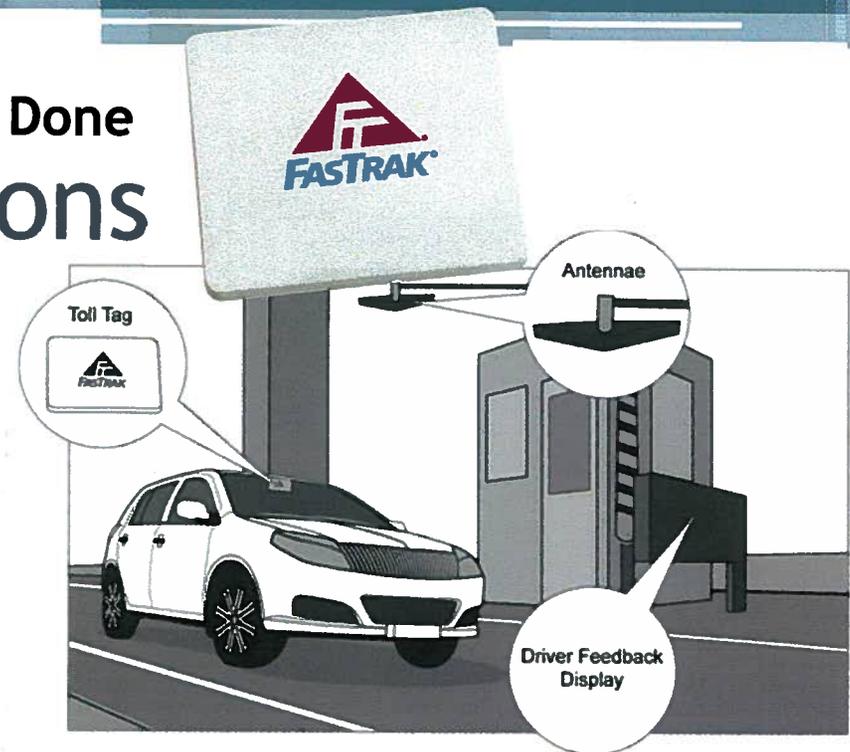
135 miles
41 trucks

2 Freeway Management - What We've Done

Toll Bridge Operations

FasTrak (since 1997)

- Operational on all 7 state-owned toll bridges and Golden Gate Bridge
- Had about 105,400 toll tags in use in 2000
- Grown to 330,000 toll tags in use in 2004 when BATA assumed responsibility and up 2,644,000 today
- Additional modifications to all bridges for FasTrak® lane configurations
- Installation of ORT at Benicia and Bay Bridge toll plazas



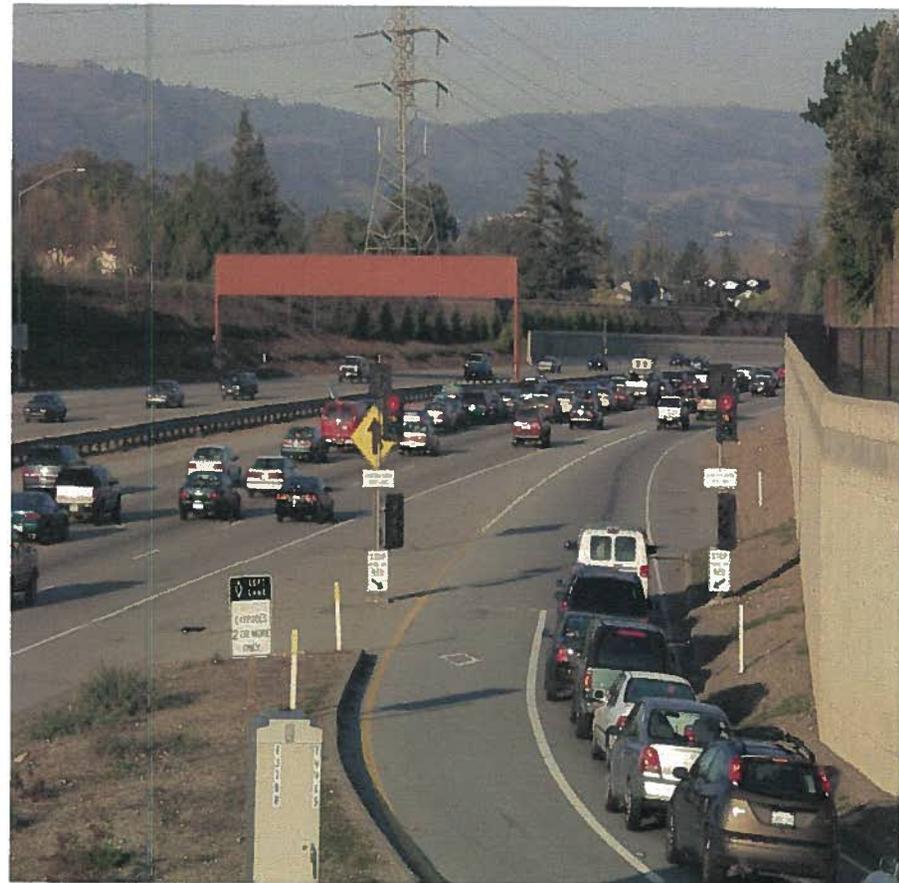
3 Freeway Management - What We've Done

Active Traffic Management

Freeway Performance Initiative (since 2007)

Goals

- Deploy current technology to better manage freeway congestion
- Address bottlenecks and incidents
- Improve freeway operations and safety
- Install ramp meters to manage the rate of cars/trucks entering the freeway and to reduce number of incidents through safer merges

