

EVALUATION OF MTC'S CLIMATE PROGRAM

May 7, 2015
TRB Sustainability for
Transportation

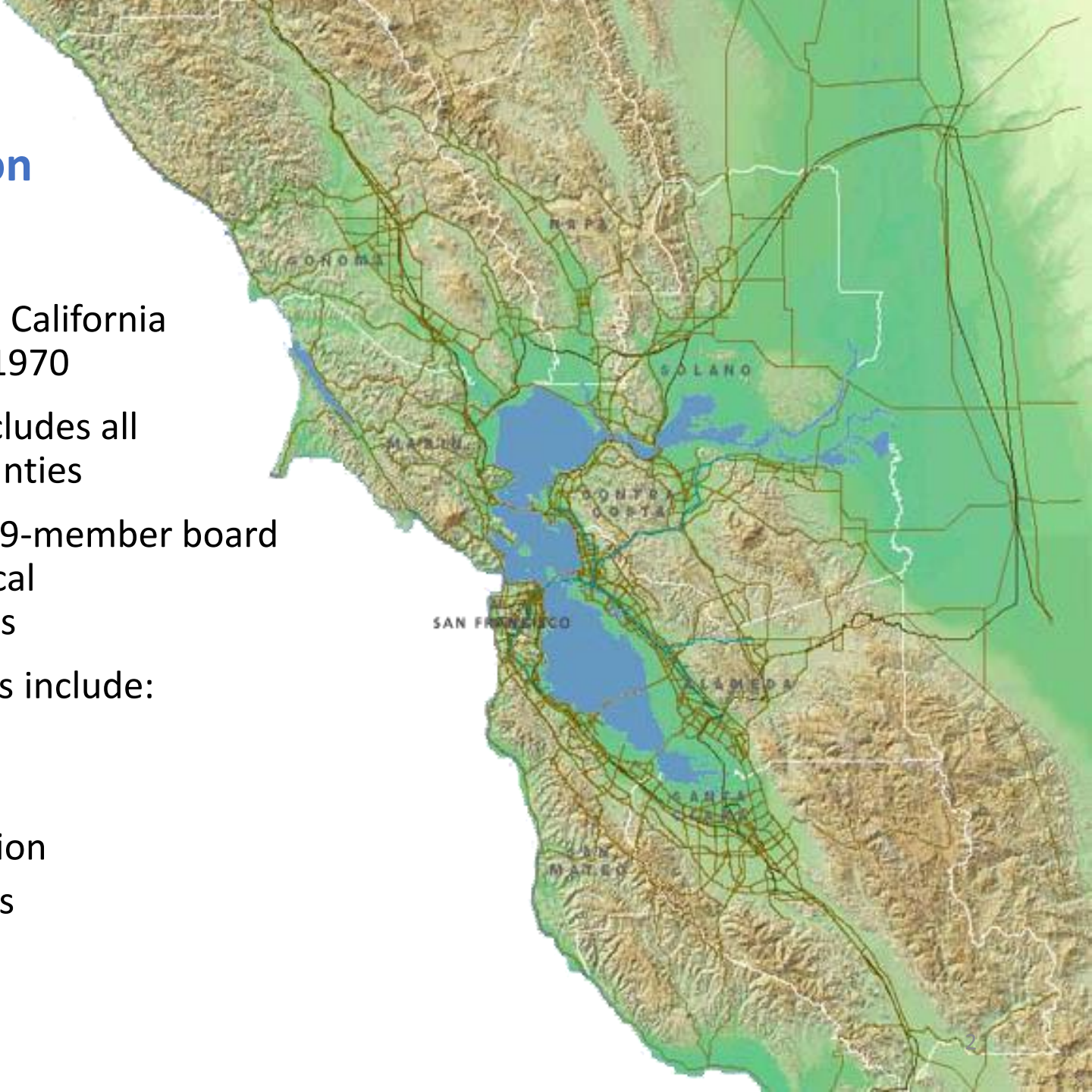


METROPOLITAN
TRANSPORTATION
COMMISSION



Metropolitan Transportation Commission

- Created by the California Legislature in 1970
- Jurisdiction includes all 9 Bay Area counties
- Governed by 19-member board of primarily local elected officials
- Responsibilities include:
 - Planning
 - Funding
 - Coordination
 - Operations
 - Advocacy





