

Transportation System Management & Intelligent Transportation Systems

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Metropolitan Transportation
Commission



Bay Area Transportation Basics

- > More than 4.5 million cars
- > More than 4,300 transit vehicles and 20 transit agencies
- > 19,600 miles of local streets and roads
- > 1,400 miles of highways
- > 300 miles of carpool lanes
- > Eight toll bridges



Transportation System Management

- > The state of optimal operation achieved when network components work together coherently and efficiently to serve mobility needs.
- > No grand solutions, instead progress on a project-by-project basis.
- > Improve use of the existing transportation infrastructure
- > Improve the user experience:
 - Minimize travel delay
 - Make transit more convenient and accessible
 - Provide timely, accurate information to travelers
 - Maximize choice and reliability



System Management & ITS

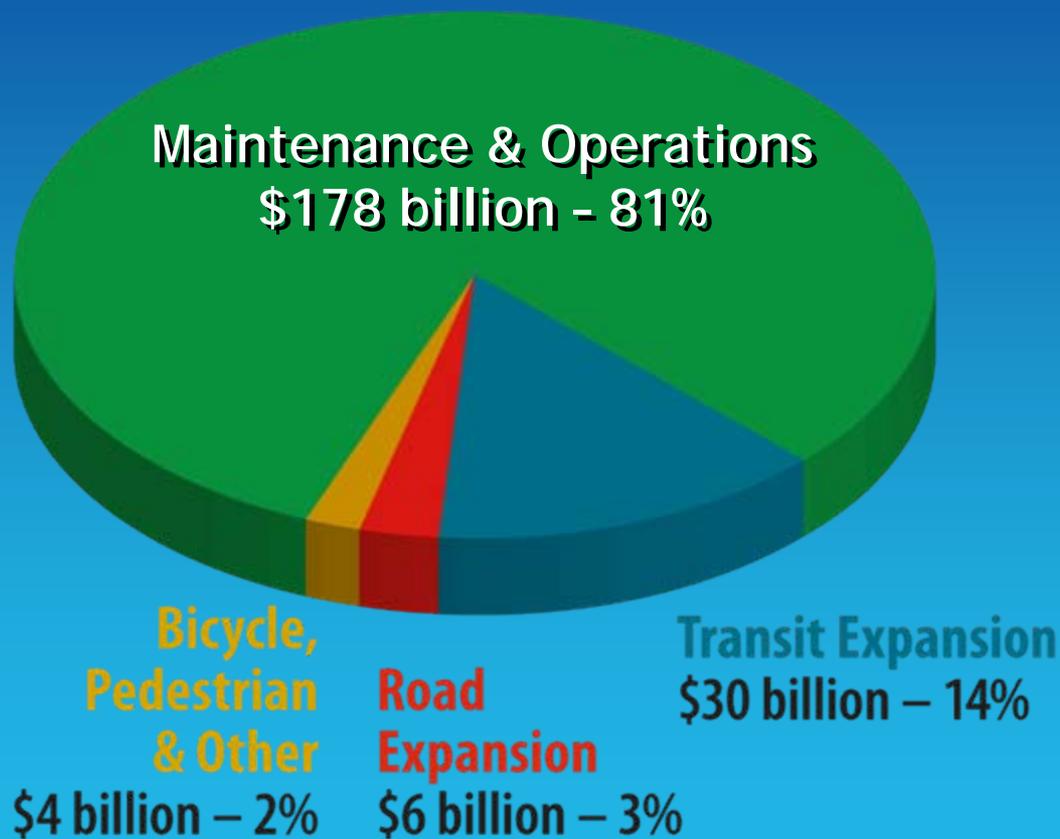
- > System management approach relies on ITS projects to:
 - **Manage traffic,**
 - **Improve freeway and arterial operations,**
 - **Ensure rapid response to and clearance of freeway incidents,**
 - **Inform travelers about options on-demand and in real-time, and**
 - **Simplify access with electronic payment systems.**



