



METROPOLITAN
TRANSPORTATION
COMMISSION

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Memorandum

TO: Operations Committee

DATE: May 3, 2013

FR: Executive Director

W. I.: 6035

RE: Quarterly Update: Strategic Plan—Regional Transportation Management System

At the January 11, 2013 Operations Committee meeting, MTC and Caltrans District 4 staff provided a joint status report on the performance of the transportation management system (TMS). Staff described problems experienced with the TMS (e.g., delayed activation of ramp metering) and reviewed shared-operations approaches for improved oversight, accountability, management, and operations of the region's highway system. As next steps, staff identified the need to develop a near-term funding strategy and define key governance principles. Members of the Committee supported staff's recommended direction and requested the following actions:

- Provide data that shows the benefits of investing in the TMS; and
- Move towards a more action-oriented approach for installing and operationalizing traffic operations systems such as ramp metering (See Agenda Item 3a).

On April 24, 2013 the ad hoc subcommittee of the Operations Committee (Commissioners Mackenzie and Halsted), together with MTC and Caltrans District 4 staff, met to review the status of the following:

- **Regional TMS Plan.** MTC, in coordination with Caltrans, the California Highway Patrol and regional stakeholders, are developing a Regional TMS Plan that will serve as a roadmap to guide strategic system management investment priorities (near-term and longer-term) for TMS operations and maintenance over the next 10 years. Annexes to this plan will include an update of the Regional Communications Plan (being updated to reflect current regional priorities) and a Regional Detector Strategic Plan that will inform future investments and priorities based on data needs and the evaluation of alternative detection technology.
- **Repair Status of TMS Highway Operations Equipment.** Caltrans has executed several emergency contracts to accelerate the repair of TMS highway operations equipment. As a result of these efforts, over the last quarter, improvements on the condition of the highway equipment have been reported. Staff will review a refined progress report on field equipment operational trends.
- **TMS Needs Assessment and Resource Evaluation.** As part of the TMS highway operations equipment repair efforts underway, Caltrans is concurrently conducting a TMS equipment needs assessment. This analysis will identify maintenance factors such as the type of equipment repairs and mean time to repair equipment. This assessment is a critical step toward informing the future development of preventative maintenance plans, as well as, identifying staff and funding resources needed to sustain current maintenance investments.

- **Performance-based governance options.** Staff is working on a new TMS governance concept based on three overarching principles — (1) performance measures, (2) joint decision-making and, (3) sustainable resources. A key objective of the conceptual TMS governance framework is to ensure stable resources are available to operate, manage and preserve investments in the system.

At the May 10 Operations Committee meeting, staff from MTC and Caltrans District 4 will provide a status report that further describes the TMS efforts identified above (See attached PowerPoint).



Steve Heninger

SH:rtv

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Strategic Plan: Regional Transportation Management System