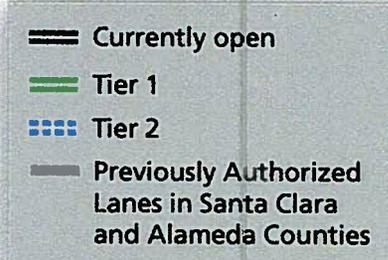


4 Freeway Management - What We've Done Express Lanes

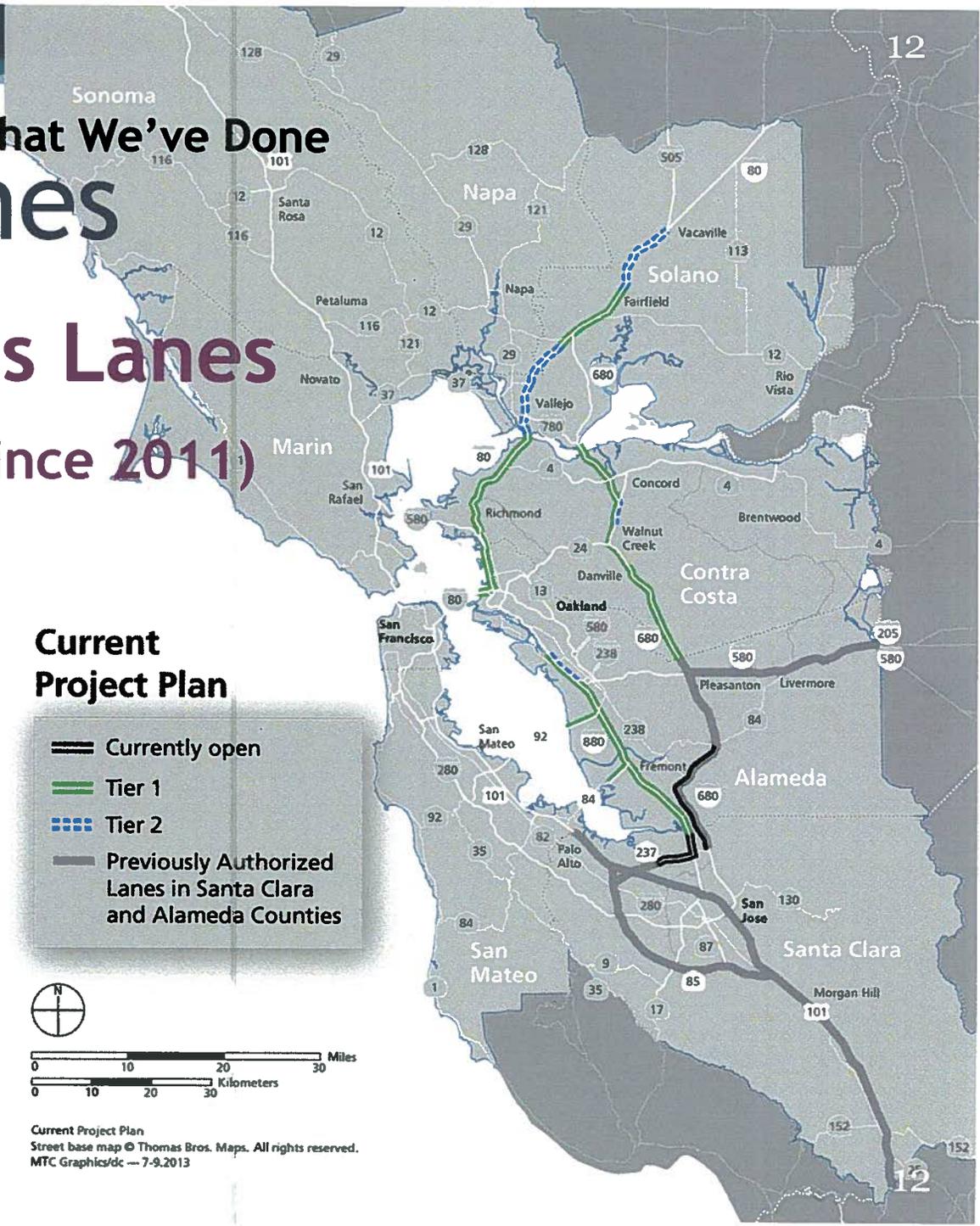
Regional Express Lanes Authorization (since 2011)

- Improve mobility for carpoolers, bus riders, and motorists willing to pay
- Build on foundation of 420 miles of existing HOV lanes
- Generate a new source of capital funds through voluntary toll payments

Current Project Plan



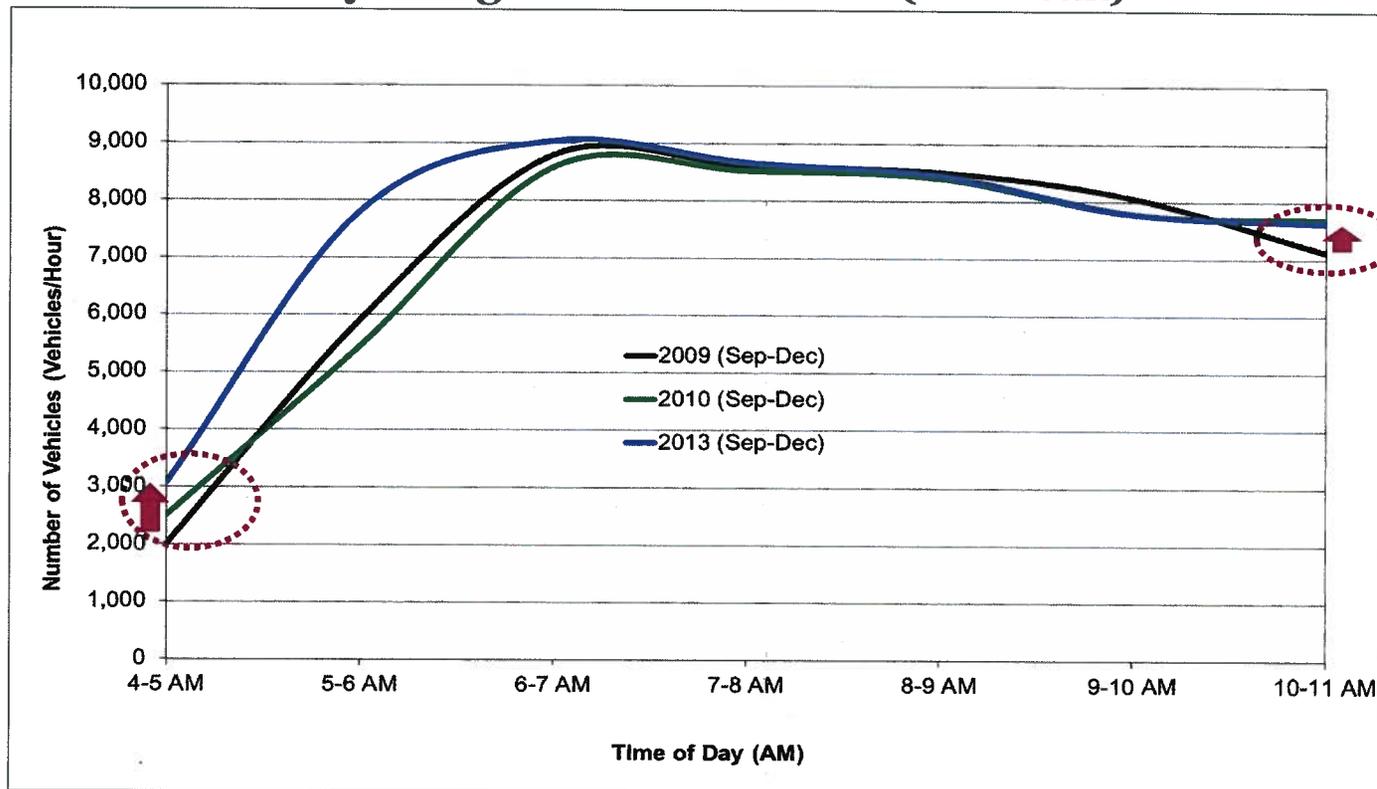
Current Project Plan
 Street base map © Thomas Bros. Maps. All rights reserved.
 MTC Graphics/dc — 7-9.2013



