



Metropolitan Transportation Commission
Freeway Performance Initiative

Alameda County Technical Advisory Committee (ACTAC)
 May 8, 2014

Freeway Performance Initiative

Maximize System Performance Through Technology

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Goals

- Deploy current technology to better manage the congestion on our freeway system, including parallel arterial and transit systems
- Address recurrent congestion (bottlenecks) and non-recurrent congestion (incidents)

Key FPI Elements

- Incident Management
- Traveler Information
- Arterial Management
- Ramp Metering



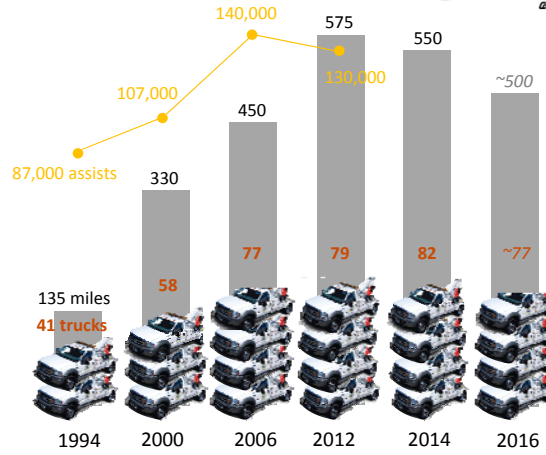
Freeway Service Patrol

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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.

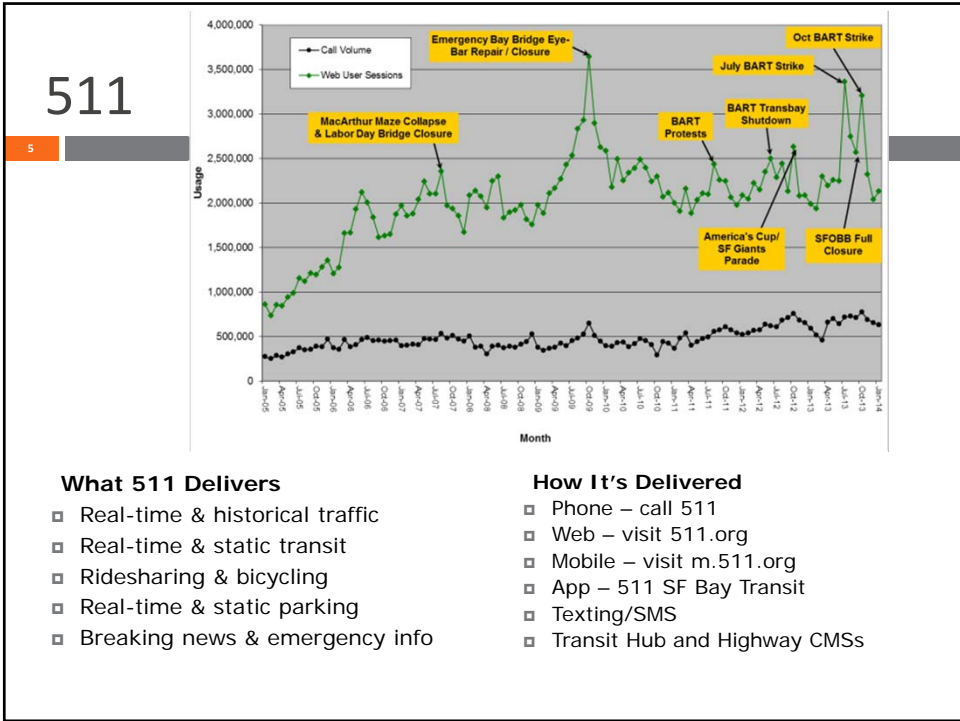


Call Boxes

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Year	Calls	Boxes	Description
2004	40,000	2,400	Removed 900 call boxes in response to declining call volumes.
2006	31,000	1,900	Continued to downsize program due to prevalence of cell phones.
2008	23,000	2,200	Introduced 511 Freeway Assist and complete bridge call box installation.
2014	~15,000	1,700	Install 511 Freeway Assist signs at removed sites. Spacing increases to 2 mi.
Future	~8,000	700	Complete removal from urban corridors.





