



METROPOLITAN
TRANSPORTATION
COMMISSION

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Memorandum

Agenda Item 4

TO: Operations Committee

DATE: March 7, 2014

FR: Executive Director

RE: **Freeway Performance Initiative: Ramp Metering Update**

At the December 13, 2013 Operations Committee meeting, MTC and Caltrans District 4 staff provided an update on the conditions of the Bay Area's highway operations field equipment as an element of a larger presentation about the Regional Transportation Management System (TMS) Action Plan. As a follow-up to this discussion, the Committee requested a focused update on the status of the ramp metering system, particularly in response to following questions:

- What is the performance of activated (turned-on) ramp meters?
- What is the status of metering activation for corridors with installed but not yet activated meters?
- What is the level of local and community support of ramp metering activation? Do local jurisdictions still have a say in whether or not meters can be turned on? If so, is this causing delay in metering activation?
- How are we approaching wire-theft prevention and enforcement? Committee members noted that MTC should continue to pursue increased enforcement to mitigate wire-theft.

MTC and Caltrans staff will provide an update of the Freeway Performance Initiative (FPI) ramp metering program in response to the above questions at the March 14, 2014 Committee meeting. In addition, staff will report on freeway corridors that are slated to be activated in 2014 and subsequent years, as well as staff's initial thinking about potential future freeway corridors that may benefit from ramp metering and be included in FPI's upcoming Cycle 3 federally-funded capital program. Staff will also discuss other Next Generation Active Traffic Management strategies (i.e., adaptive ramp metering, hard shoulder running, variable speed limits, adaptive traffic signal controls, etc.) that deployed to better operate and manage our existing transportation system.

Steve Heminger

SH:AN

J:\COMMITTEE\Operations\2014 Operations Comm Packet\03_Ops_Mar2014\4_FPI Ramp Metering Update_021214AN.doc



MTC Freeway Performance Initiative RAMP METERING UPDATE

MTC Operations Committee
March 14, 2014

MTC Freeway Performance Initiative: Ramp Metering Update

- Performance of Activated Ramp Meters
- Wire Theft Prevention & Enforcement
- Status of Corridors with Installed but Not Activated Meters
- “Pulse” of Local Support for Ramp Metering
- What’s Happening Now: Upcoming Metering Activation
- What’s Next: Closing “Gaps” and Implementing Active Management Strategies

Performance of Activated Ramp Meters

As of February 21, 2014

County	Total	Working Meters		Not Working Meters	
		Number	Percentage	Number	Percentage
Alameda	137	123	90%	14	10%
Contra Costa	20	20	100%	0	0%
Santa Clara	185	176	95%	9	5%
San Mateo	39	36	92%	3	8%
Solano*	9	9	100%	0	0%
Total	390	364	93%	26	7%

County	Total	Reasons Why Meters Are Not Working		
		Wire Theft	Knock-Down	Construction**
Alameda	14	1	2	11
Santa Clara	9	3	1	5
San Mateo	3	0	3	0
Total	26	4	6	16

*Activated on February 18, 2014; **Meters temporarily de-activated due to highway construction activity

Wire Theft Prevention & Enforcement

4

- Wire Theft Prevention Methods
 - Reduction of the number of pull boxes to provide fewer access points
 - Pull boxes and conduits installed far away from travel way
 - Burial of reinforced concrete traffic rated pull box with tamper resistant cover with soil anchor
 - Burial of cable embedded in colored concrete
 - Use of aluminum conductors
- Ongoing Caltrans maintenance
- Ongoing CHP enforcement



Corridors with Installed but Not Activated Meters

Sonoma US-101 (Petaluma to Windsor)

- Undergoing repairs
- Activate in Summer 2014

Solano I-80 Westbound (Through Fairfield)