Aging Pains

Transportation 2035 Plan

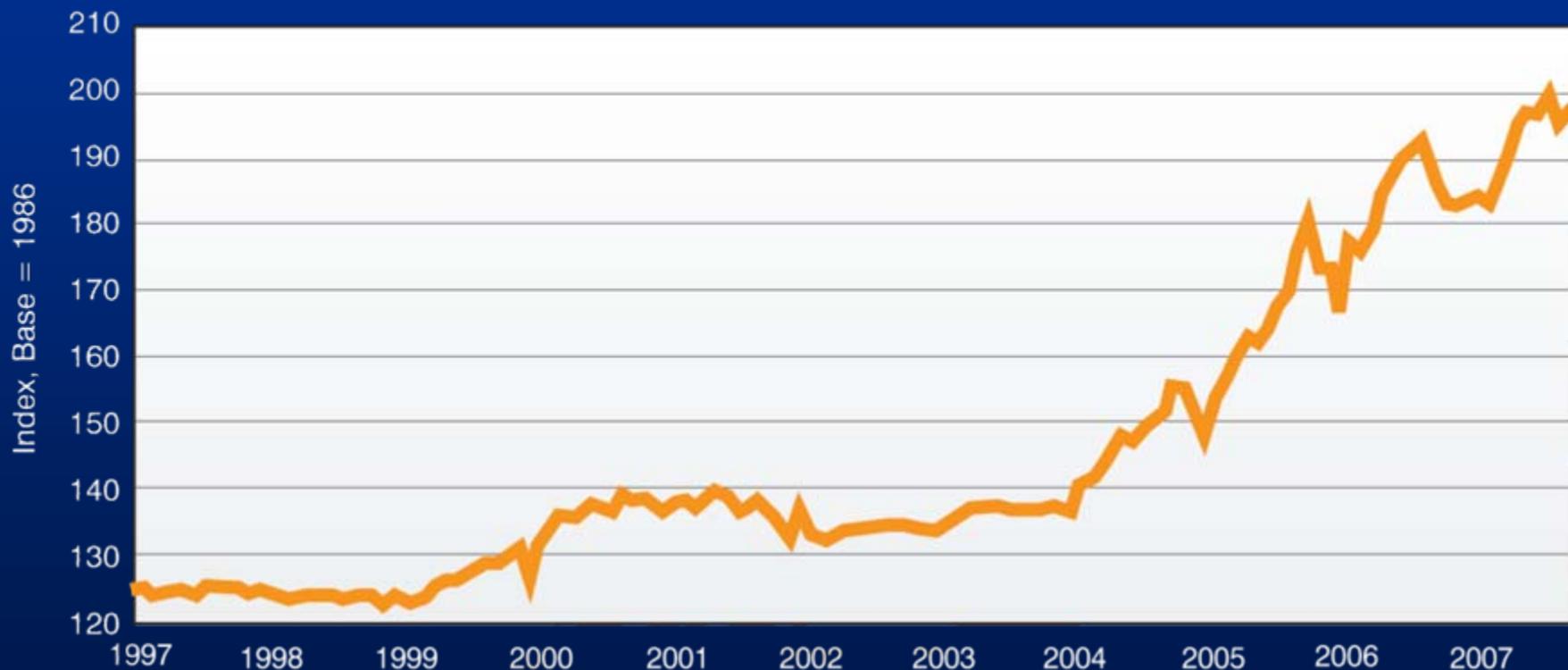
Expenditures by Function (Total revenues: \$218 Billion)





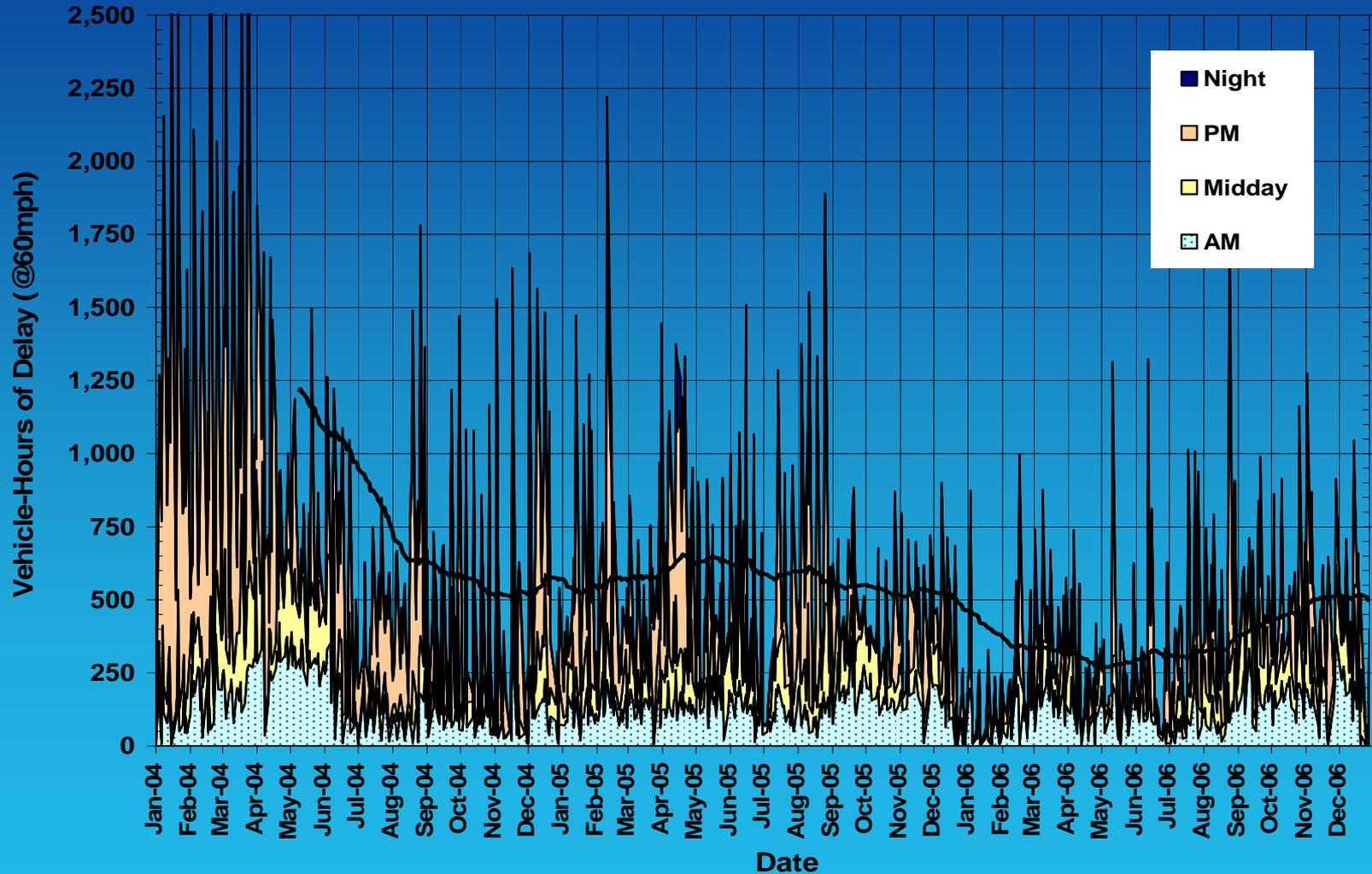
Construction Costs Have Increased Dramatically