5 Freeway Management - What We've Done Pricing

Bay Bridge Congestion Pricing (since 2009)

Bay Bridge Traffic Volumes (AM Peak)

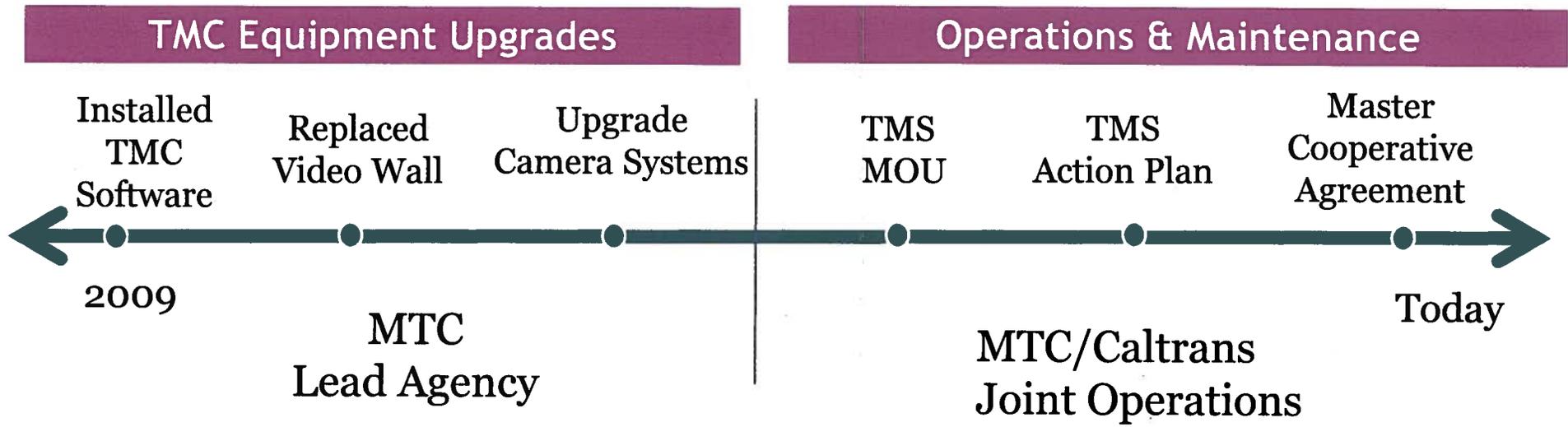
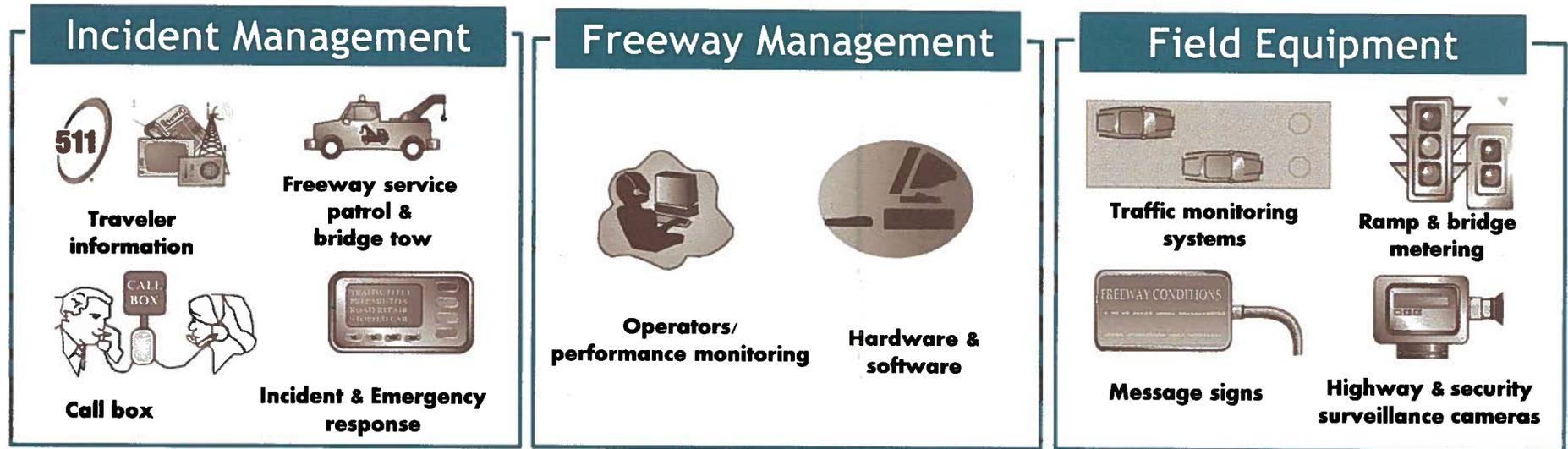


Since the onset of congestion pricing on the Bay Bridge, there has been:

- a 52% increase in traffic during the 4 to 5 a.m. hour
- a 7% increase in traffic during the 10 to 11 a.m. hour