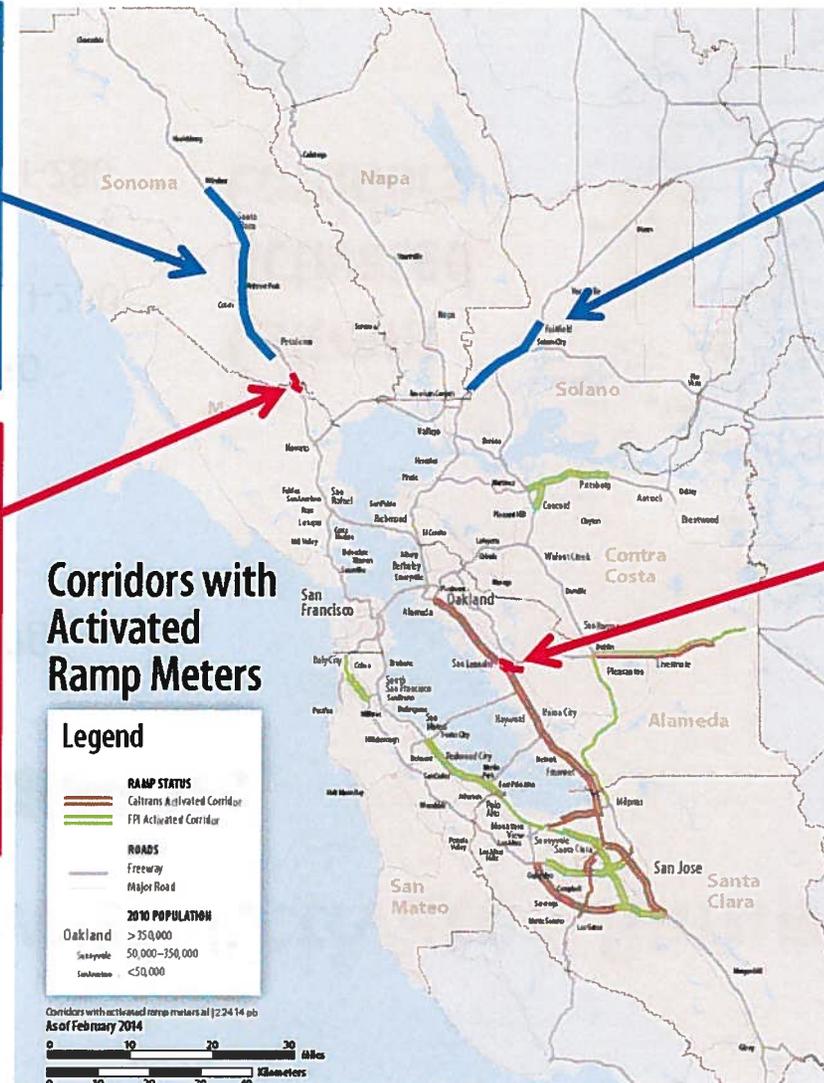
- Activate Phase 2 in Fall 2014

Marin US-101

- Non-usable segment
- Activate Phase 1 NB in Late 2015 and Phase 2 SB/NB in Fall 2017

Misc.

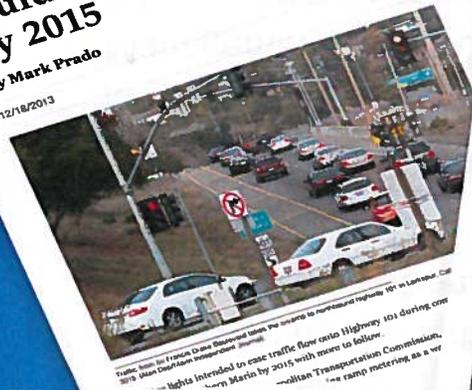
- Ad hoc installation of meters with capital projects (example: Alameda I-580)
- Non-usable segments
- To be activated with larger project



Ramp Metering Making Headlines

Marin Independent Journal Freeway metering lights could appear in Marin by 2015

By Mark Prado
12/18/2013



Traffic from the Contra Costa and Alameda counties, the onramp to northbound Highway 101 in Larkspur, Calif. (The Press Democrat photo) ... lights intended to ease traffic flow onto Highway 101 during one ... Marin by 2015 with more to follow. ... -Caltrans Transportation Commission. ... ramp metering as a w...

The Press Democrat Highway 101 metering lights to be turned on

December 17th, 2013

By MATT BROWN
THE PRESS DEMOCRAT
Sometime in early next year, metering lights will be installed on the freeway to help ease traffic flow onto Highway 101 during one ... Marin by 2015 with more to follow. ... -Caltrans Transportation Commission. ... ramp metering as a w...