Highway and street construction costs, 1997-2007



Source: Bureau of Labor Statistics

Traffic Congestion Caused by Incidents is a Major Problem



Planning for a Better Future

GOALS

Economy

Environment

Equity

TARGETS

REDUCE
CONGESTION

REDUCE
EMISSIONS
& VMT

IMPROVE
AFFORDABILITY

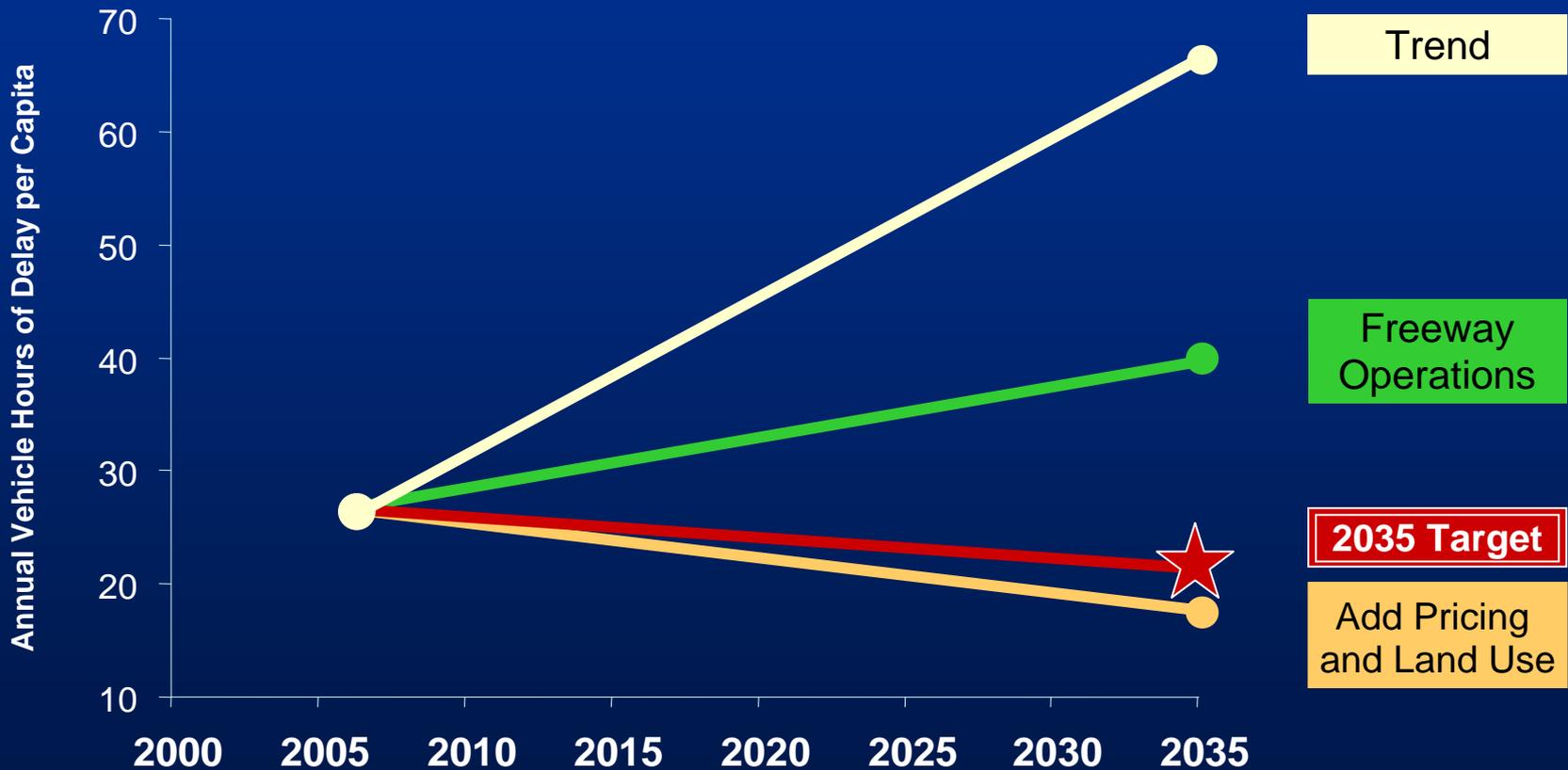
STRATEGIES

Infrastructure

Pricing &
Focused
Growth

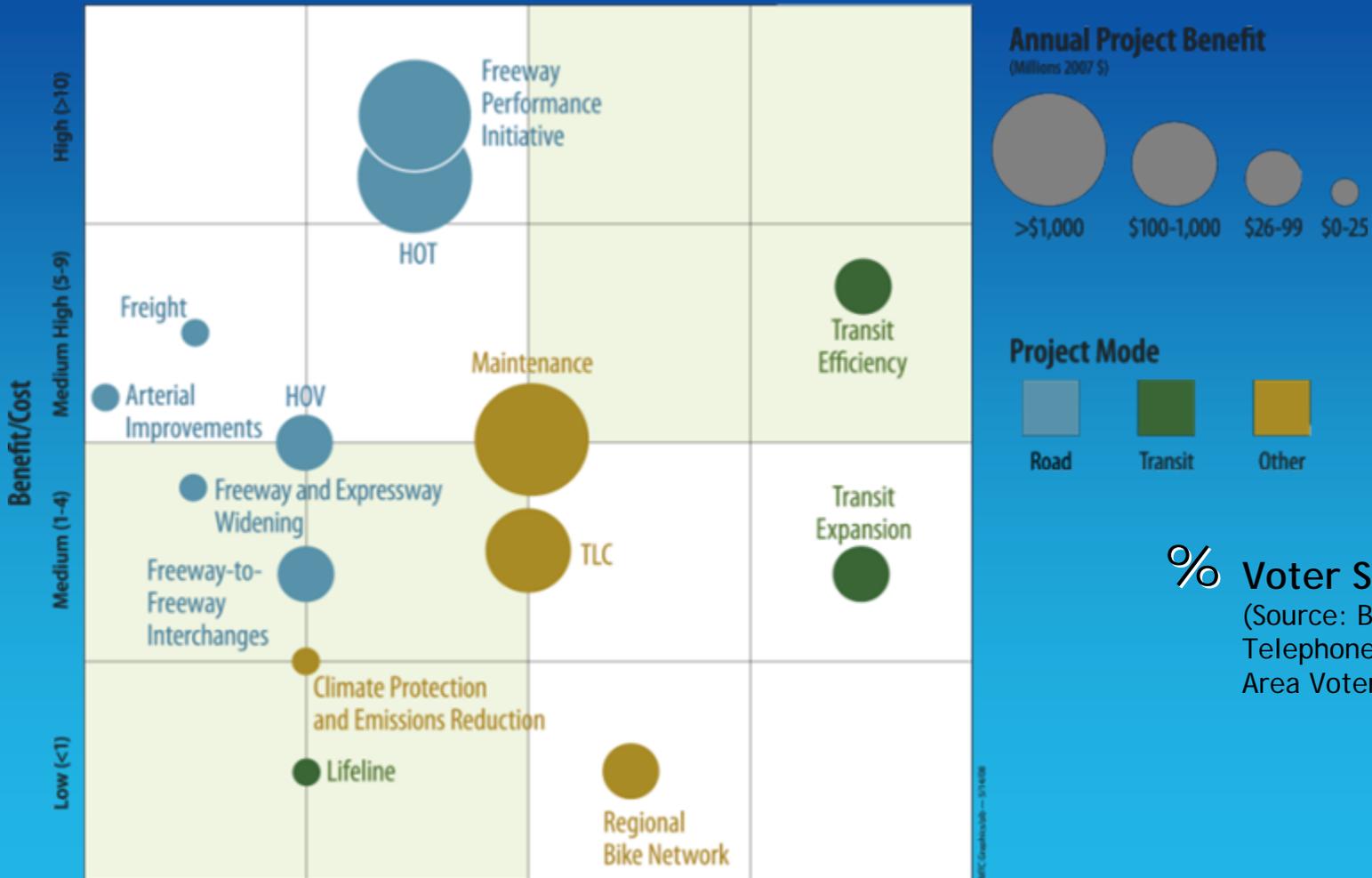
System Management Projects Are Key to Achieving Targets

Reduce congestion delay per person to 21.3 hours a year.





Project Performance Assessment



ITS Solutions

- > **Freeway Performance Initiative & Related Efforts**
 - Ramp metering
 - Traffic detection
 - Information systems
- > **511 Traveler Information Services**
- > **Vehicle Infrastructure Integration / IntelliDriveSM**
- > **Electronic Payment Systems**