OVERVIEW OF CLIMATE PROGRAM

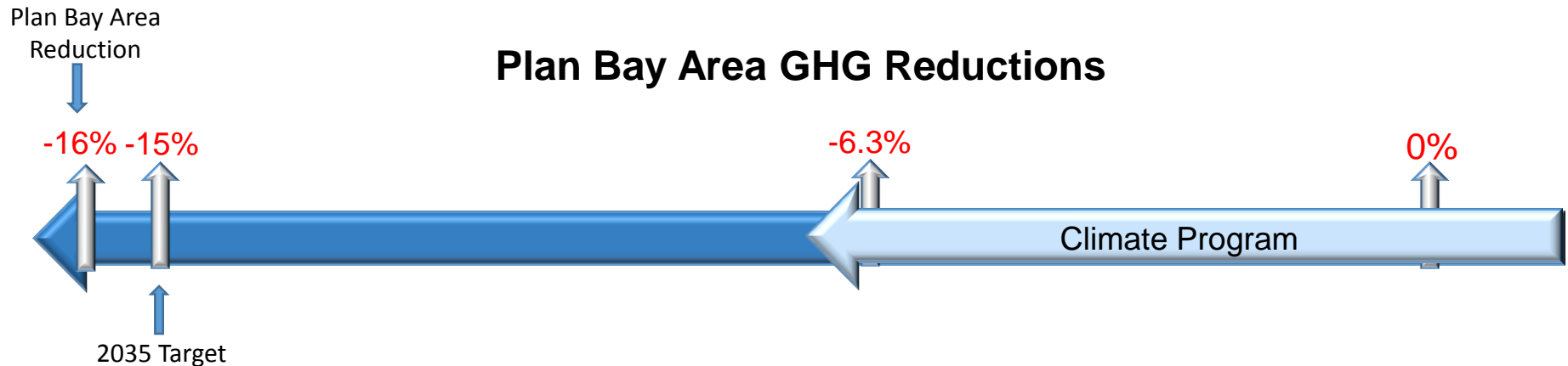
Regulatory Framework

- **Assembly Bill 32: Global Warming Solutions Act of 2006**
 - Requires GHG emissions in CA to drop to 1990 levels by 2020
 - Points the way towards an 80% reduction in GHG emissions by 2050
- **Senate Bill 375: Sustainable Communities Strategy (SCS)**
 - Requires integration of land use and transportation planning to reduce emissions from light duty vehicles
 - **Plan Bay Area**
 - Region's first integrated land use and transportation RTP / SCS
 - Designed to meet the GHG reduction goals set by the California Air Resources Board (CARB)