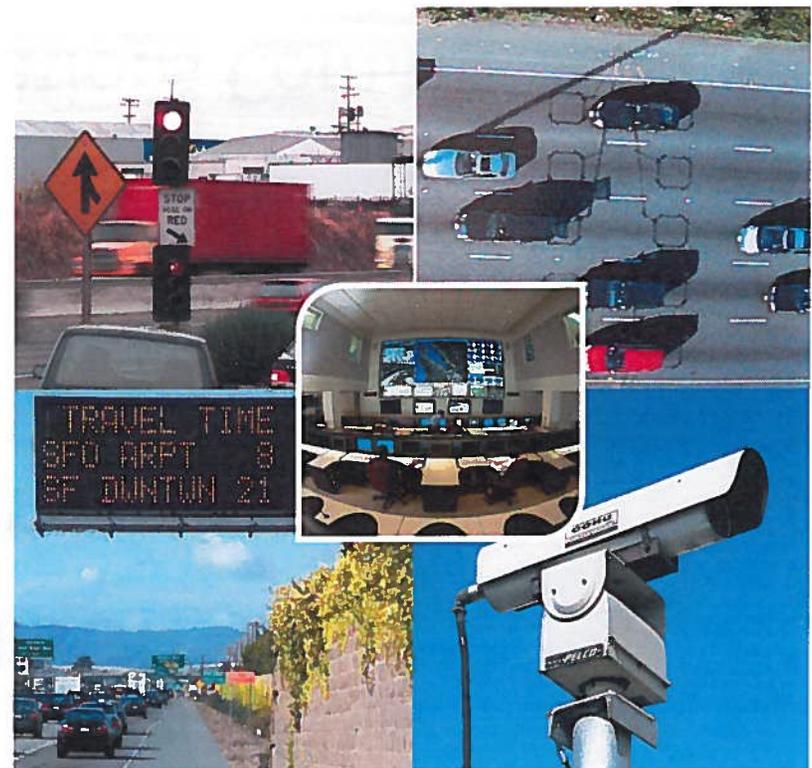
Operations Committee

May 10, 2013

Transportation Management Systems (TMS) Quarterly Status Report

Based on direction from Committee members, progress since the January Report includes:

- Began TMS strategic planning efforts
- Ramp up of repair efforts
- Refined reporting of highway traffic operations equipment status
- Initiated draft concepts for alternative governance options, needs assessment and resource evaluation
- Proposed new TOS Policy (Res. 4041)



Defined Transportation Management System

Current Responsibilities:



Incident Management



Traveler information



Call box



Emergency response



Incident management teams



Freeway service patrol & bridge tow

Field Equipment



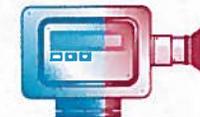
Traffic monitoring systems



Message signs



Ramp & bridge metering



Highway & security surveillance cameras

Freeway Management



Operators/performance monitoring



Construction/roadwork



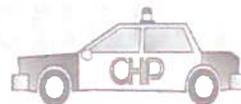
Other TMCs



Transportation management teams



Hardware & software



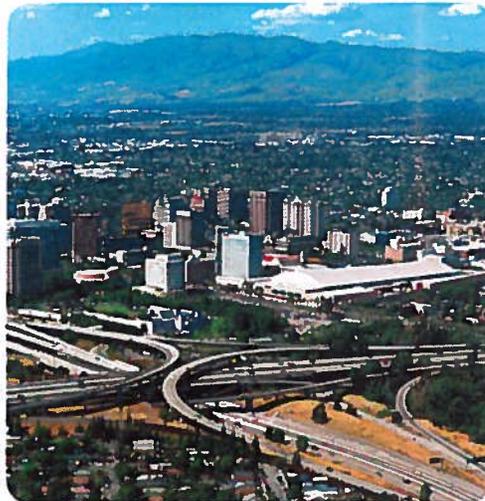
CHP field units

Future Needs

Goal to adopt a more "active" system management approach

- Adaptive Ramp Metering
- ICM/Smart Corridors
- Lane Management Systems
- Maintenance & Operations
- Express Lanes
- System Security/Safety

TMS Strategic Planning Efforts Underway to Support Active Traffic Management



- Communications Strategic Plan
- MTC/CT Fiber Master Agreement
- Detection Strategic Plan



