Integrating High Speed Rail, Regional Rail, and Transit Services in California

Cap and Trade Transit and Intercity Rail Funding

SPUR Presentation

February 1, 2017
California Rail Services: Both Regional and High Speed
Continuous Funding

- Cap-and-Trade Auction Proceeds
- Multi-year program (FY14–16, FY16–18, FY 18–23)

Diagram showing:
- TIRCP 10%
- HSR 25%
- SGC 20%
- LCTOP 5%

2015–2016
Proposed Additional Funding

- Governor’s Transportation Funding Package
  - Additional $500 million per year from cap and trade, conditioned on extension of cap and trade on a 2/3 vote
    - $400 million Transit and Intercity Rail Capital Program
    - $100 million Active Transportation Program
  - Early debt repayment providing over $80 million per year over the next three fiscal years
- Five Year Program to be adopted by June 30, 2018
Modernize California’s transit systems to:

1. Reduce greenhouse gas emissions;
2. Expand and improve transit service to increase ridership;
3. Integrate the rail service of the state’s various rail operations, including integration with the high-speed rail system; and
4. Improve transit safety
Program Focus

- Specifies funding of “transformative capital improvements”
  - Significantly reduce VMT, congestion, & GHG emissions by
    - Creating a new transit system,
    - Increasing the capacity of an existing transit system, or
    - Significantly increasing the ridership of a transit system
Eligible Projects

- Must **demonstrate** GHG reduction
- Focus on transformative projects
- Include *but are not limited to*:
  1. Rail capital projects
  2. Intercity, commuter & urban rail projects that:
     - Increase service levels
     - Improve reliability
     - Decrease travel times
  3. Rail, bus and ferry integration implementation
  4. Bus Rapid Transit, Bus and Ferry transit investments to increase ridership
Evaluation Criteria

Primary criteria

1. Reduce GHG emissions
2. Increase ridership
3. Integration with other operators
4. Improve safety
Selected Projects: First Two Rounds

- 28 statewide projects
  - $615.2 million towards projects totaling $4.7 billion when counting additional leveraged funds
  - 5 million tons of GHG emissions reduction by end of useful life
  - 26 of 28 projects benefiting disadvantaged communities
## Selected Projects: First Two Rounds

### Bay Area and Central Coast

<table>
<thead>
<tr>
<th>Authority</th>
<th>Project Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitol Corridor Joint Powers Authority</td>
<td>Travel Time Reduction Project</td>
<td>$4,620,000</td>
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<tr>
<td>Monterey-Salinas Transit</td>
<td>Monterey Bay Operations &amp; Maintenance Facility/Salinas Transit Service Project</td>
<td>$10,000,000</td>
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<tr>
<td>Peninsula Corridor Joint Powers Board</td>
<td>Peninsula Corridor Electrification Project</td>
<td>$20,000,000</td>
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<td>San Francisco MTA (Muni)</td>
<td>Expanding the SFMTA Light Rail Vehicle Fleet Project</td>
<td>$41,181,000</td>
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<td>San Francisco MTA (Muni)</td>
<td>Light Rail Modernization &amp; Expansion Program</td>
<td>$45,092,000</td>
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<td>Santa Clara Valley Transportation Authority</td>
<td>BART Silicon Valley Phase II Expansion</td>
<td>$20,000,000</td>
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<tr>
<td>Sonoma-Marin Area Rail Transit</td>
<td>SMART Rail Car Capacity Project</td>
<td>$11,000,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>7 projects</strong></td>
<td><strong>$151,893,000</strong></td>
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### Sacramento and Central Valley

<table>
<thead>
<tr>
<th>Authority</th>
<th>Project Description</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Capitol Corridor Joint Powers Authority</td>
<td>Increased Rail Service to Roseville, Service Optimization and Standby Power Investments</td>
<td>$8,999,000</td>
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<tr>
<td>City of Fresno</td>
<td>Metropolitan Rapid Transit and Rail Connectivity Project</td>
<td>$8,000,000</td>
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<tr>
<td>Sacramento Regional Transit District</td>
<td>SacRT Refurbishment of 7 Light Rail Vehicles Project</td>
<td>$6,427,000</td>
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<tr>
<td>Sacramento Regional Transit District</td>
<td>Downtown/Riverfront Sacramento-West Sacramento Streetcar</td>
<td>$30,000,000</td>
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<td>San Joaquin Regional Rail Commission</td>
<td>Altamont Corridor Express Wayside Power</td>
<td>$200,000</td>
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<tr>
<td>San Joaquin Regional Rail Commission</td>
<td>ACE Near Term Capacity Improvement Program</td>
<td>$16,459,000</td>
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<tr>
<td>San Joaquin RTD</td>
<td>MLK Corridor and Crosstown Miner Corridor Bus Rapid Transit Project</td>
<td>$6,841,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>7 projects</strong></td>
<td><strong>$76,926,000</strong></td>
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Selected Projects: First Two Rounds