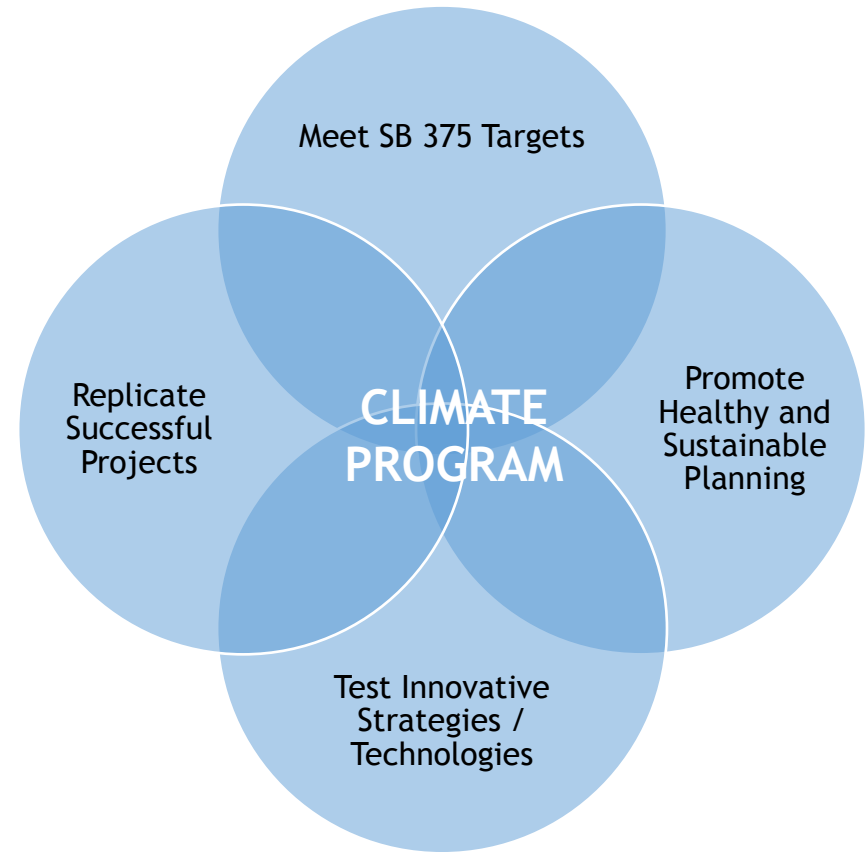
Purpose of the Climate Program

- MTC developed the Climate Program in December 2009 to help the region achieve the GHG reduction targets set forth in SB 375
- In Plan Bay Area, the Climate Program accounts for **6.3%** (more than 1/3) of the achieved **16%** per capita GHG reductions by 2035



Goals of MTC's Climate Program

- **Meet SB 375 GHG emission reduction requirements** that mandate the region to reduce GHG emissions
- **Test innovative transportation strategies / technologies** that reduce GHG emissions, VMT, single occupancy vehicle travel, and support mode shift
- **Promote co-benefits**, such as improved public health and reduced transportation costs
- **Replicate successful projects** throughout the region