Program for Arterial System Synchronization (PASS)

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- ❑ Coordinates signals during peak periods (commute, school, etc.)
- ❑ Improves bike, ped and transit mobility on major arterials
- ❑ Develops incident management flush plans, traffic responsive plans, and event coordination plans (\$2M in FY2015)

Ramp Metering

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- Control the rate at which vehicles enter a freeway facility through the use of traffic signals (i.e., breaking up vehicle platoon)
- Help ensure that the freeway is able to carry all the traffic it should be able to carry



FPI Ramp Metering Plans Operating Principles

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1. Coordinate freeway and arterial operations to ensure efficient operation of both facilities.
2. Promote high occupancy vehicles (HOV) preferential lanes at on-ramps where needed and if feasible.
3. Ensure that queues from metered ramps do not impede operation of local streets and intersections or block access to private property.
4. Ensure that if queues at metered ramps cannot be accommodated, metering will be set at a faster rate to eliminate the negative impact (queue override).

More Local Support for Ramp Metering Today

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- **Freeway Management Focus**
 - Shift away from additional capacity to efficient operations of existing system
- **Partnerships & Leadership**
 - MTC, Caltrans & Congestion Management Agencies working together to deliver metering
- **Responding to Local Concerns**
 - Locals are concerned about spillback onto local streets and diversion
 - Metering rates developed within the Ramp Metering Implementation Plan are set to minimize spillback and diversion
 - Local jurisdictions are part of the technical committee providing direct input into the Ramp Metering Implementation Plan



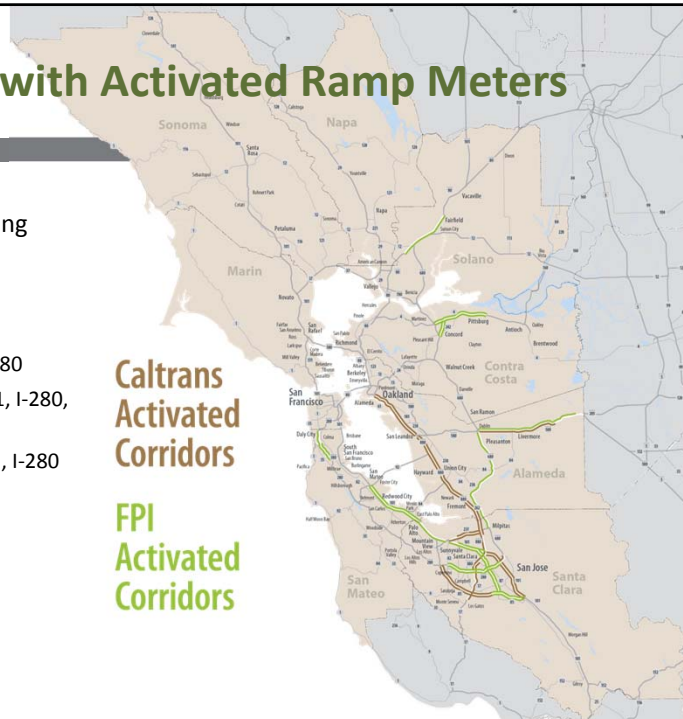
Corridors with Activated Ramp Meters

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- FPI has activated metering in following corridors to date:
 - Solano I-80
 - Contra Costa CC-4
 - Alameda I-580, I-680
 - Santa Clara US-101, I-280, SR-85
 - San Mateo US-101, I-280