San Jose Mercury News Roadshow: Metering lights on Highway 92 'sorely needed' or scary prospect?

By Gary Richards

02/05/2014

Q There are some brand-new metering lights and carpool road markings on the onramps to Highway 92 west at Clawiter Road and Industrial Parkway in Hayward. Are the carpool markings valid ignore them? There are no signs with information. Most of us guess that they are not active and we And any idea when the metering lights will be switched on? It'll be an interesting experiment to see how much (or whether) it backs up onto the normal roads.

Tom Geary
Fremont

A The CHP says if there are carpool lane signs along the ramps and diamond markers on the pavement, carpool rules are enforceable, even if metering lights are not yet working. If there is only one warning, the carpool restriction is not enforceable.



Interchange of 101 and 92 in San Mateo. (Bay Area News Group)

As for the metering lights, they could be turned on this fall. Now let's swing over to 92 on the other side of the bay.

Q Looks like Caltrans has installed metering lights on the ramp from east 92 to south 101 in San Mateo. Do the powers that be know what a mess this will create? The stretch of 92 between 280 and 101 is already jammed in the morning. Having more metering lights will make matters worse and force more traffic onto San Mateo city streets.

Paul Richards
San Mateo

A Others disagree.

Q Every morning 101 south moves along at a decent pace until it intersects with Highway 92, at which point everything comes to a crawl. As I've passed the interchange, I've noticed that the ramps aren't on during rush hour?

Jake Hercules
San Francisco

A And ...

CONTRA COSTA TIMES Metering lights get green light on Pittsburg and Concord freeways

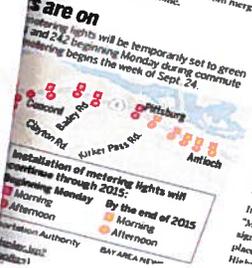
By Paul Burgarino Contra Costa Times

POSTED: 09/26/13 03:01 PM PDT | UPDATED: 3 MONTHS AGO



Caltrans is installing 4 new metering lights on Highway 4 and Highway 242 during the week of Sept. 24. The lights will be installed on the onramp to Highway 4 from Highway 242 and the onramp to Highway 242 from Highway 4. The lights will be installed on the onramp to Highway 4 from Highway 242 and the onramp to Highway 242 from Highway 4. The lights will be installed on the onramp to Highway 4 from Highway 242 and the onramp to Highway 242 from Highway 4.

There's some time to get used to the signals. Starting Monday during commute hours, according to a Caltrans news release, the lights will be on 6 to 10 a.m. westbound and southbound, and 2 to 7 p.m. northbound and eastbound. Metering lights will be temporarily set to green during the week of Sept. 24.



"We want drivers to become acclimated with the lights and while making sure that all of the wiring works properly," said Randy Instahl, executive director of the Contra Costa Transportation Authority.

In preparation, "metering lights" signs have been placed along Highway 4 and Highway 242.