6 System Management - What We've Done

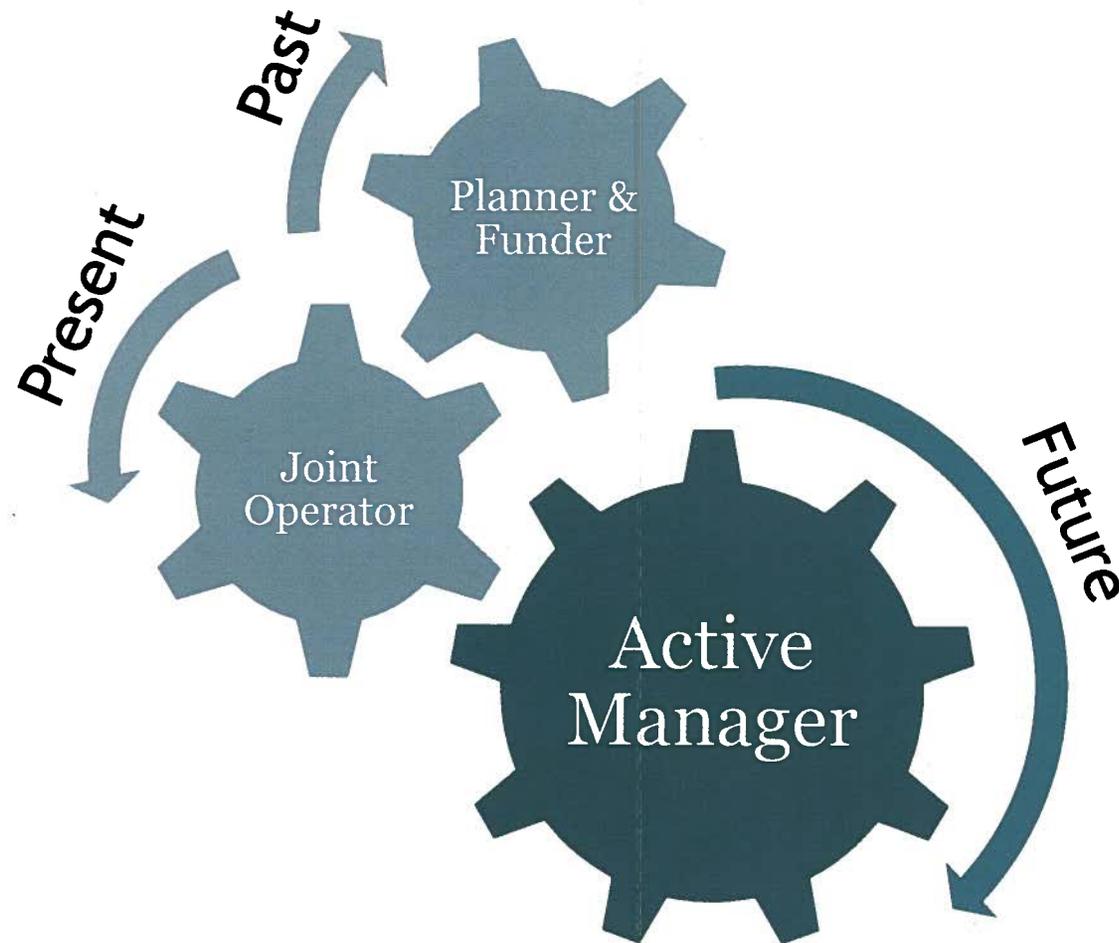
Transportation Management System



State Smart Transportation Initiative O&M Recommendations (*January 2014*)

- “System preservation should be a primary message.”
- “Caltrans should improve its ability to operate its highway system.”
- “Caltrans should modernize its stewardship effort with asset management.”
- “Caltrans and CalSTA should negotiate coverage for long-term maintenance, resurfacing, and reconstruction costs when locally controlled STIP and LTST (local transportation sales tax) funds are used to add capacity to state highways.”
- “Caltrans should push performance-based management throughout the organization.”

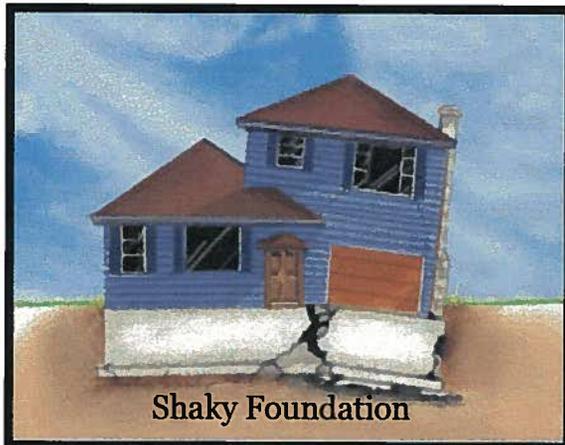
Question of the Day – Should MTC Take a More Hands-On Role in the Future of Freeways?



Why Now?