Southern California

<table>
<thead>
<tr>
<th>Organization</th>
<th>Project Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Antelope Valley Air Quality Management District</td>
<td>Zero Emission Bus and Vanpool Expansion in the Antelope, Kern County and the Coachella Valley</td>
<td>$8,930,000</td>
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<tr>
<td>Antelope Valley Transit Authority</td>
<td>Regional Transit Interconnectivity &amp; Environmental Sustainability Project</td>
<td>$24,403,000</td>
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<tr>
<td>Foothill Transit</td>
<td>Bus Electrification, Service Expansion and Rail Integration</td>
<td>$5,000,000</td>
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<tr>
<td>Los Angeles County MTA (Metro)</td>
<td>Willowbrook/Rosa Parks Station and Blue Line Light Rail Operational Improvements Program</td>
<td>$38,494,000</td>
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<tr>
<td>Los Angeles County MTA (Metro)</td>
<td>Airport Metro Connector 96th Street Station/Metro Green Line Extension to LAX</td>
<td>$40,000,000</td>
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<tr>
<td>Los Angeles County MTA (Metro)</td>
<td>Metro Red and Purple Line Core Capacity Improvements</td>
<td>$69,209,000</td>
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<tr>
<td>LOSSAN Rail Corridor Agency</td>
<td>Pacific Surfliner Transit Transfer Program</td>
<td>$1,675,000</td>
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<td>LOSSAN Rail Corridor Agency</td>
<td>All Aboard: Transforming Southern California Rail Travel</td>
<td>$82,000,000</td>
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<tr>
<td>Orange County Transportation Authority</td>
<td>Bravo! Route 560 Rapid Buses</td>
<td>$2,320,000</td>
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<td>Orange County Transportation Authority</td>
<td>OC Streetcar and OCTA System-Wide Mobile Ticketing</td>
<td>$28,000,000</td>
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<tr>
<td>San Bernardino Associated Governments</td>
<td>Redlands Passenger Rail Project</td>
<td>$9,204,000</td>
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<td>San Diego Association of Governments</td>
<td>South Bay Bus Rapid Transit Project</td>
<td>$4,000,000</td>
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<td>San Diego MTS</td>
<td>San Diego MTS Trolley Capacity Improvements Project</td>
<td>$31,936,000</td>
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<td>SCRRRA (Metrolink)</td>
<td>Purchase of 9 Fuel-Efficient Tier IV Locomotives</td>
<td>$41,181,000</td>
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<td><strong>Total</strong></td>
<td><strong>14 projects</strong></td>
<td><strong>$386,352,000</strong></td>
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</table>
An Example of an Integrated Network - Wetzikon
An Example of an Integrated Network - Wetzikon

- Multimodal Connectivity:
  - Facilitates Bus-Rail connections
- Transfers occur half-hourly at minutes 15 and 45
- Connections between 3 regional rail lines and 12 bus lines
Network Map

An Example of an Integrated Network - Wetzikon
An Example of an Integrated Network - Wetzikon

1. Buses arrive in advance of the trains
2. Trains arrive in the station
3. All services are in the station
4. Trains depart from the station
5. Buses depart from the station
Near-Term Strategies Supporting Rail & Transit Integration

1. **State Funding Priority on Transit–Rail Integration**
   - Focus of cap and trade funding for transit and rail
   - Guiding future interregional project selection

2. **Improved Existing Services**
   - Improved network planning & operations
   - Significantly increased capital investment

3. **Improved Customer Experience**
   - Next generation smart cards and mobile ticketing
   - More extensive ticketing and service integration

4. **Long Range Planning with Vision in Mind**
   - Not-to-preclude framework for planning and investment
   - Regional strategic planning focused on future service goals
Using Cap-and-Trade to Improve California’s Transportation: Regional Perspectives

Alix Bockelman
Metropolitan Transportation Commission

February 1, 2017
The Bay Area’s economy has grown faster than any other major metro area’s since 2001

Sources: Bureau of Economic Analysis (inflation-adjusted to 2015 dollars)
Note: GRP is reported at the MSA level; the Bay Area MSAs include the 9-county region and San Benito County.
Congested delay has grown at a much faster rate than jobs.