More Local Support for Ramp Metering Today

- **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

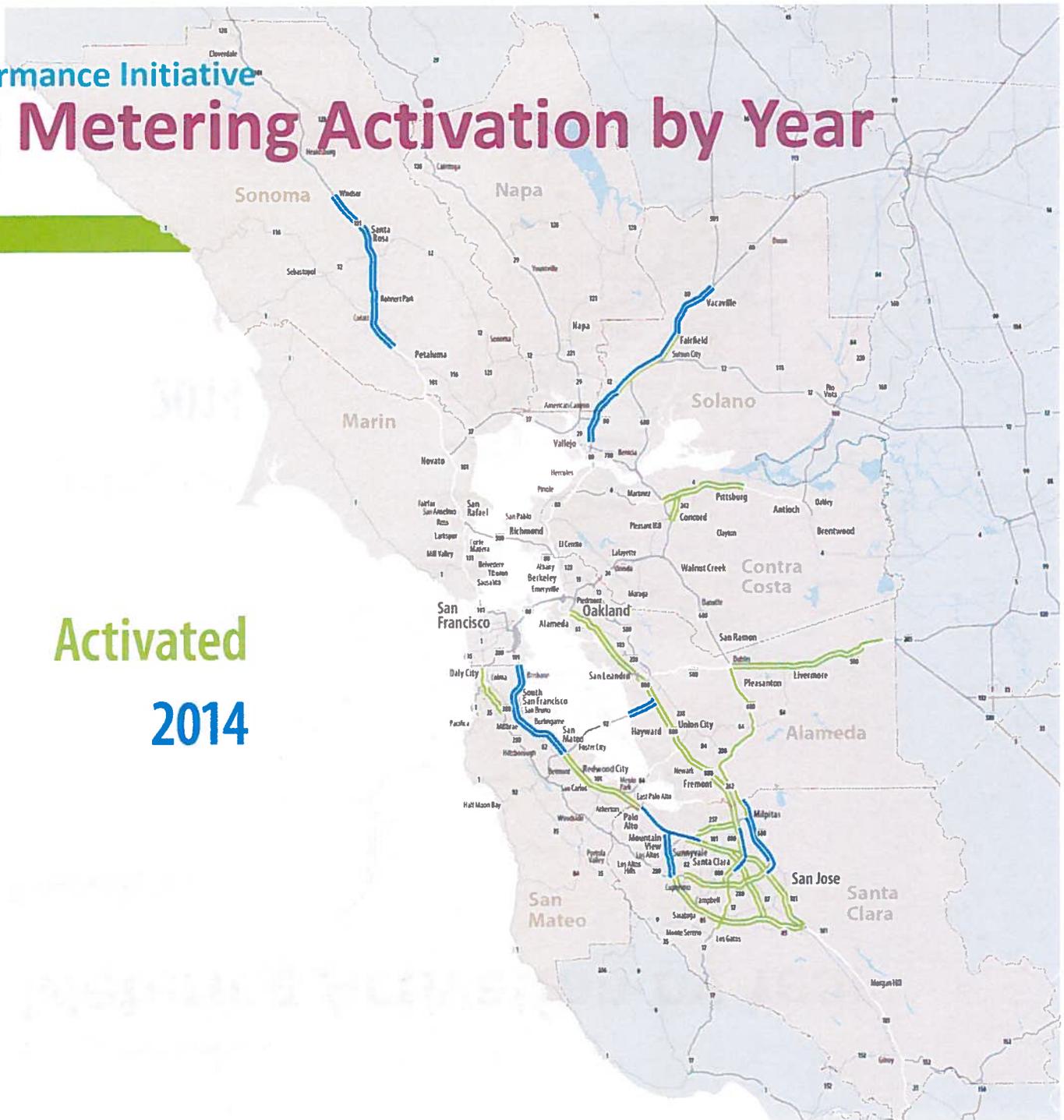


MTC Freeway Performance Initiative

Upcoming Metering Activation by Year