Freeway Performance Initiative

Freeway Performance Initiative

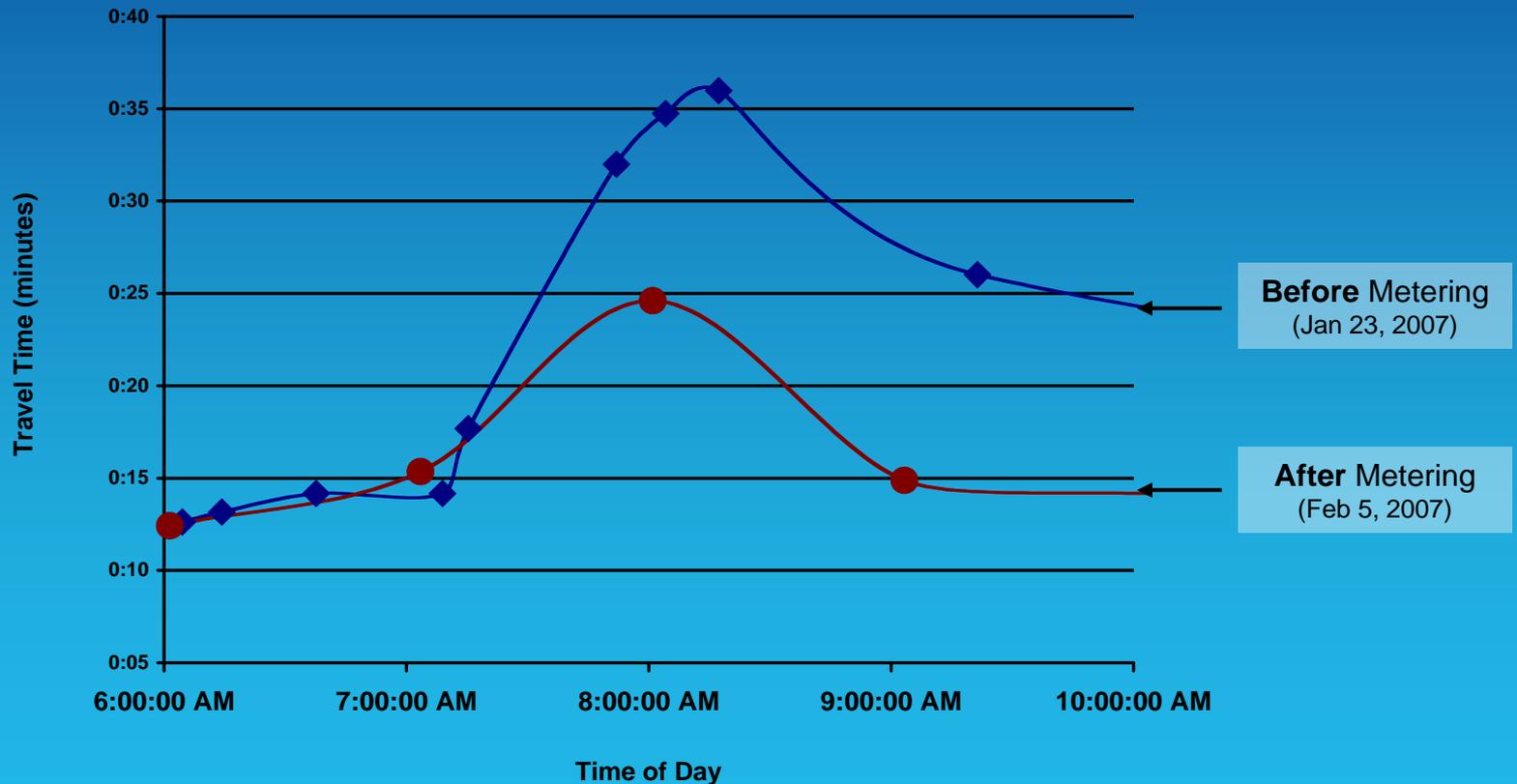
- > Freeway strategic plan
- > Prioritized list of strategies and projects
- > Goals:
 - Improve system performance with system management
 - Complete HOV lane system
 - Close key gaps in freeway infrastructure to address bottlenecks effectively





Ramp Metering Results are Clear

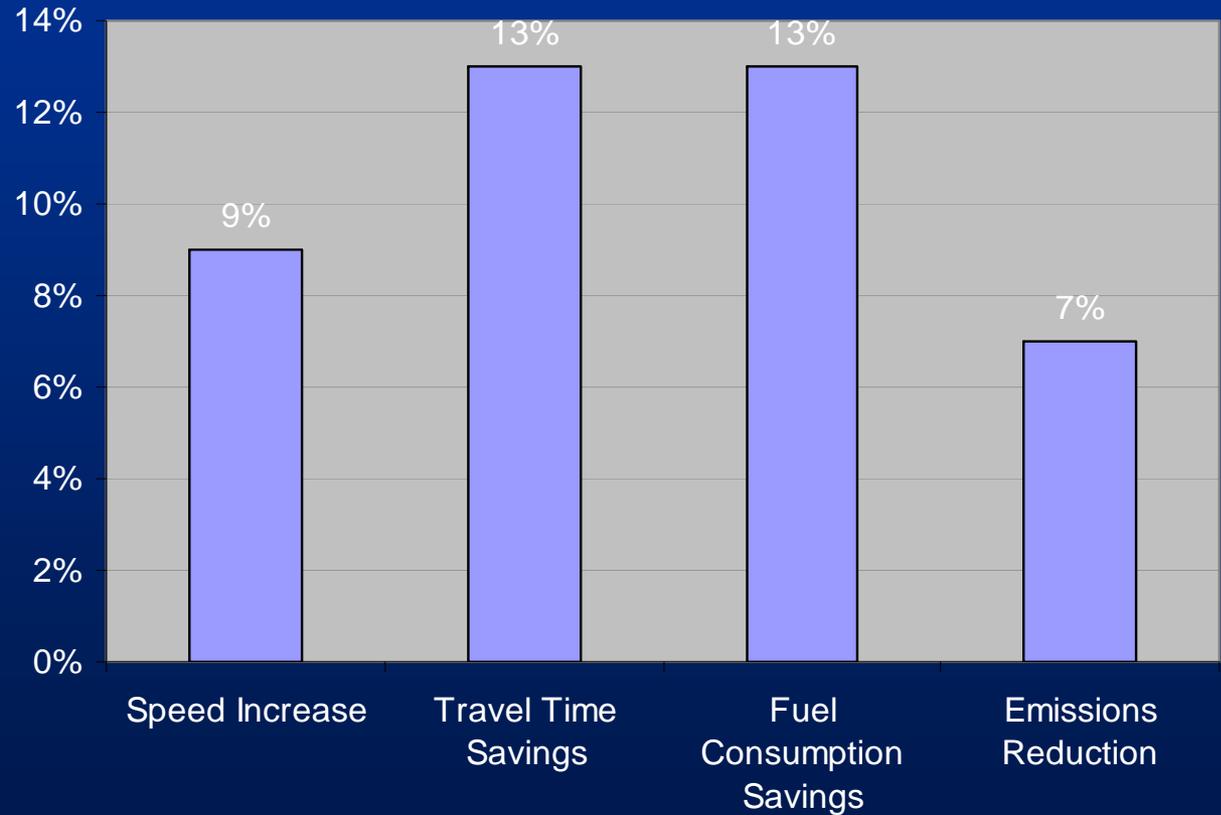
Sample Time Travel Comparison Before and After Metering
Southbound US 101 from 3rd Ave to just south of the county line