Regional Investments Must be Preserved

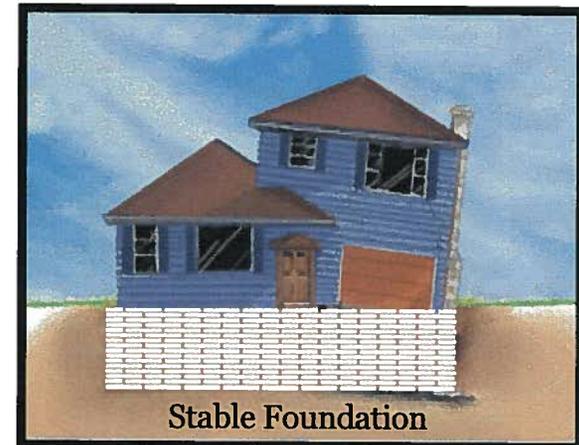
Today



Plug
the drain &
repair the
foundation

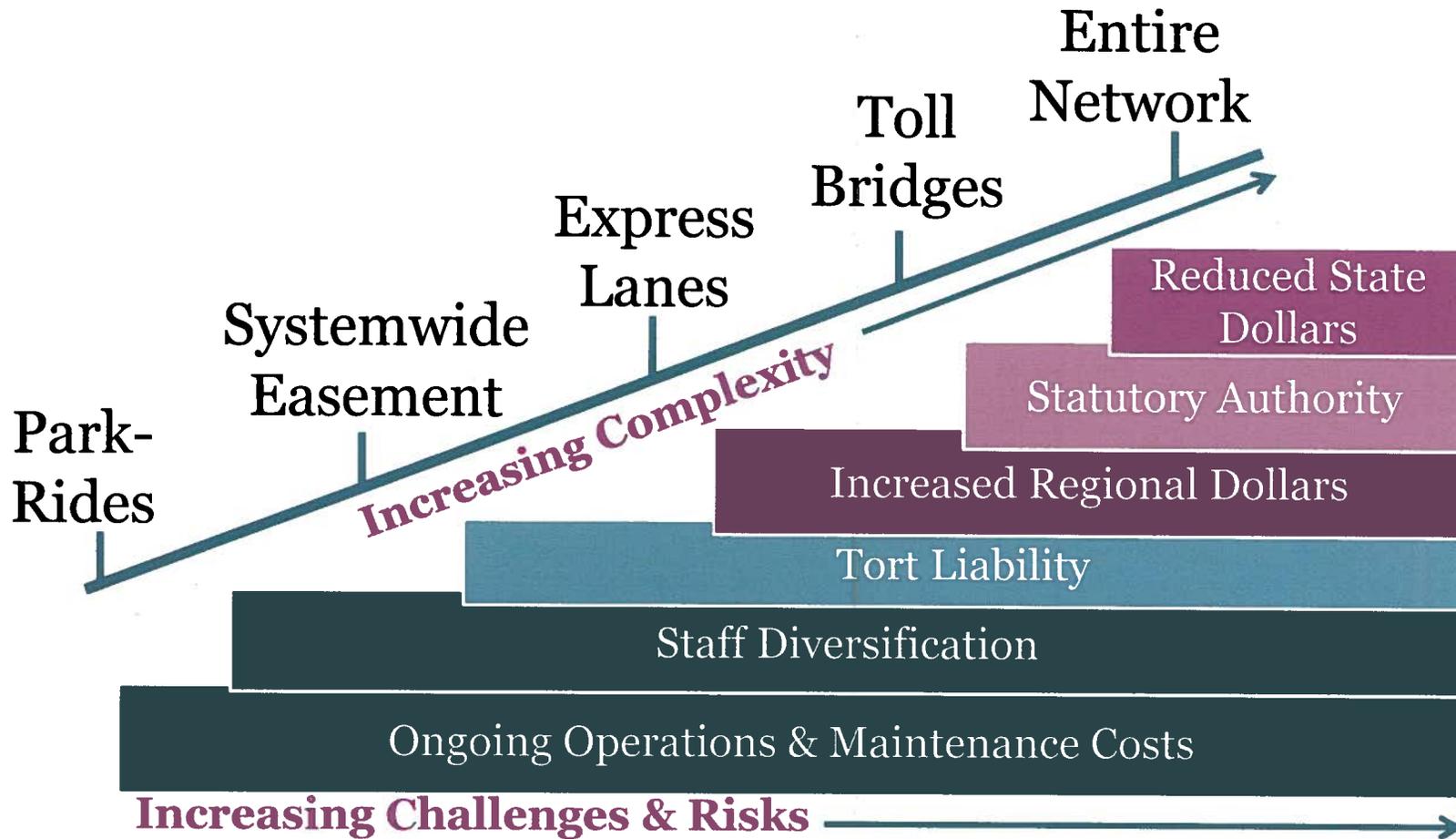


Tomorrow



MTC should ensure the region has a stable foundation to support future system investments

Should MTC Own and Operate? Ownership Options



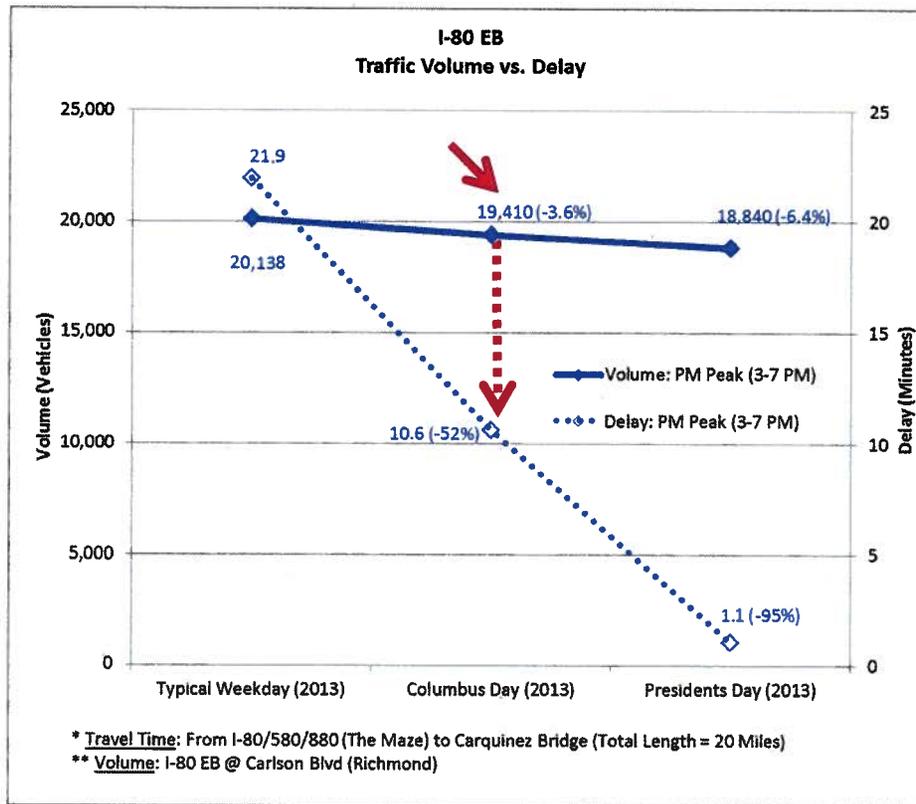
Should MTC Own and Operate? Operational Strategies