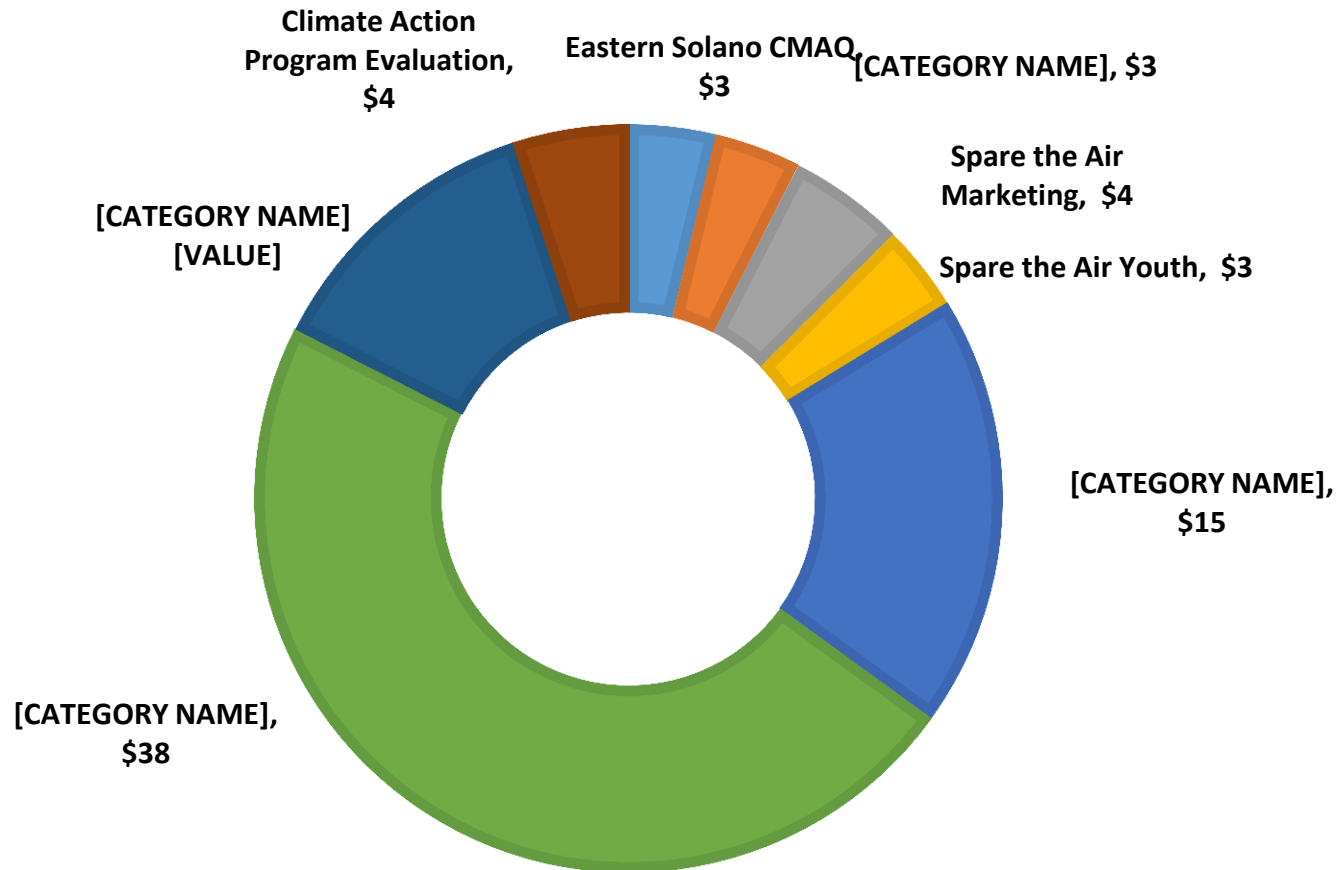
Plan Bay Area Climate Program

Plan Bay Area invests \$630m over 25 years in Climate Program activities

Policy Initiative	2035 Cost in YOE millions	Per Capita CO ₂ Emissions Reductions in 2035	Cost per GHG Ton Reduced in 2035	Funds Expended to Date (in millions)
Commuter Benefits Ordinance	\$0	-0.3%	\$0	\$.4
Car Sharing	\$13	-2.6%	\$14	\$2
Vanpool Incentives	\$6	-0.4%	\$29	--
Clean Vehicles Feebate Program	\$25	-0.7%	\$108	--
Smart Driving Strategy	\$160	-1.5%	\$322	\$.9
Vehicle Buy-Back & Plug-in or Electric Vehicle Purchase Incentive	\$120	-0.5%	\$684	--
Regional Electric Vehicle Charger Network	\$80	-0.3%	\$812	--
Climate Initiatives Innovative Grants	\$226	TBD	TBD	\$44
Total	\$630	-6.3%		\$47.3

“Cycle 1” Investments

CLIMATE PROGRAM, \$80M (VALUES IN MILLIONS)



“Cycle 2” Investments

Program	Amount (in millions)
Bay Area Bike Share Program*	\$6
Car Sharing	\$2
TDM Grant Program	\$6
Electric Vehicle Incentives (TFCA funds provided by Air District)	\$6
Total	\$20

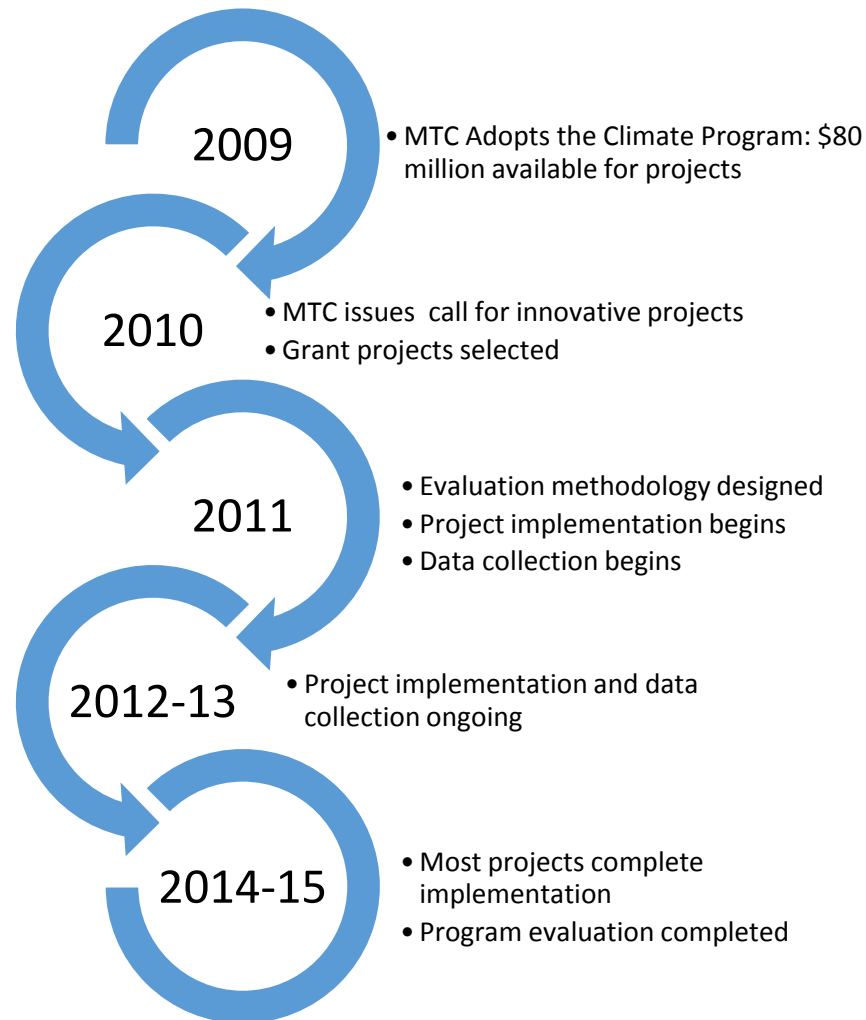
- Funding approved in April 2014
- Car Sharing grant program awarded projects in December 2014
- TDM Grant Program to release call for projects in Summer 2015
- **Funding for Bay Area Bike Share Program to be determined*