Caltrans Activated Corridors

FPI Activated Corridors



Mobility Benefits of Ramp Metering

Increased freeway throughput of 2-5% results in measurable mobility benefits

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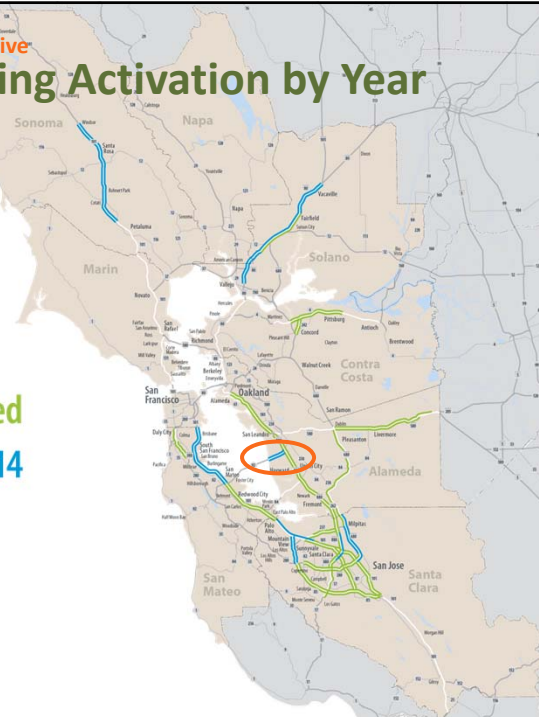
County/ Route	Corridor	Reduction In Travel Time		Reduction In Duration of Peak Period, hours
		Minutes	%	
SM 101	SB Hillsdale to University	19	57	1
ALA 580	EB Foothill to Greenville	11	33	2