Activated
2014

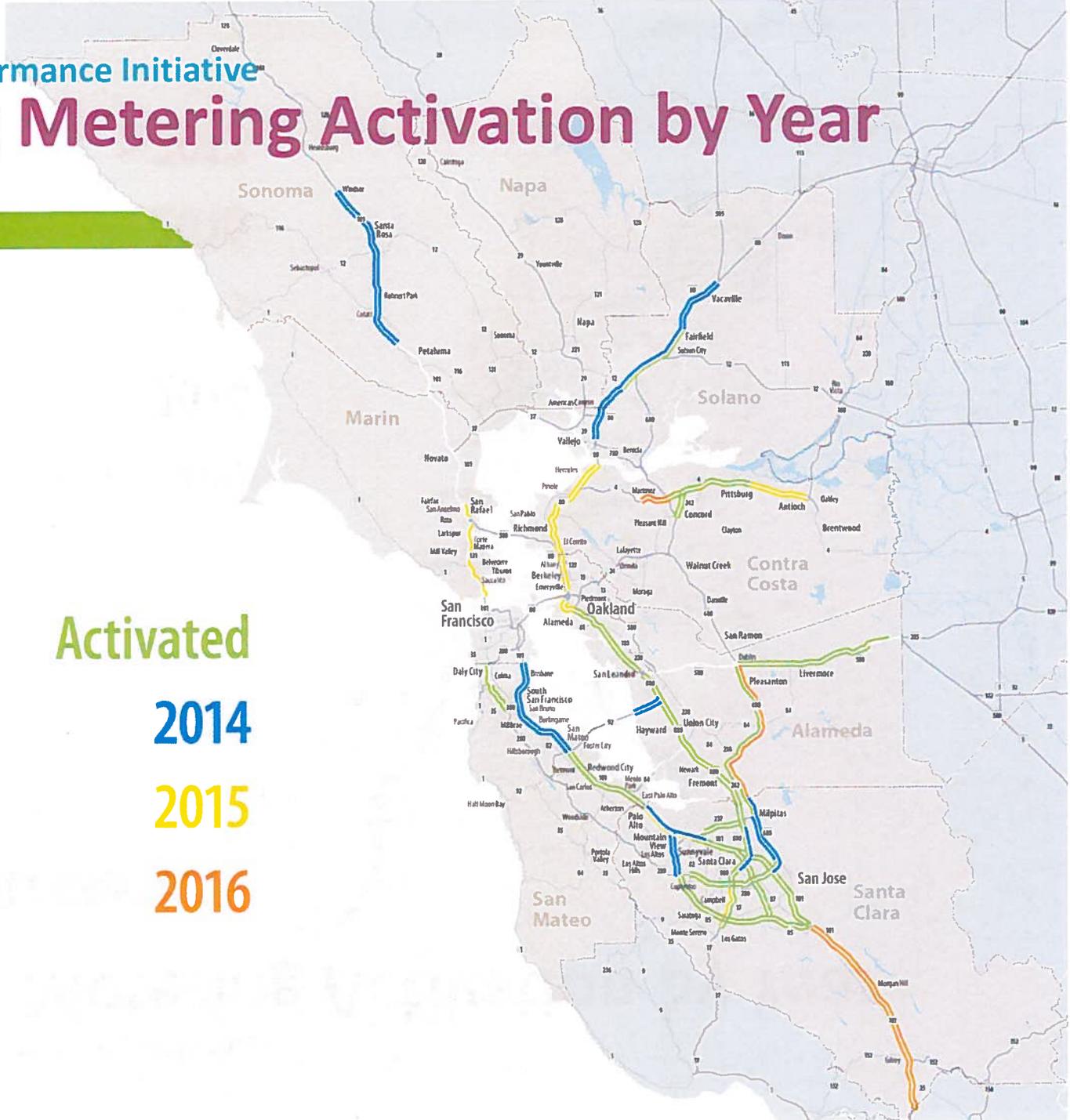


MTC Freeway Performance Initiative

Upcoming Metering Activation by Year



Activated
2014
2015
2016



MTC Freeway Performance Initiative

Upcoming Metering Activation by Year