Regional Signal Timing Program

RSTP 2004-09

- > Signals Timed = 3581
- > Benefit / Cost = 39 : 1





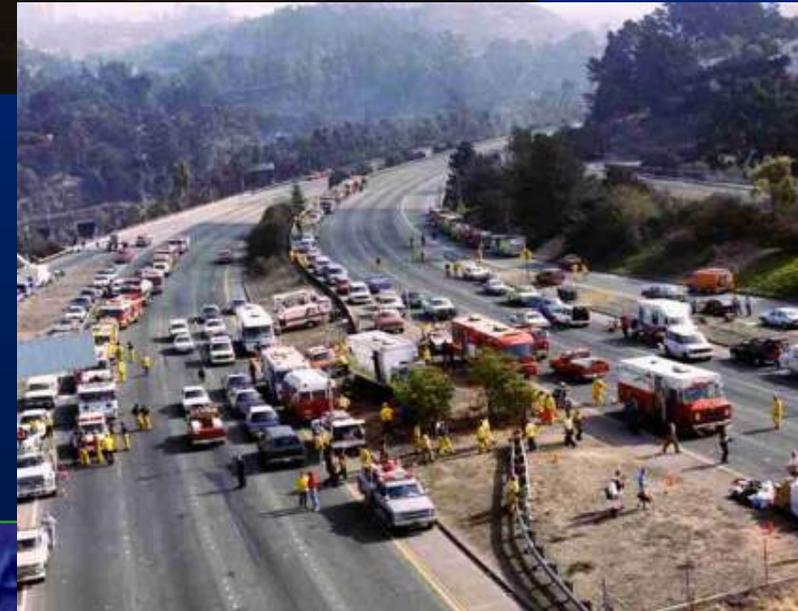
Advanced Traffic Management System Technology



METROPOLITAN TRANSPORTATION COMMISSION

Incident Management Communication Technology

Improved communications
speed incident response &
clearance



METR

RTA

511 Traveler Information Services



Bay Area 511 Services

> Multi-modal Information

- Traffic
- Transit
- Ridesharing
- Bicycling

> Available on the Phone (511), Web (511.org), changeable message signs, & MY 511

> New features

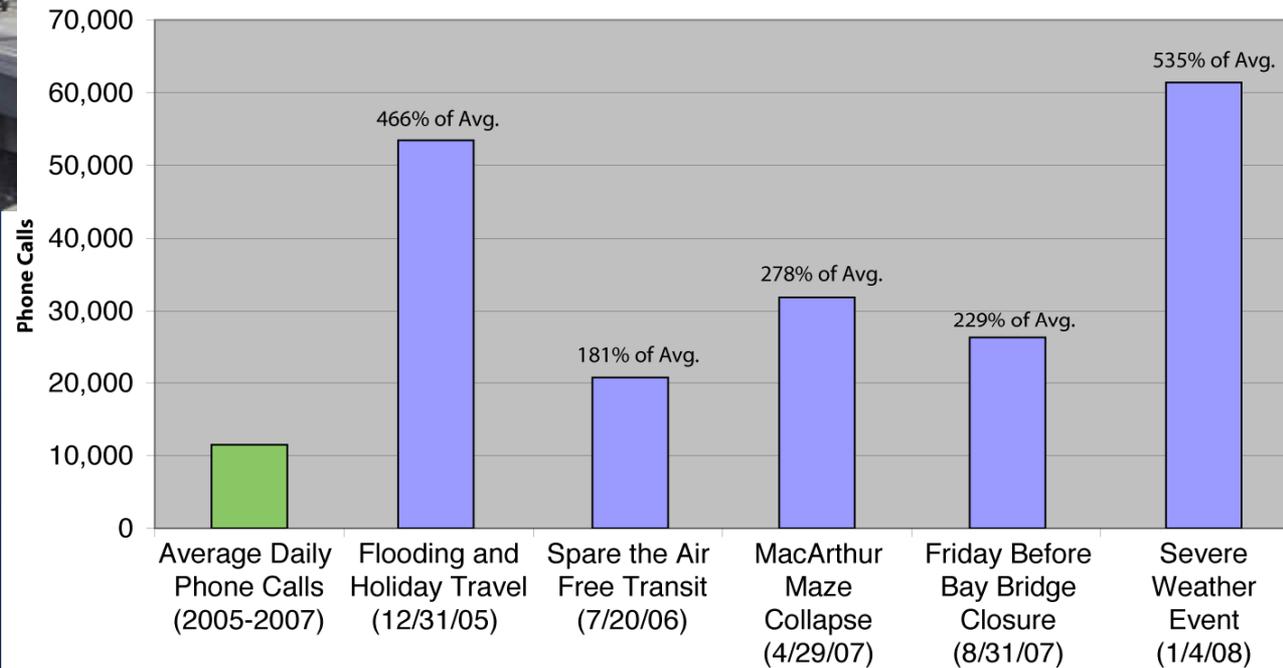
- Parking availability & pricing
- Multimodal trip planner with real-time data
- PDA & smart phone functionality
- Simplified data feeds to encourage innovation
- HOT lane pricing information