SM 280	NB Sneath to Serramonte	3	28	1
SCL 85	SB Almaden to Cottle	4	52	1
SCL 87	NB Route 85 to Skyport	4	30	2
SCL 87	SB Charcot to Santa Teresa	9	41	1
ALA 580	WB Interstate 205 to Foothill	7	24	1
SCL 101	SB Embarcadero to De La Cruz	1	5	N/A
SCL 880	SB Route 237 to Stevens Creek	11	38	1

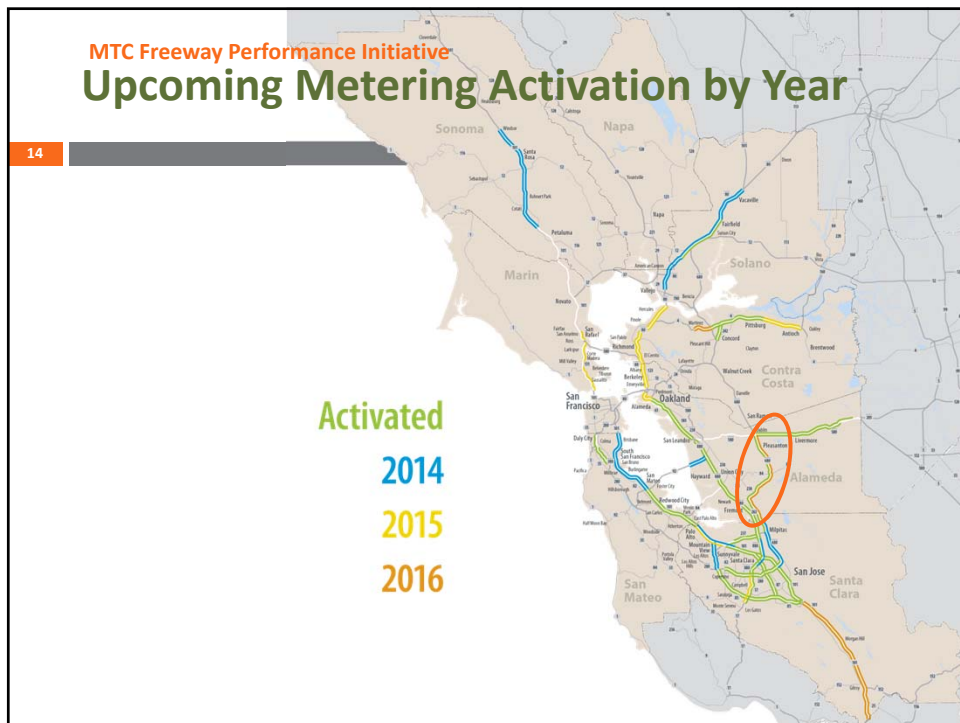
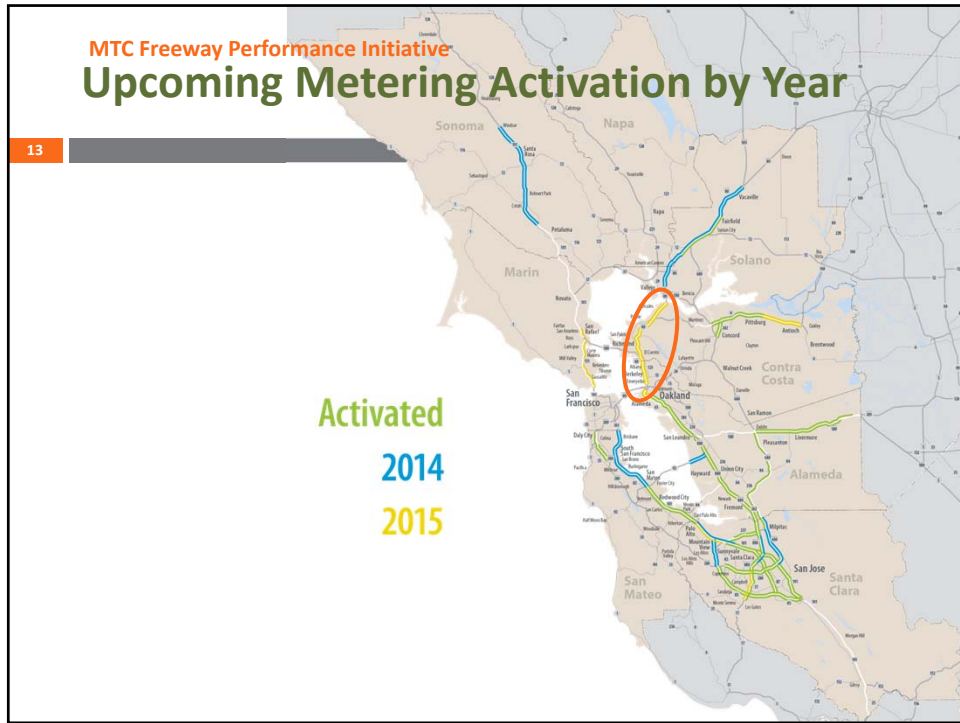
- **Travel Time:** Reduced 1 to 19 minutes (or 5 to 57%)
- **Duration of Peak Period:** Reduced 1 to 2 hours