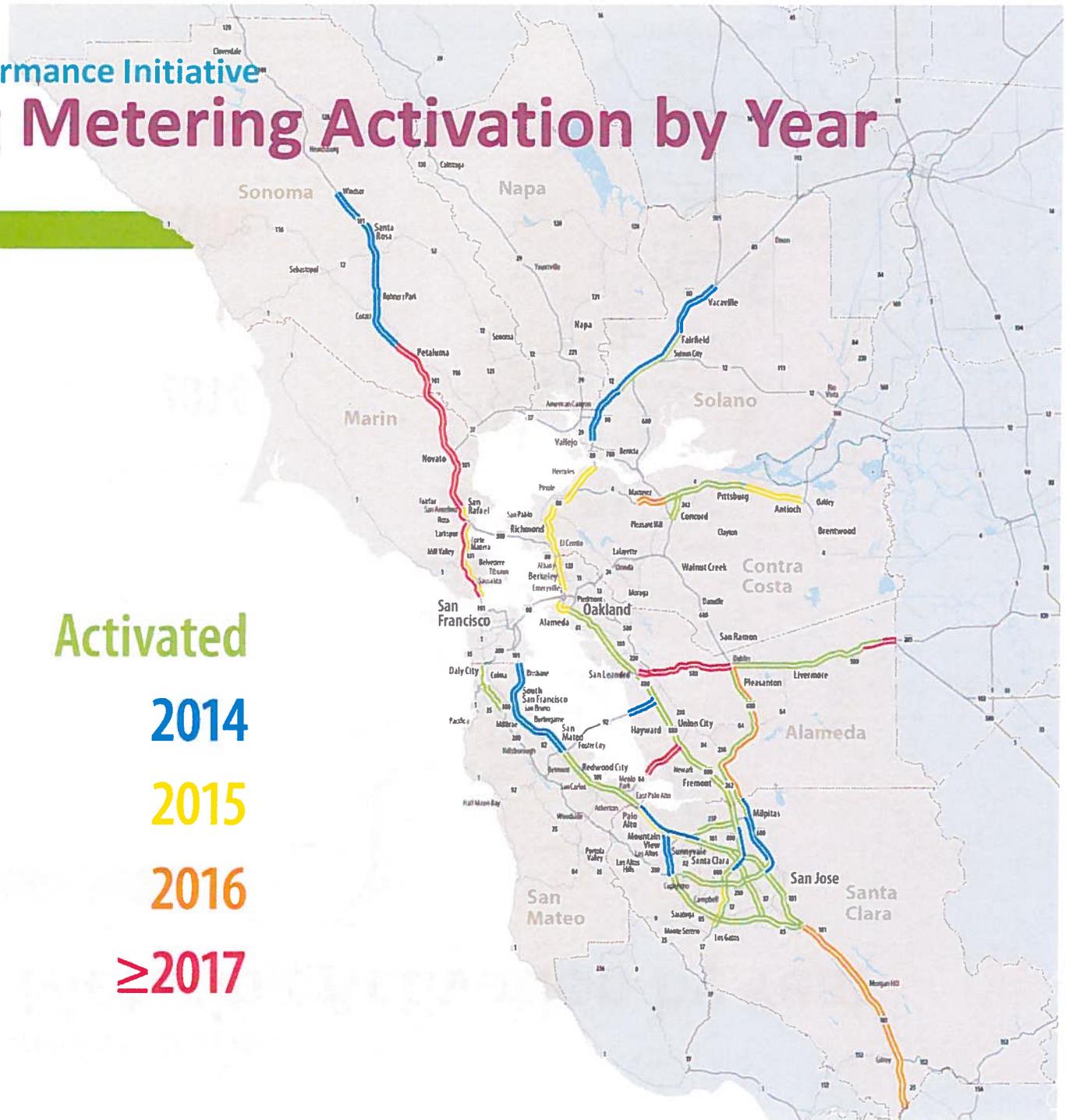
Activated

2014

2015

2016

≥2017



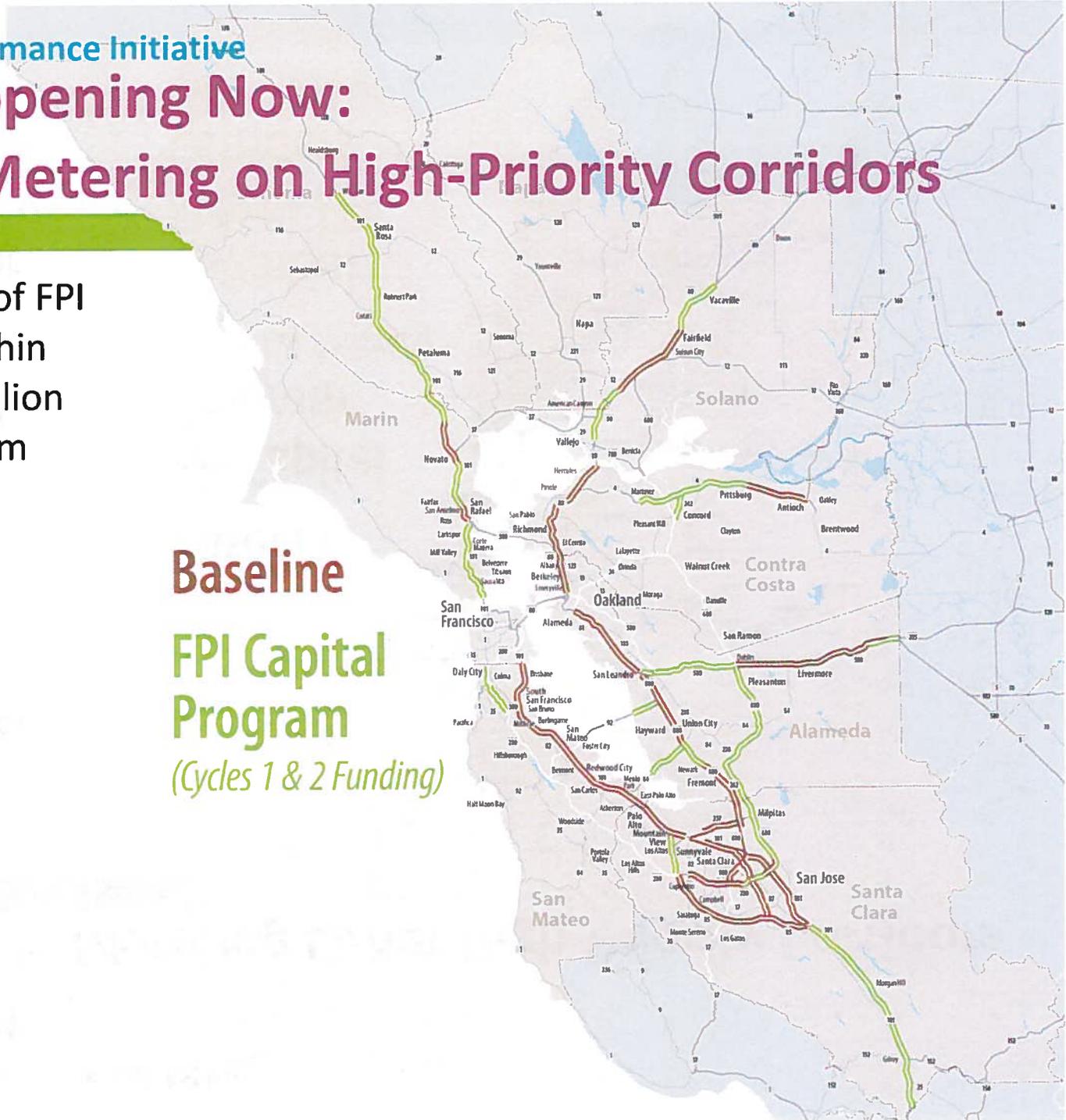
MTC Freeway Performance Initiative

What's Happening Now:

Complete Metering on High-Priority Corridors