511 Provides Info in Emergencies



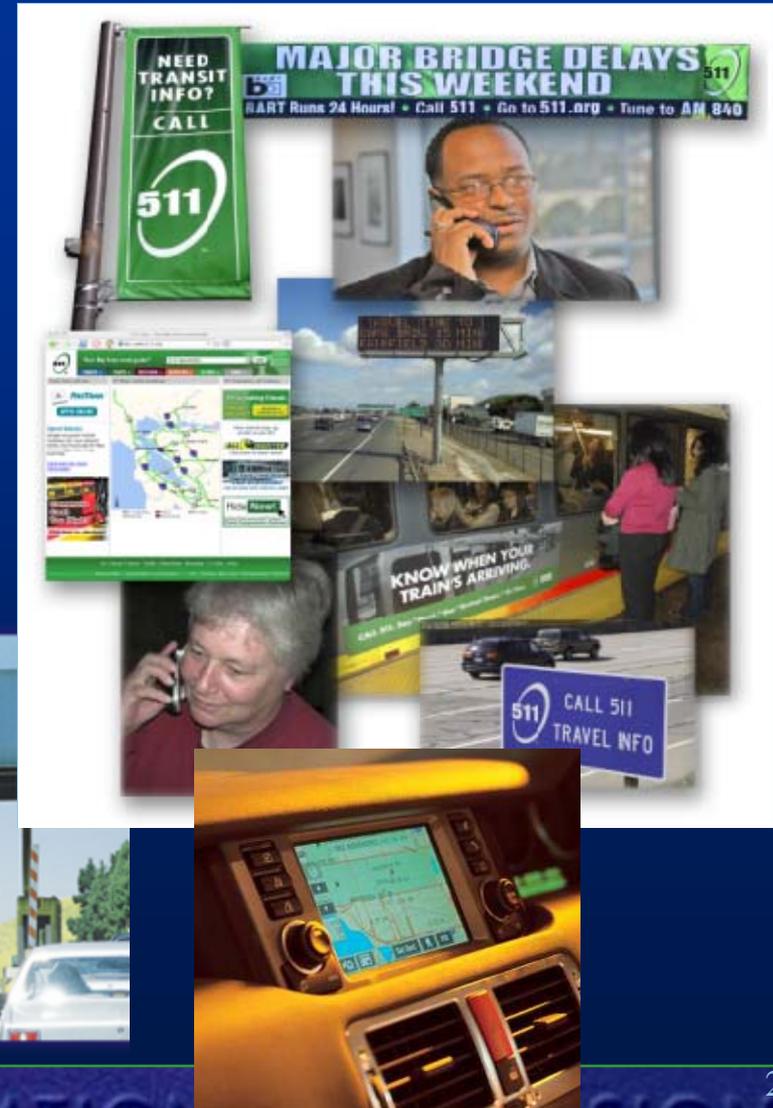
511 Phone Usage During Emergencies/Events



Vehicle Infrastructure Integration / IntelliDriveSM

IntelliDriveSM Could Transform System Management Tools

- > Vehicle to roadway and vehicle to vehicle communications could:
 - Provide vehicle safety applications
 - Enable toll/HOT lane payment
 - Provide real-time info on all roads & all modes





California IntelliDriveSM Testbed

- > SF Peninsula is home to one of two national testbeds
- > Used by UC Berkeley researchers & car companies to test advance vehicle safety and traveler info concepts