Benefits of TMS Investments

TMS maximizes effectiveness of the transportation system



Improved mobility and travel time reliability

Reduced system delay 12-30%
Improved travel time reliability 5-16%



Reduced congestion duration and improved safety

Reduced duration of peak period (1- 2 hrs)
Reduced travel time 5 - 57%



Optimized corridor operations & improved freight mobility

Optimized traffic signals can reduce emissions up to 22%



Improved safety, real-time monitoring and incident response

Quicker clearance can reduce 230-700 gallons of fuel per incident

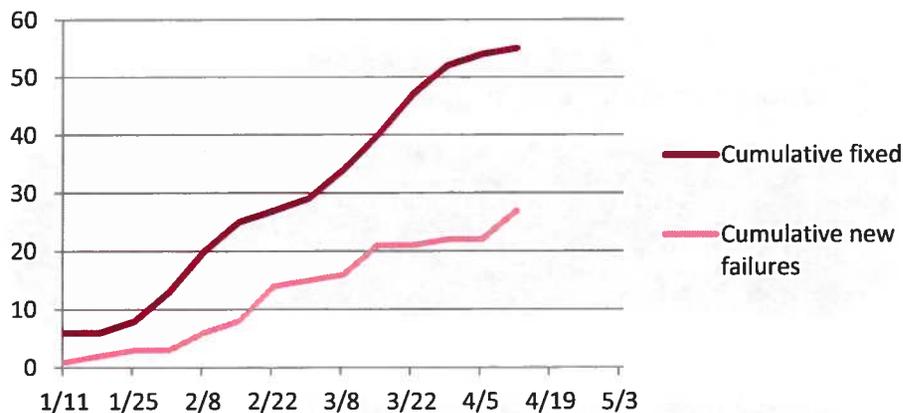
Freeway management systems (CMS, ramp meters, detection, and cameras) can:

- Reduce the occurrence of crashes by up to 40%
- Decrease overall travel times by up to 60%

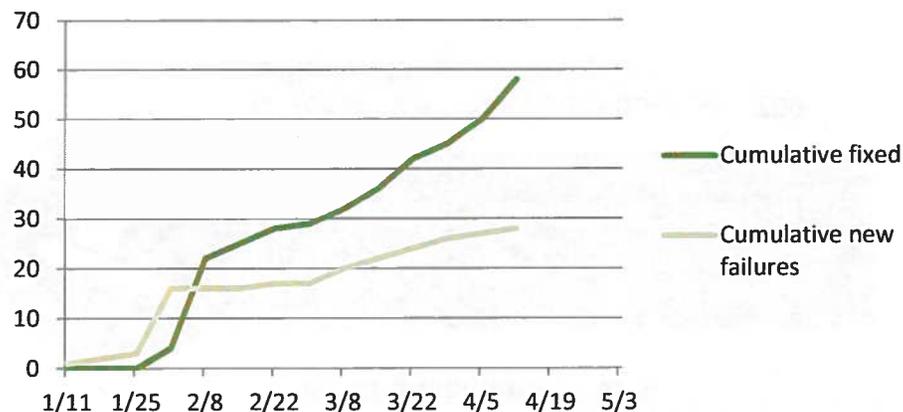
Investment in reliable traffic management tools could reduce congestion by approximately 5% in the Bay Area region