- Complete delivery of FPI capital projects within five years (\$165 million in federal funds from Cycles 1 & 2)

Baseline
FPI Capital Program
(Cycles 1 & 2 Funding)



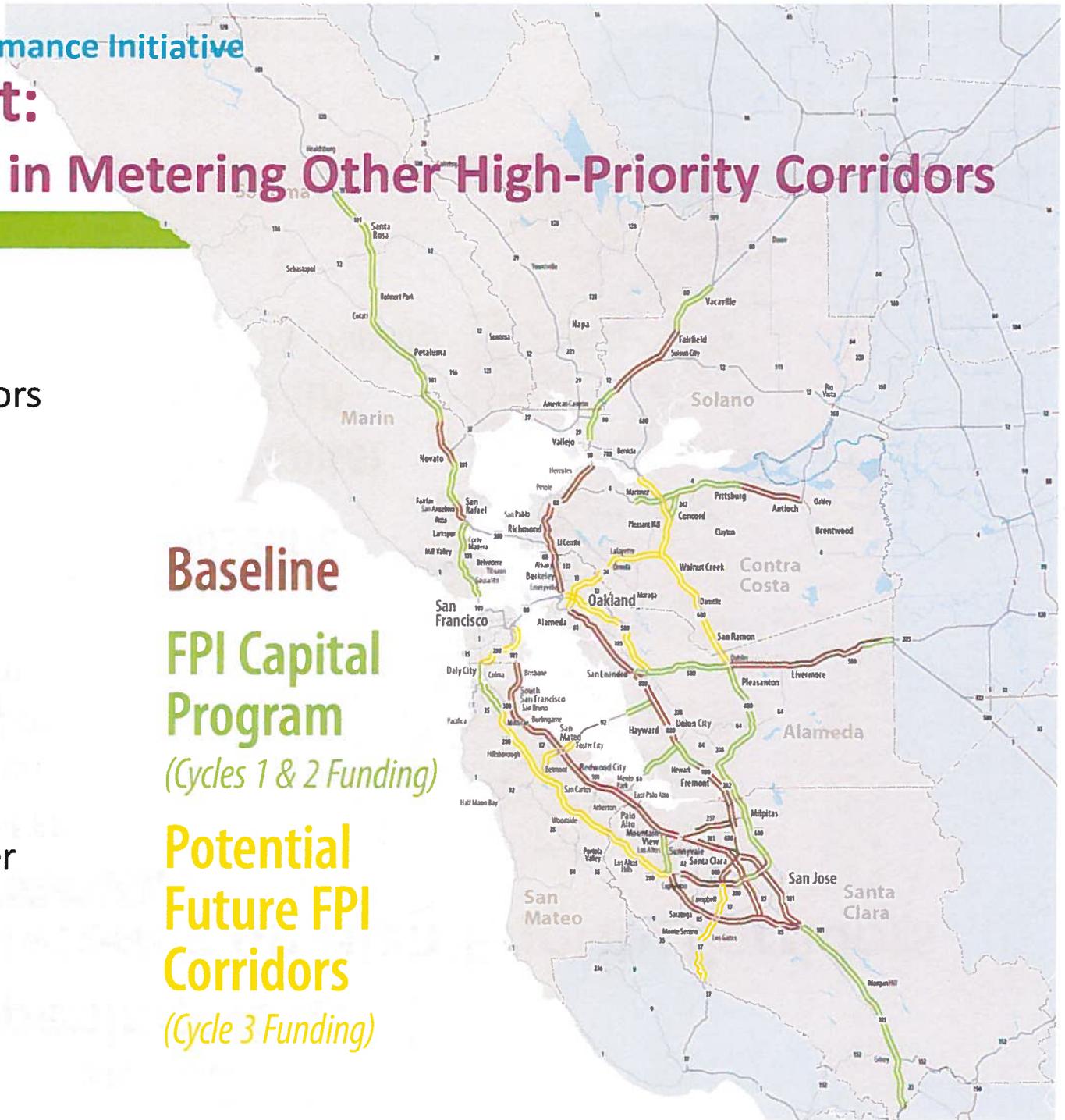
What's Next:

Close "Gaps" in Metering Other High-Priority Corridors

- Close "gaps" in metering on other high-priority corridors (to be funded with federal funds from upcoming Cycle 3)
- Identify priority corridors using performance-based approach in consultation with Caltrans and partner agencies

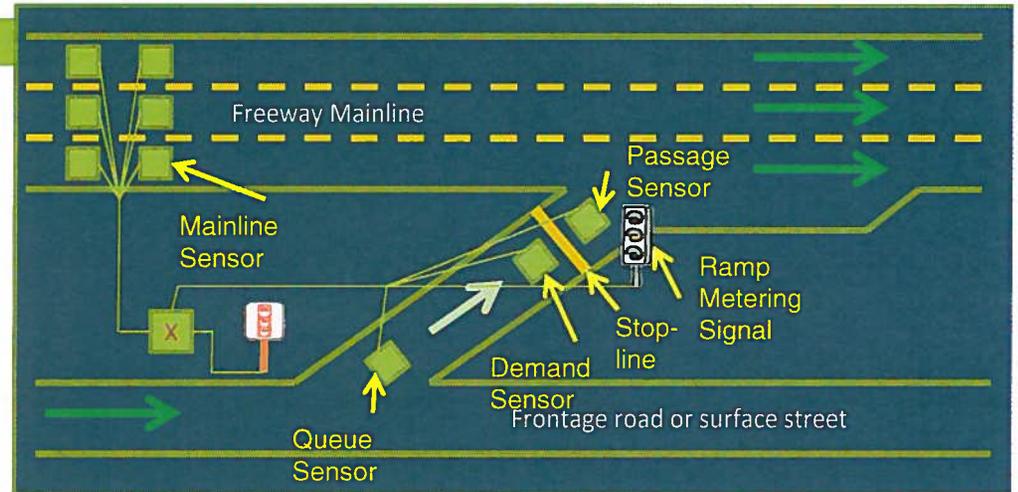
Baseline
FPI Capital Program
(Cycles 1 & 2 Funding)

Potential Future FPI Corridors
(Cycle 3 Funding)



What's Next: Active Management Strategies

- **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)

- **Other Active Traffic Management Strategies**
(Hard shoulder running, variable speed limits, dynamic pricing, contraflow lane)



Hard Shoulder Running (M42 in UK)



Variable Speed Limits (I-5 in Seattle)