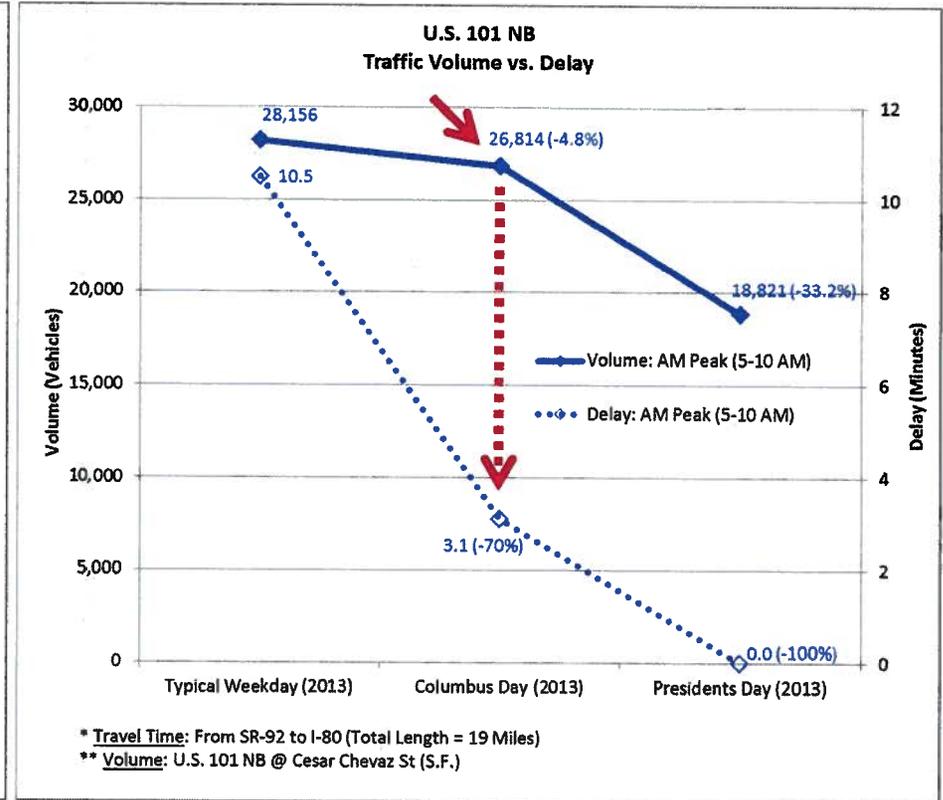
*Test Case:
Why Can't We Make Every Day
Like Columbus Day?*

3-5% lower traffic demand on Columbus Day yields 50-70% less delay

Alameda I-80 Eastbound



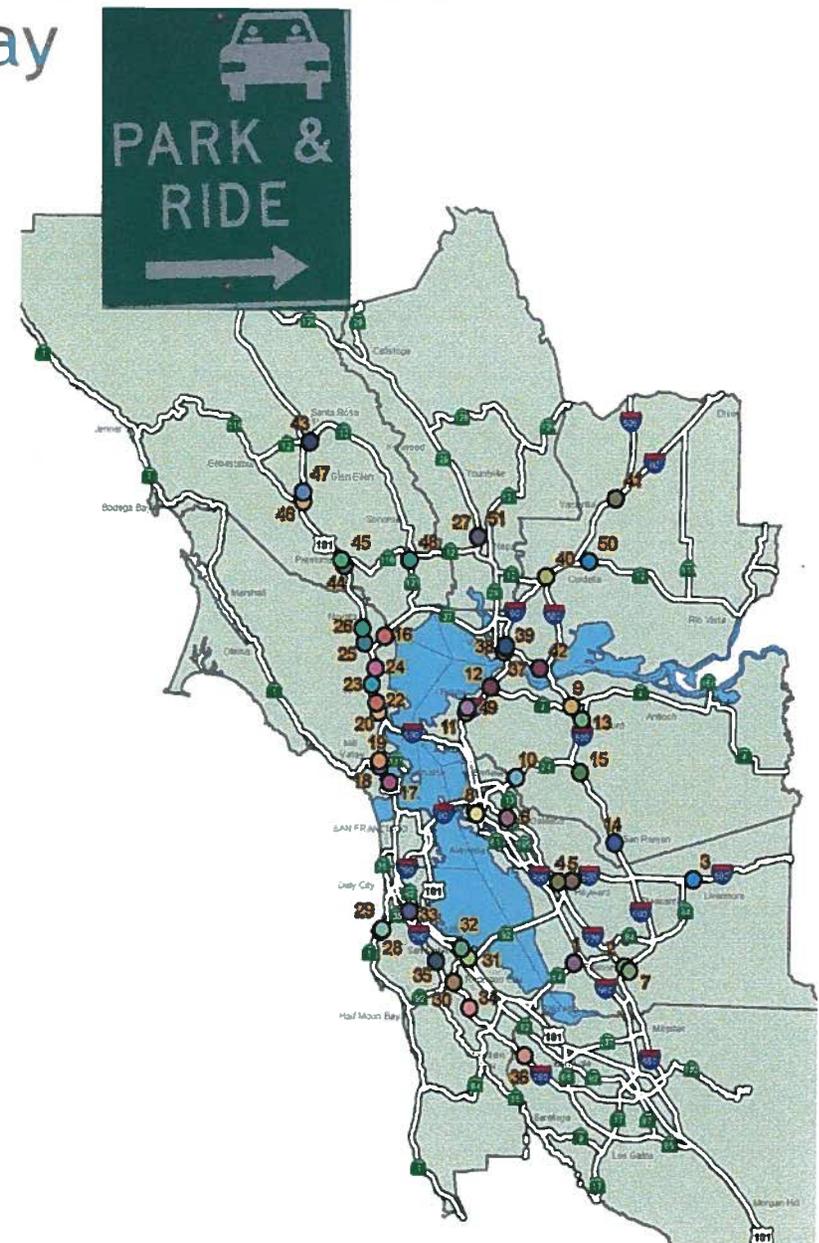
San Mateo US-101 Northbound



1 Make Every Day Columbus Day Place State Park-Rides Under New Management

- Senate Bill 415 allows Caltrans to relinquish park-rides
- Transfer strategic number of Caltrans' 52 park-rides to MTC and acquire new lots to maximize usage and support Regional Express Lanes Network/express buses/corp shuttles