Field Equipment Operational Trends

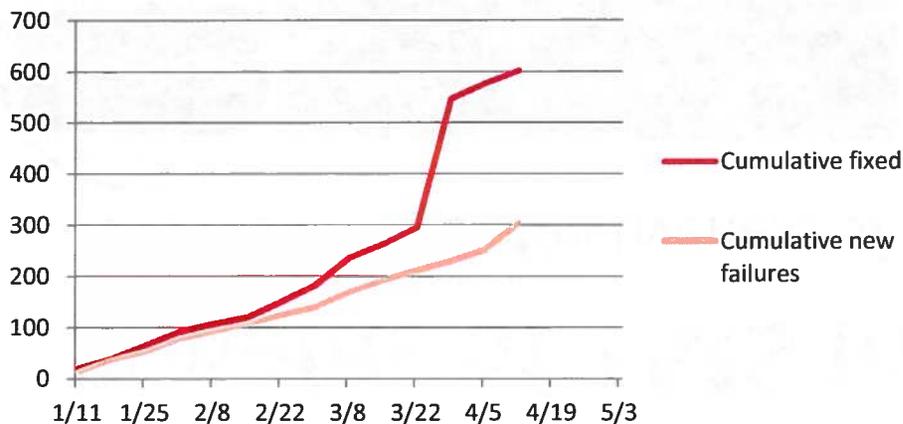
CMS Repaired vs. Newly Failed



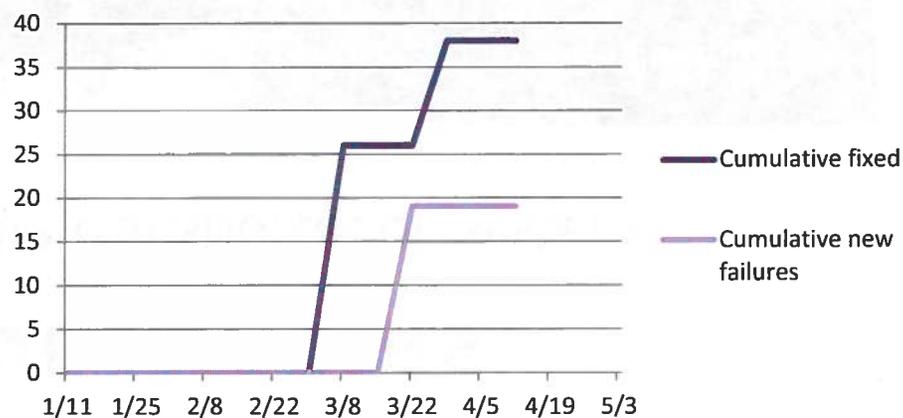
Ramp Meters Repaired vs. Newly Failed



Detection Repaired vs. Newly Failed

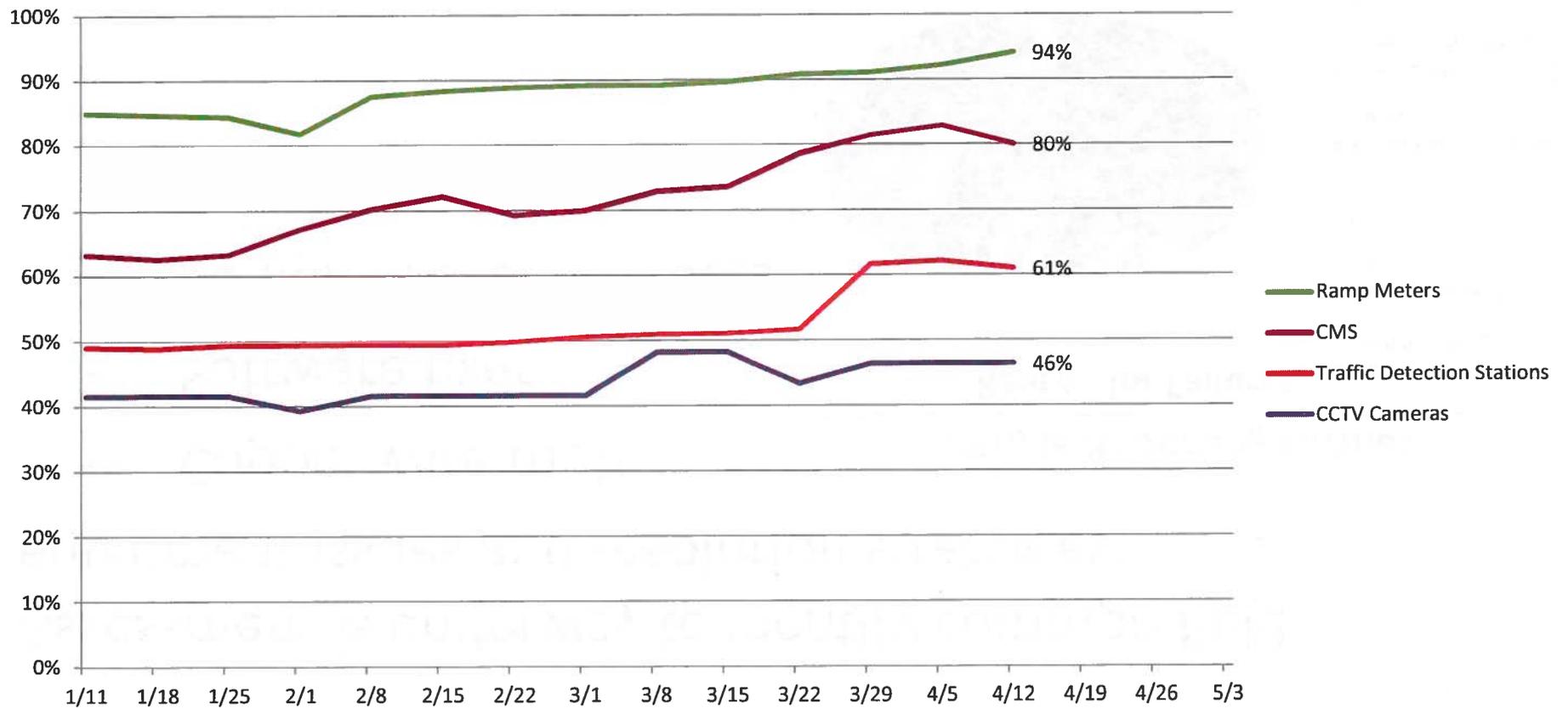


CCTV Cameras Repaired vs. Newly Failed



Field Equipment Operational Status

Percent Operational

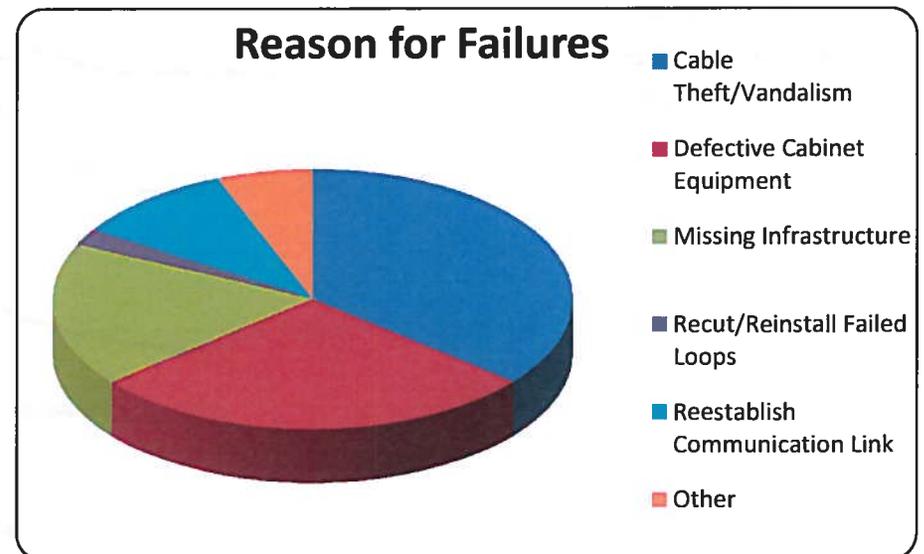


TMS Needs Assessment

Assessment is underway to identify common field equipment issues and resolution strategies:

- Copper wire theft
- Software fixes
- Equipment failure rates
- Trend analysis

Sample Reporting Format



Analysis of the type, frequency and cost of repairs will inform future resource requests.

TMS Governance Principles

Performance

- Define performance targets to optimize operations.
- Achieve TMS operational benefits across multiple systems and programs.

Decision Making

- Adopt a performance management approach.
- Streamline TMS decision-making and prioritization.
- Ensure accountability and transparency.
- Those who contribute get a vote.

Resources

- Strategically manage the system within the resources available.
- Leverage regional contribution to secure funding commitment from state.

TMS Operations Governance



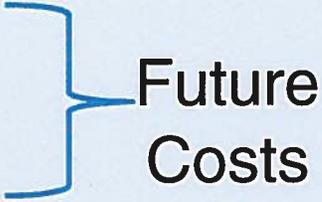
Shared Goal

Moving towards a performance-based TMS program and governance model

Sample TMS Performance Targets

TMS Field Equipment	Sample Performance Targets
Changeable Messages Signs	90%
Ramp Metering	90%
CCTV Cameras	90%
Traffic Monitoring Systems	70%

TMS Program Work Plan

Task	Deliverable
Caltrans Equipment Repair	Emergency Fixes (Director's Orders FY 12-13)
	Lessons Learned/Future Repair
Resource Evaluation	Funding Strategy <ul style="list-style-type: none"> • BATA • Plan Bay Area • State Contributions to Caltrans
	Strategic Plans <ul style="list-style-type: none"> • Detection Strategic Plan • Communication Strategic Plan • TMS Needs Assessment 
Performance Based Governance Approach	Principles
	Governance Concept
	Risk Matrix
	Master Agreement