CYCLE 1 EVALUATION RESULTS

Cycle 1 Climate Program Evaluation Report

Program Timeline



Cycle 1 Climate Program

Innovative Climate Program

- Transportation Demand Management (TDM)
- Parking Pricing
- Ridesharing
- Bicycle Projects
- Electric Vehicle (EV) Deployment
- Other Innovative Projects

Safe Routes to School Projects

Smart Driving

Experience Electric Campaign

Climate Program by the Numbers

19

Number of projects



Reduced 5,165 tons GHG emissions/year,
or **approx. 1,087 cars off the road/year** (1
car = approx. 5 CO₂ /year)*



Total Project Costs (December 2014):
\$43,091,749



Total MTC Funding: **\$39,838,000**

*Source: EPA Greenhouse Gas Equivalency Calculator

Evaluation Methodology

- Most Climate Program activities reduce emissions in one of two ways: **reduce vehicle miles of travel (VMT)** or **deploy cleaner vehicles**
- The evaluation of the Climate Program applied a common analytical framework to all projects, considering:
 - ✓ **Transportation Impacts**
 - ✓ **Emissions Impacts**
 - ✓ **Costs**
 - ✓ **Co-Benefits**

Transportation Demand Management (TDM)

Innovative Grant Program

SHUTTLES,
CAR SHARING,
VANPOOLING,
TARGETED OUTREACH,
EMPLOYER
COLLABORATIONS



Connect, Redwood City!

car sharing, bike sharing, short-distance vanpools, and telework/flex-schedules, and targeted outreach, with a focus on first / last mile connections

GHG Emission Reductions:

1,100-2,790 tons/yr

Cost Effectiveness:

\$290/ton-\$697/ton

San Francisco Integrated Public/Private Partnership

shuttle partners, employer collaborations, employer parking management, inter-agency TDM strategy

GHG Emission Reductions:

5 tons/yr

Cost Effectiveness: \$171,600/ton

Parking Pricing

Innovative Grant Program

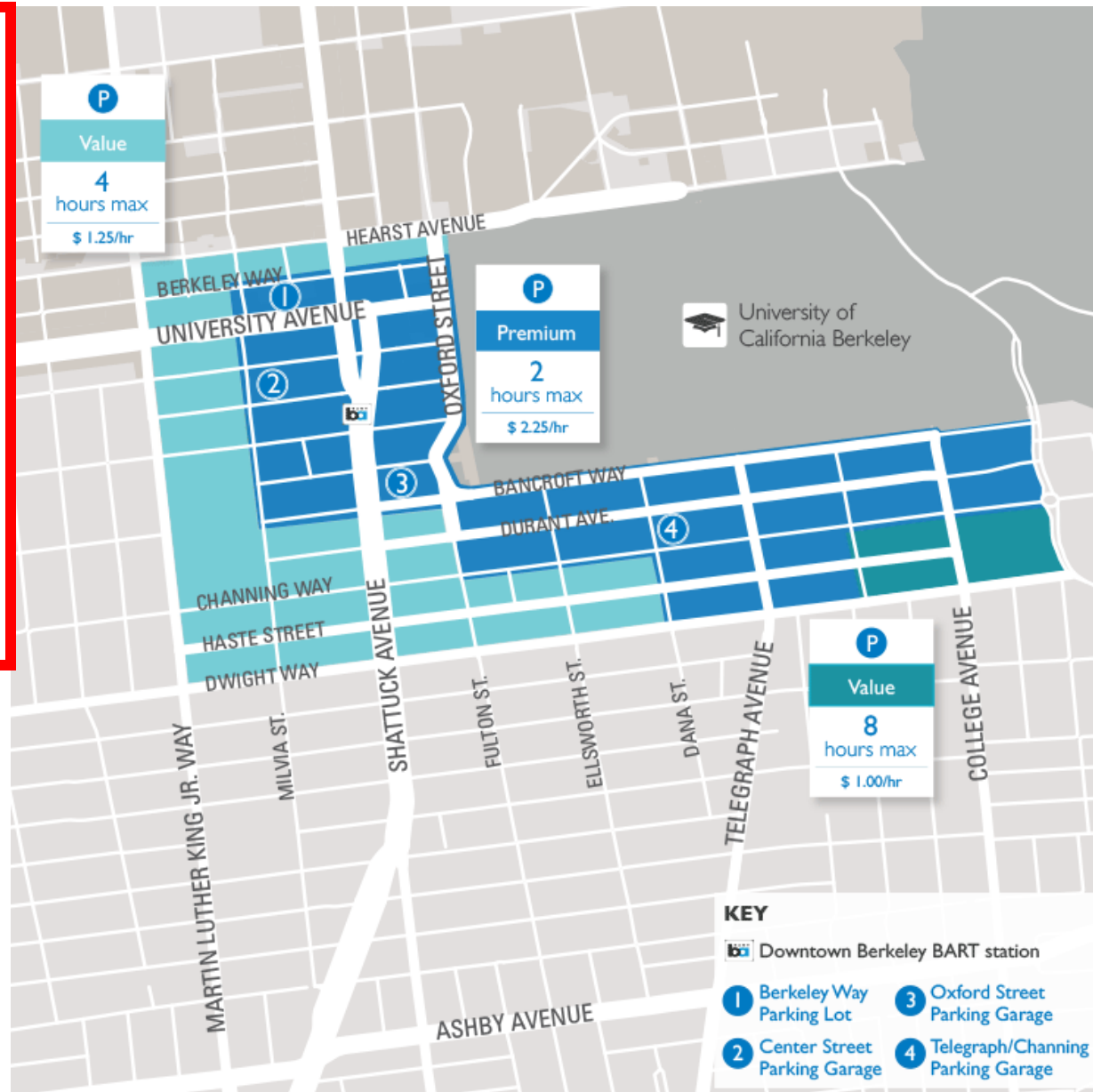
goBerkeley

Established time limits on parking and adjusted parking rates to increase parking efficiency and reduce circling; supplemented with a transit pass program, car sharing, and marketing.

**GHG Emissions Reduction:
317 tons/yr**

**Cost Effectiveness:
\$9,792/ton**

Percentage of surveyed drivers who found it “very easy” to find a parking space increased from 2% to 38%; percentage who found it “very” or “somewhat difficult” fell from 63% to 22%



Ridesharing

Innovative Grant Program

Dynamic Rideshare Programs Demonstrated in Three Counties

Used a mobile app to match drivers and riders in real time. Deployed in Sonoma, Marin and Contra Costa Counties.

GHG Emissions Reduction: 10 tons/yr

Cost Effectiveness: \$86,292

Household Transportation Costs: Typical savings of \$5.57 per trip for riders and \$2.63 per trip for drivers



Bicycle Projects

Innovative Grant Program



BikeMobile

Roving van that visits schools, recreation centers and community centers providing free bike repairs and safety education.

GHG Emissions Reduction: 201 tons/yr

Cost Effectiveness: \$2,811/ton

Bay Area Bike Share

Bike sharing program deployed throughout 5 cities and 3 counties

GHG Emissions Reduction: 79 tons/yr

Cost Effectiveness: \$17,643

Electric Vehicle (EV) Deployment

Innovative Grant Program



Local Government EV Fleet

Deployment of nearly 90 EVs and 90 Level 2 chargers to local government agencies

GHG Emission Reduction: 172 tons/yr

Cost Effectiveness: \$1,679/ton

eFleet: Car Sharing Electrified

Deployment of 16 PEVs in CityCarshare fleet

GHG Emissions Reduction: 4 tons/yr

Cost Effectiveness: \$100,745/ton

Tribal Community EV Pilot

Deployment of four EVs and six Level 2 chargers on tribal lands

GHG Emissions Reduction: 3 tons/yr

Cost Effectiveness: \$12,274/ton

Other Innovative Grant Programs

Innovative Grant Program



Cold in Place Recycling



Repaved two roadways in Napa using Cold in Place Recycling.

GHG Emissions Reduction:
493 tons/yr

Cost Effectiveness:
-\$2,477

Shore Power

Installed shore power technology at two berths at the Port of Oakland.