Reduces freeway travel demand
by 1 to 3 percent



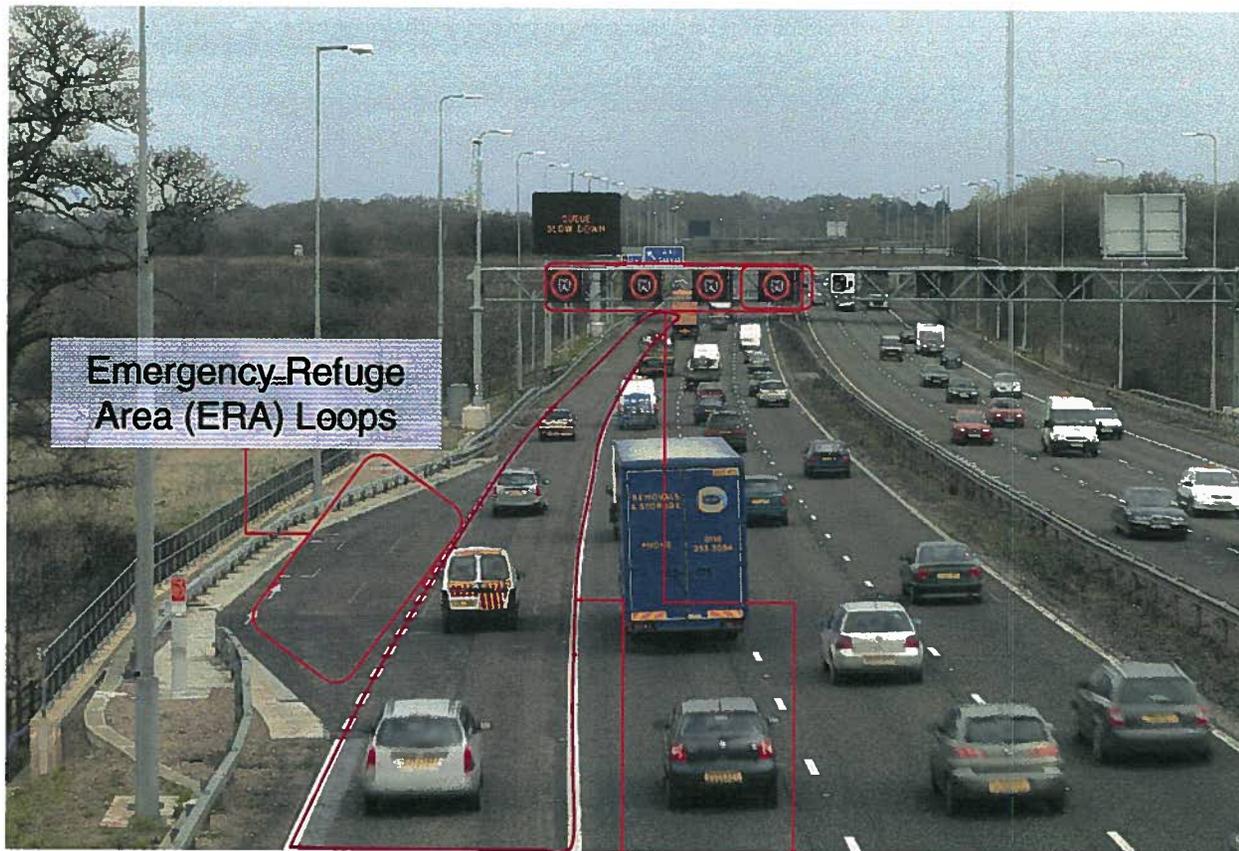
2 Make Every Day Columbus Day Adaptively Meter Freeway Traffic

- Implement ramp metering on all high-priority, congested corridors
- Switch to adaptive ramp meters that respond to system-wide traffic on freeway corridor (not just at specific ramp)
- Adaptive ramp metering included in I-80 Integrated Corridor Management (ICM) as a pilot



Reduce freeway travel time by 3 to 10% and increase freeway throughput by 2 to 6%

3 Make Every Day Columbus Day Actively Manage Freeway Traffic



Emergency Refuge Area (ERA) Loops

Hard Shoulder Running (HSR)

Variable Speed Limits (VSL)

- Deploy hard shoulder running and variable speed limits on I-80, I-680 and I-880
- Hard shoulder running increases capacity (700 – 1,400 veh/hour)
- Variable speed limits increases capacity by 1-5% and reduces crashes by 15-40%
- Hard shoulder running lane being piloted on Richmond-San Rafael for eastbound afternoon peak hours

Increase freeway capacity by 5 to 25% and reduce crashes by 15 to 40%

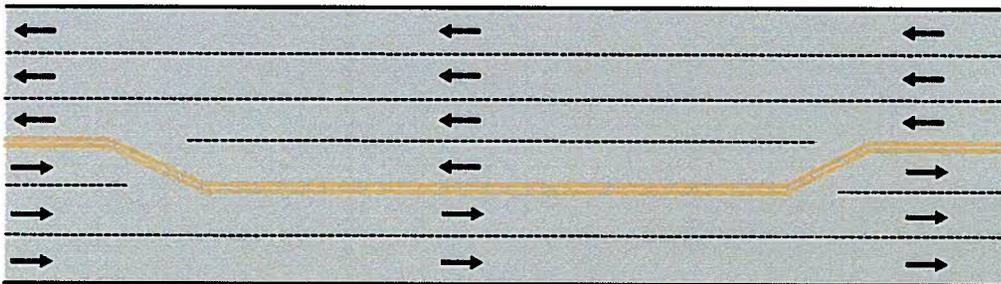
Make Every Day Columbus Day

4 “Borrow” capacity via Contraflow Lane

- Temporarily “borrowing” capacity from the other direction
- Handle emergencies and event traffic
- Consider a contraflow lane on Solano I-80



Example of a movable barrier being put in place during past construction at the Robert F. Kennedy Bridge (New York City)



Increase capacity in peak direction by 15 to 30%

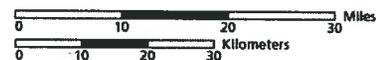
5 Make Every Day Columbus Day Turn HOV Lanes into Express Lanes

- Deliver MTC Express Lanes Network
- Convert all remaining high-occupancy vehicle lanes (HOVs) to express lanes
- Consider converting general purpose lanes on US 101 Peninsula and I-880 North