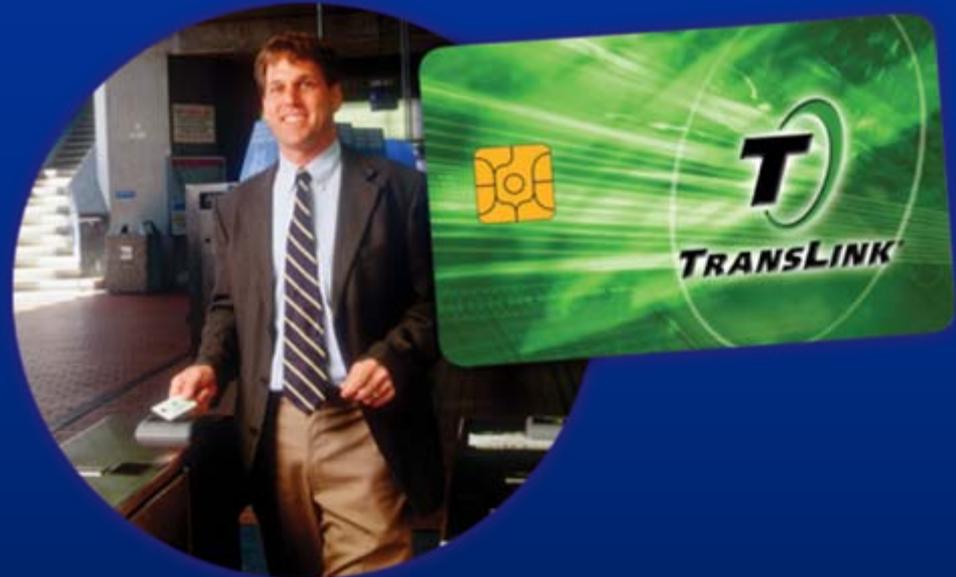


Electronic Payment Systems

Electronic Payment Systems

TransLink®

- > Smart Card for Transit Fare Payment



FasTrak™

- > Electronic Toll Collection



TransLink® Offers a Seamless Commute Using One Card

> Regional transit fare payment smart card

- Currently accepted on AC Transit, Golden Gate Transit/Ferry, and San Francisco Muni
- Accepted on BART and Caltrain starting in mid-2009
- Expansion to 20+ transit agencies over the next 2-3 years

> Improves customer convenience

- Automatic reloading of card with Autoload feature
- Balance protection for lost/stolen cards
- Automatic calculation of discounts and transfers

> Expansion to Parking Garages

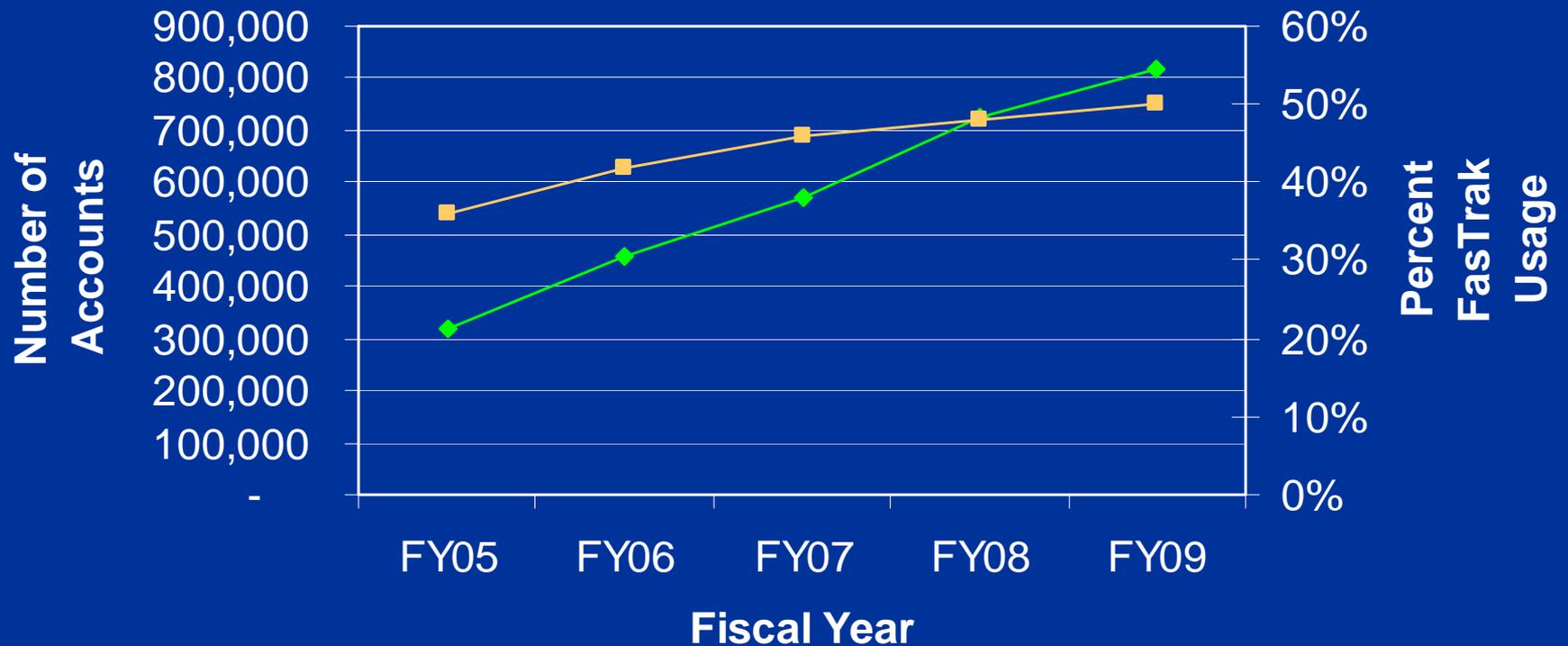
- Pilot will include 5 San Francisco garages
- Operational by mid-2010



FasTrak Electronic Toll Collection

Annual FasTrak Growth

- ◆ Number of Accounts
- Percent FasTrak



FasTrak Electronic Toll Collection

Toll Plaza Lane Configurations

- > **FY05** – 12 Dedicated FasTrak Lanes
61 Cash Lanes
- > **FY09** – 22 Dedicated FasTrak Lanes
3 Open Road Toll Lanes
48 Cash Lanes

Vehicle Throughput Rates

- > **Cash Lanes** – 400 vehicles per hour
- > **FasTrak Lanes** – 1,200 vehicles per hour
- > **ORT Lanes** – 1,800 vehicles per hour



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