GHG Emissions Reduction:
534 tons/yr

Cost Effectiveness: \$849

Enhanced Automatic Vehicle Locator System

AVL deployed within the Santa Rosa CityBus fleet.

GHG Emissions Reduction:
not quantified

Cost Effectiveness: not quantified

Safe Routes to School Projects

**EDUCATIONAL PROGRAMS THAT
TEACH STUDENTS ABOUT
ALTERNATIVE TRANSPORTATION
CHOICES**

Bay Area School Transportation Collaborative

GHG Emissions Reduction: 297 tons/yr

Cost Effectiveness: \$3,355/ton

Green Ways to School

GHG Emissions Reduction: 57 tons/yr

Cost Effectiveness: \$7,491/ton

Regional Safe Routes to School (5 counties)

GHG Emissions Reduction: 202 tons/yr

Cost Effectiveness: \$17,823/ton

Education and Encouragement School Route Maps

GHG Emissions Reduction: not quantified

Cost Effectiveness: not quantified



Smart Driving

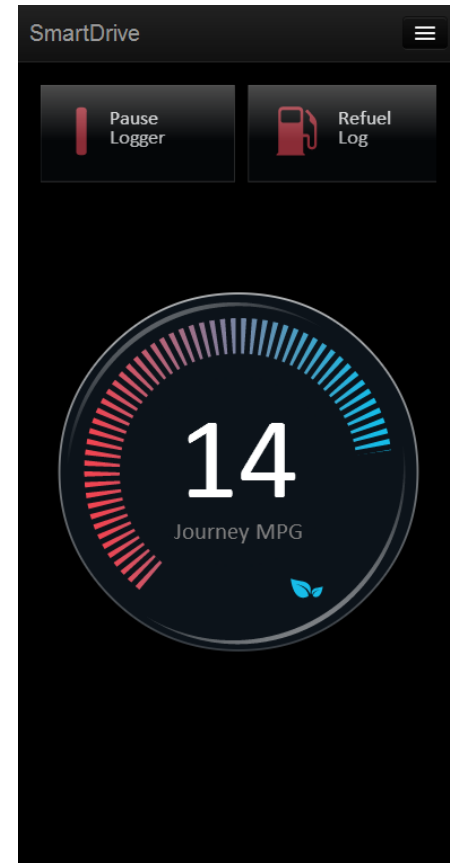
Smart Driving Pilot Project

Two pilot studies evaluated the impacts of real-time driving in-vehicle devices, smartphone apps, and educational elements on driver behavior and fuel economy. The pilot programs tested the ability to improve fuel efficiency.

Lessons Learned/Results:

- To get accurate results, there is a cumbersome installation and data retrieval process
- Results of pilots mixed, but showed promise for some aspects
- MTC is expanding efforts focusing on successful elements of pilots and a more robust public education effort

“Smart driving” refers to a set of strategies and techniques that maximize motor vehicle fuel efficiency by improving driving habits and vehicle maintenance.



“Experience Electric” Campaign



Experience Electric – The Better Ride

Ride-and-drive campaign that sought to build awareness and demand for plug-in electric vehicles.

Ride and Drive Events: Twenty-one ride-and-drive events were held in 8 of the 9 Bay Area counties.

Message Amplification: Photos and testimonials from events were distributed through social media.

Events were a success: *After the events, 11% of participants later purchased EVs; three quarters of those stated that the event influenced their decision to purchase/lease an EV.*

Barriers Remain: *At the events, participants noted that difficulty finding a charging station on the road and limited driving range were the most widely perceived barriers to owning and EV.*





FUTURE CLIMATE PROGRAM

Future of Climate Program

- **Continue to develop and implement programs that reduce GHG emissions**
 - Car Sharing Grant Program: Awarded funding for 6 projects to deploy car sharing
 - TDM Grant Program
- **Use Cycle 1 evaluation results to guide future investments and the Plan Bay Area 2040 Climate Program**
 - TDM Projects
 - EV Deployment
 - Parking Pricing Projects
 - Smart Driving
 - Shuttles and Vanpools



Future Climate Program (cont.)

- **Explore new initiatives and technologies with the potential to reduce GHG emissions**
 - Low Rolling Resistance Tires
 - Incident Management
 - Autonomous Vehicle Deployment
 - Zero Emissions Transit Vehicles
 - Community Based Marketing



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