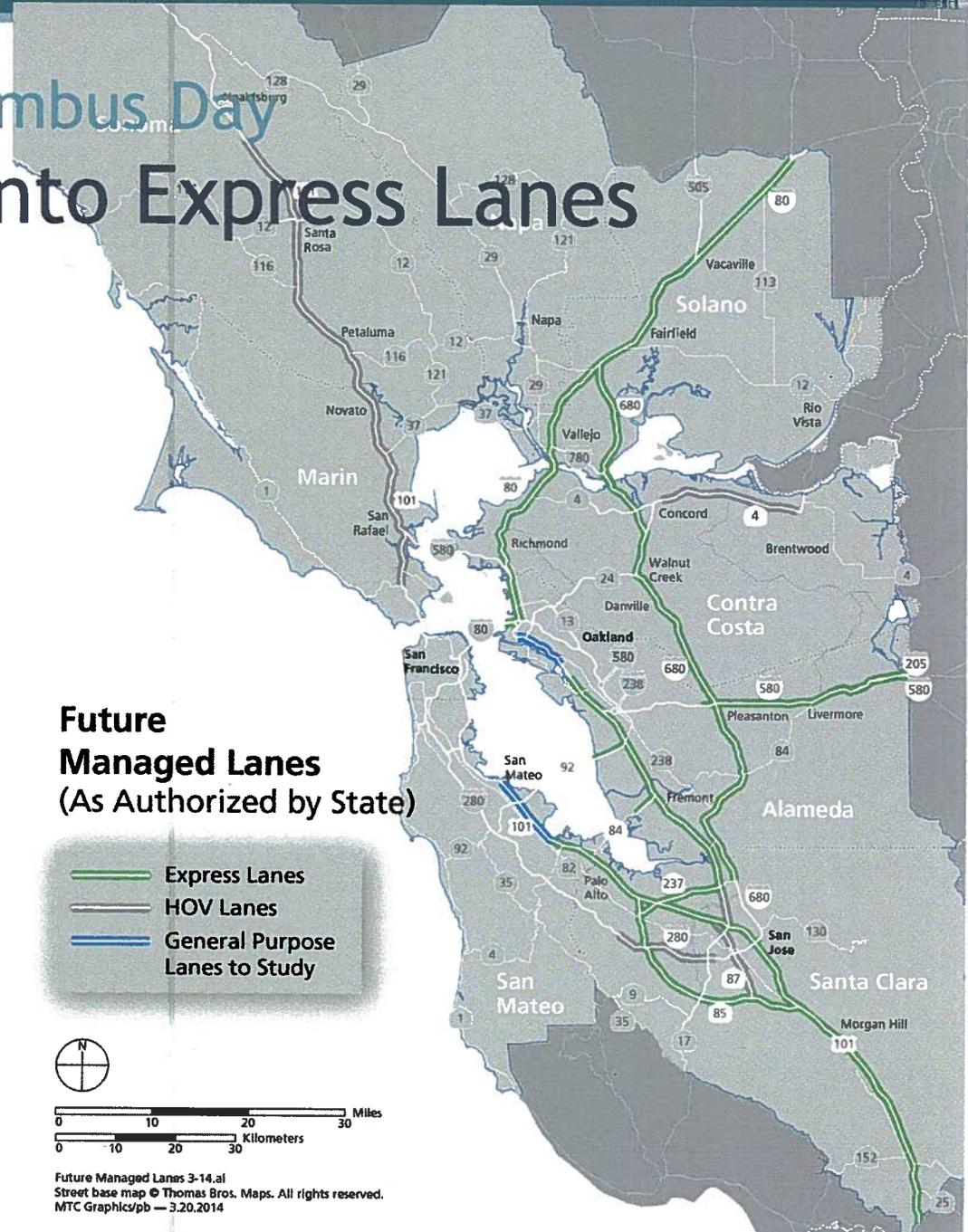
Increase freeway throughput by 1 – 15% and reduce freeway travel time by 2 – 10%

Future Managed Lanes (As Authorized by State)

- Express Lanes
- HOV Lanes
- General Purpose Lanes to Study

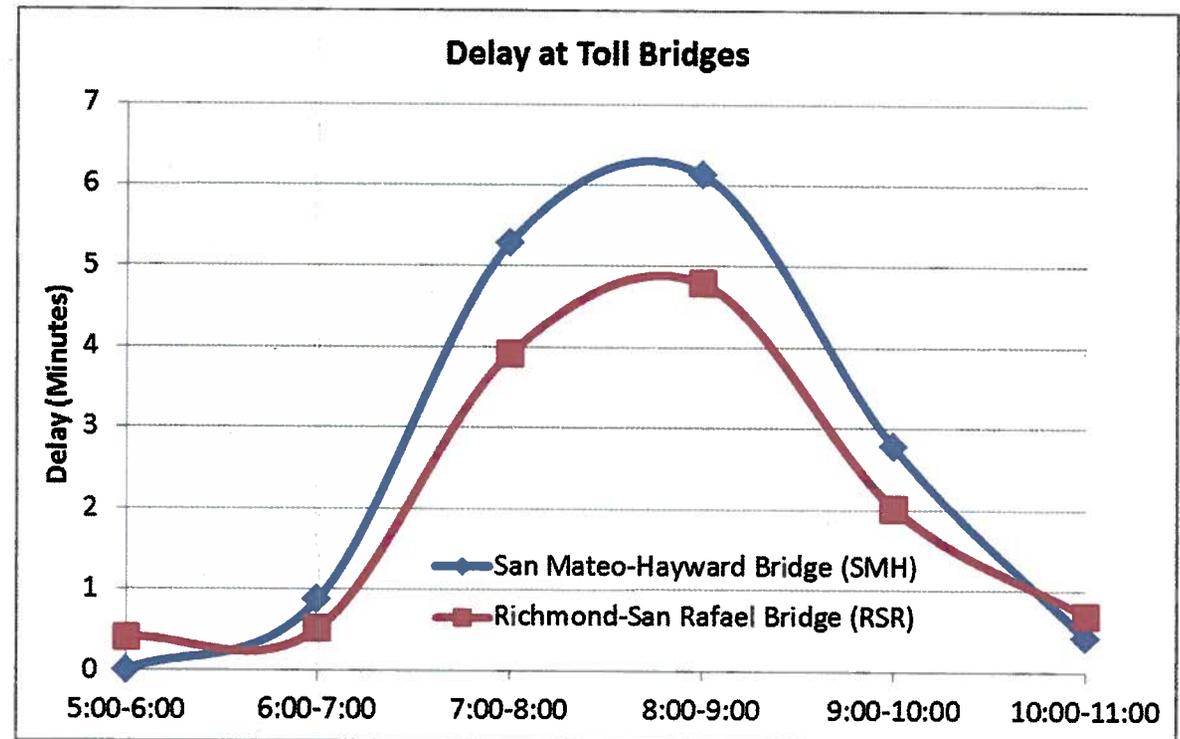


Future Managed Lanes 3-14.ai
Street base map © Thomas Bros. Maps. All rights reserved.
MTC Graphics/pb — 3.20.2014



6 Make Every Day Columbus Day Dynamically Price Congested Toll Bridges

- Deploy dynamic pricing on congested toll bridges
 - Richmond-San Rafael Bridge (5-min existing delay)
 - San Mateo-Hayward Bridge (6-min existing delay)



Reduce toll bridge delay by 30 to 60%

Columbus Day Recap

- There are large gains in mobility from pursuing these strategies
- Generally speaking, they don't cost that much money
- Major challenge is building the political support to pursue them

Discussion Questions

1. Should MTC own and operate any parts of the freeway system?
2. What are the opportunities and risks that come with ownership?
3. Which Columbus Day strategies might work best for the Bay Area?
4. Where's the funding and political support going to come from?

Should MTC Own and Operate? Operational Strategies