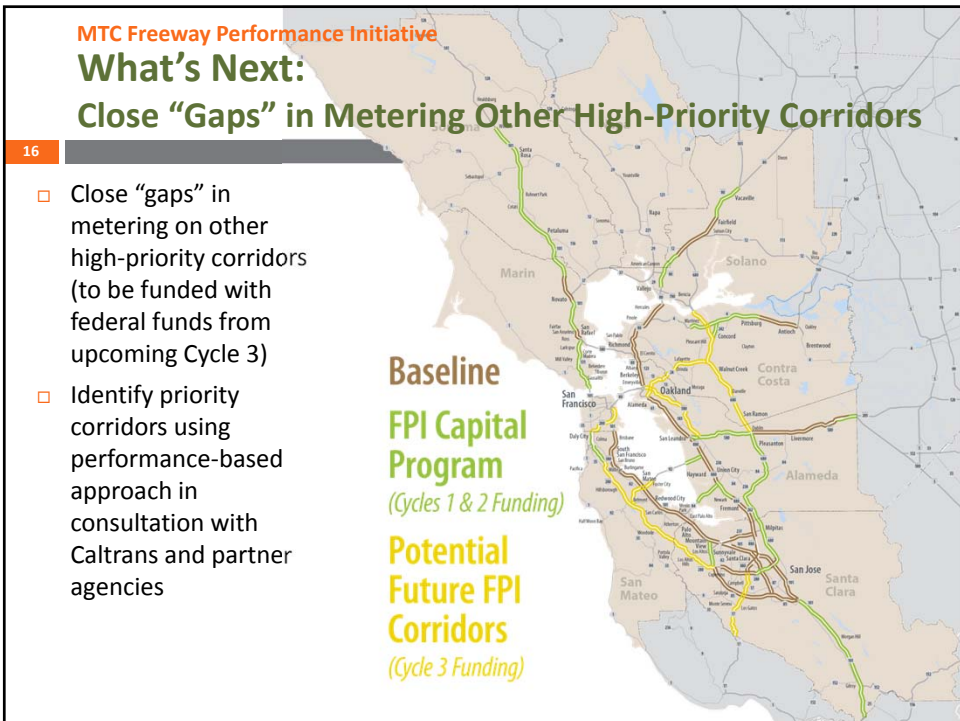
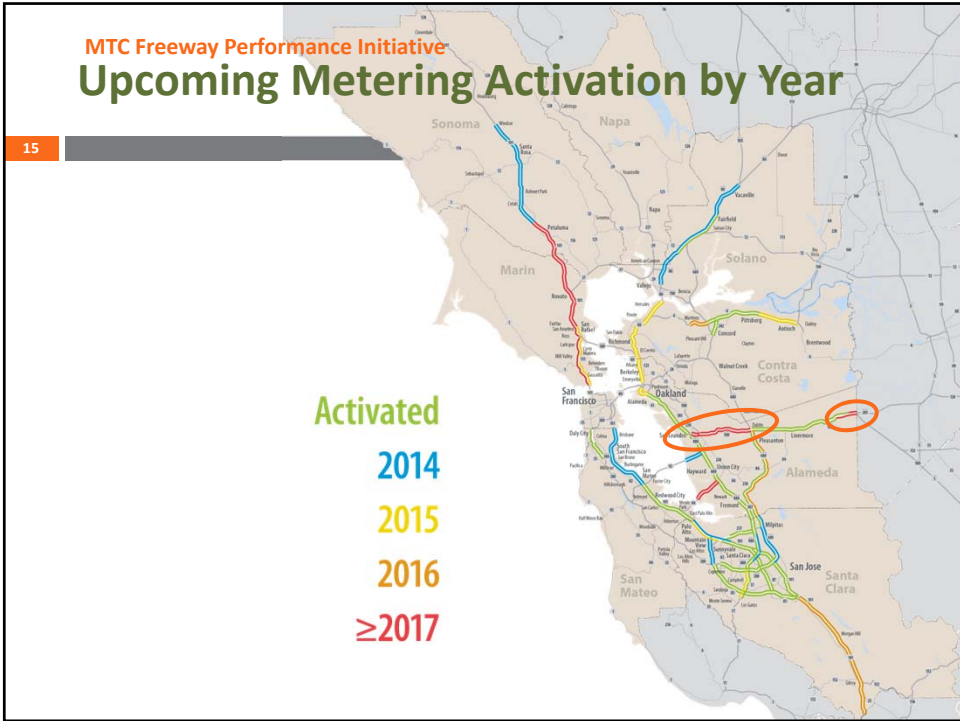
MTC Freeway Performance Initiative Upcoming Metering Activation by Year

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Activated
2014





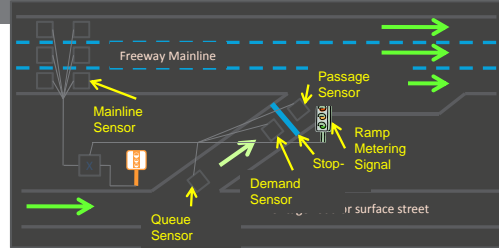


What's Next: Active Management Strategies

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Adaptive Ramp Metering

- Adaptive to system-wide traffic on a freeway corridor (not just at specific ramp location)
 - Reduces freeway travel time by 3 to 10% (vs. conventional ramp metering)
 - Examples:
 - Orange, Ventura, and Los Angeles Counties' Adaptive Ramp Metering (1990s)
 - Alameda CTC's I-80 Adaptive Ramp Metering (2015)



Adaptive Ramp Metering (I-80 in Alameda County)



Hard Shoulder Running (M42 in UK)



P&R Management (LA Metro)

Other Active Traffic Management Strategies

(Hard shoulder running, park-ride management, dynamic pricing, variable speeds, contraflow lane, etc.)