MAKE NO LITTLE PLANS!

THINK BIG FOR

CONNECTED VEHICLE DEPLOYMENTS
Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency.

—DANIEL BURNHAM
OVERVIEW OF TODAY’S PRESENTATION

1. Overview of MTC’s Role
2. The Transportation Challenge of the 21st Century
3. Where Do We Go From Here?
Overview of MTC’s Role: Planning for the San Francisco Bay Area
The SAN FRANCISCO BAY AREA IN NUMBERS

- **9** counties
- **7,000** mi²
- **101** cities
- **7** million people today
- **9** million people in 2040
- **27** independent transit operators
- **3** major cities: San Jose, San Francisco, and Oakland

Image Source: https://www.flickr.com/photos/clintsharpe/11031035903
MTC’s Roles and Responsibilities

• Metropolitan planning organization for nine-county San Francisco Bay Area
  – Planning
  – Funding
  – Coordination
• Responsible for development of long-range regional plan (RTP/SCS) and short-range programming (TIP)
MTC’s Evolving Role

- **1970s**: Regional Planner
- **1990s**: Interagency Coordinator
- **2000s**: Operations Program Manager
- **Future?**: Funder

Image Source: [https://www.flickr.com/photos/clintsharpe/11061059935](https://www.flickr.com/photos/clintsharpe/11061059935)
EXAMPLE: Clipper® Development and Growth

- **TransLink®**
  - Phase I Design
  - TransLink® Pilot Program
  - Phase II Design and Implementation
  - Transition of 43 Passes to Clipper®-Only

- **Clipper®**
  - Revenue Ready: AC Transit & Golden Gate Transit
  - Revenue Ready: Caltrain & SFMTA
  - Revenue Ready: SamTrans & VTA
  - SF Bay Ferry
  - Assignment of Contract to Cubic
  - Revenue Ready: BART
  - Phase 3 Approval: Napa/ Solano
  - C2: Planning Commences

**Monthly Transaction Volume**

- **98% of customers would recommend Clipper to their friends**

- Exceptional growth
The Transportation Challenge of the 21st Century: Doing More with Less

Where do Connected and Autonomous Vehicles Fit?
Target #1: Reduce per-capita CO₂ emissions from cars and light-duty trucks by 15 percent.

Plan meets and exceeds target; reduces per-capita emissions of CO₂ by 18 percent (by 2040).
**Target #3:**
Reduce premature deaths from exposure to particulate emissions:

**Target #3a:**
Reduce premature deaths from exposure to fine particulates (PM$_{2.5}$) by 10 percent.

Plan meets and exceeds target; reduces premature deaths from exposure to fine particulates by 71 percent.

**Target #3b:**
Reduce coarse particulate emissions (PM$_{10}$) by 30 percent.

Plan reduces coarse particulate emissions by 17 percent, but falls short of target.

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**Target #3c:**
Achieve greater reductions in highly impacted areas.

Plan meets target; achieves greater particulate emission reductions in highly impacted neighborhoods.

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**CV Program Could Support Plan Bay Area Targets and Other Goals**

**Healthy and Safe Communities**
Target #4:
Reduce by 50 percent the number of injuries and fatalities from all collisions (including bike and pedestrian).

Plan moves in opposite direction from target; injury and fatality collisions are projected to increase during plan period by 18 percent.

Encourage Active Transport

Target #5:
Increase the average daily time walking or biking per person for transportation by 70 percent (for an average of 15 minutes per person per day).

Plan boosts per-person active transportation by 17 percent, but falls short of target.

Healthy and Safe Communities
Target #9a:
Increase non-auto mode share by 10 percentage points (to 26 percent of trips).

Plan boosts non-auto mode share to 20 percent of trips, but falls short of target.

Target #9b:
Decrease automobile vehicle miles traveled (VMT) per capita by 10 percent.

Plan reduces VMT per capita by 9 percent, but falls short of target.
Connected Vehicles: Part of the Solution to Solve These Problems

- Strong ITS and Operations Focused Building Blocks
- Unique Opportunity to Leverage Partnerships
- History of Connected Vehicle Projects
Regional ITS Building Blocks

- **511 Traveler Information**
- **Clipper® Electronic transit fare payment**
- **FasTrak® Electronic toll collection** (Express Lanes & Bridges)
- **Freeway Service Patrol**
- **Freeway Performance Initiative** (Ramp Metering)
- **Program for Arterial System Synchronization (PASS)**
Unique Opportunities for Partnerships

- Support and Commitment from State & Local Leadership
- Progressive Transit Providers and Local Agencies
- Silicon Valley! Industry Research Labs & High Tech Vendors and Developers
- University Partners
- Many Other Innovative Partners
Where Do We Go From Here?
Next Steps for Strategic Deployments

- Connected Vehicle Pilot Deployment Program
- Other Opportunities?
CONNECTED VEHICLES PROGRAM TIMELINE
(slightly outdated, but still moving along)

- **2011**: Defined V2V Apps
- **2012**: Defined Safety (V2I), Mobility (V2V & V2I), AERIS and Weather Apps
- **2013**: NHTSA Decision Light Vehicles
- **2014**: NHTSA Decision Heavy Vehicles
- **2015**: FHWA Deployment Guidelines
- **2016**: Pilots/Early Deployments
- **2017**: Safety Pilot (Ann Arbor)
- **CVPD Call for Projects (Mobility and Env. Focus)**
USDOT Connected Vehicle Pilot Deployment Program (CVPD) Goals

1. Spur Early CV Tech Deployment
2. Measure Deployment Benefits
3. Resolve Deployment Issues

- Wirelessly Connected Vehicles
- Mobile Devices
- Infrastructure
- Environment
- Safety
- Mobility
- Financial
- Technical
- Institutional

Source: http://www.its.dot.gov/pilots/
One California: A Statewide Large Scale Connected Vehicle Pilot Deployment

Submitted by:
- California Department of Transportation

In association with:
- MTC
- LA METRO
- SANDAG

With support from:
- CAMBRIDGE SYSTEMATICS
- LA DPW
- UC B - PATH
- UC Riverside
- Iteris
One California Partnership

USDOT ACTIVITIES

CV RFI
- CVP Workshop (D.C.)
- CVP Workshop (Los Angeles, CA)
- CVP Workshop (Oakland, CA)
- CV Pilots RFP is Released

2014
- 2015
- MAR
- APR
- MAY
- JUN
- JUL
- AUG
- SEP
- OCT
- NOV
- DEC
- JAN
- FEB
- MAR

Discussions Begin on Partnership
Inaugural Meeting of Partnership
Development Begins on Program Approach
Partnership Charter
Kickoff Workshop to Develop CV Pilots Technical Approach
Intensive Development of CV Applications Approach Begins
Meetings with USDOT CV Staff in D.C.
One California RFI Collects 55 Industry Responses
Concept Developer Consultant Selected
CVPD Proposal Submission to FHWA

ONE CALIFORNIA ACTIVITIES
These planning activities represent an investment of about 5,000 agency staff hours and 3,000 consulting/academic staff hours.
Stay Tuned and Stay Engaged!

- The Next Generation of ITS is unfolding now.
- Think BIG! CV technology is more than just novel. It has the potential to be quite transformative.
- There is an impressive amount of momentum now.