% CHANGE SINCE 1990

- Jobs
- Population
- Congested Delay

Sources: California Employment Development Department, 2015; California Department of Finance, 2015; INRIX/Iteris/MTC, 2015
Regional Cap-and-Trade Framework

- Address major core capacity needs, system modernization, and expansion through Transit and Intercity Rail Capital Program (TIRCP)

- Improve small transit operator service, invest in key transit corridors and the Clipper system through Low Carbon Transit Operations Program (LCTOP)

- Fund affordable housing projects and related infrastructure through Affordable Housing and Sustainable Communities program (AHSC)
Transit and Intercity Rail Capital Program (TIRCP)
Regional Priorities

Fleet Expansion

System Modernization & Expansion

Support Facilities

MTC’s Total TIRCP Framework: $3 Billion over 25 years to Region
Transit and Intercity Rail Capital Program (TIRCP)

- Program is 10% of state Cap-and-Trade revenues
- Through 2 rounds, $152 million awarded to Bay Area projects (25% of statewide)
- Regional target: 33% of program

<table>
<thead>
<tr>
<th>Project</th>
<th>Amount Awarded</th>
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<tbody>
<tr>
<td>Muni Light Rail Vehicles</td>
<td>$86 million</td>
</tr>
<tr>
<td>BART Silicon Valley Phase II</td>
<td>$20 million</td>
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<tr>
<td>Caltrain Electrification</td>
<td>$20 million</td>
</tr>
<tr>
<td>Others (SMART, ACE, Capital Corridor)</td>
<td>$26 million</td>
</tr>
<tr>
<td><strong>Bay Area Total</strong></td>
<td><strong>$152 million</strong></td>
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</table>
Low Carbon Transit Operations Program (LCTOP) Regional Priorities

- 50% of program: formula based on revenue, direct to operators
- 50% of program: formula based on population, goes to region
Low Carbon Transit Operations Program (LCTOP)

- Program is 5% of state Cap-and-Trade revenues
- Through 2 rounds, $37 million awarded to Bay Area projects (37% of statewide)
- 56% of state’s revenue-based funds
- 19% of state’s population-based funds

Current Bay Area projects:
- New transit vehicles
- Service expansion
- Replacing Clipper equipment
- Transit Signal Priority equipment
- Maintenance facilities
- Real-time transit information
- Transit passes
Affordable Housing and Sustainable Communities (AHSC)

Regional Priorities
- Support projects providing greater share and total number of affordable units
- Support Plan Bay Area strategies
- Support adopted transit priorities

Early Success
- Program is 20% of state Cap-and-Trade revenues
- Through 2 rounds, $157 million awarded to 19 Bay Area projects (35% of statewide funds)
  - 1,700 affordable housing units and associated infrastructure (new buses, bicycle & ped. improvements, etc.)
High Speed Rail

• Program is 25% of Cap-and-Trade revenues
• $113 million funding commitment to Caltrain Electrification
• Opportunities for future Bay Area investment
Clean Vehicle Opportunities

- **Low Carbon Transportation** programs, through California Air Resources Board:
  - Clean Vehicle Rebate Project
  - Heavy-duty hybrid/zero-emission trucks and buses
  - Freight demonstration projects
  - Pilot programs in disadvantaged communities
Disadvantaged Communities/ Communities of Concern

- Minimum 25% of Cap and Trade funds must benefit Disadvantaged Communities (increasing to 35%, AB 1550)
- Set-asides vary by program
- Plan Bay Area’s Communities of Concern cover far more population and area than state’s CalEnviroScreen 3.0 definition:

<table>
<thead>
<tr>
<th></th>
<th>Communities of Concern</th>
<th>CalEnviroScreen 3.0 Disadvantaged Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>1,708,000</td>
<td>471,000</td>
</tr>
<tr>
<td>Census Tracts</td>
<td>365</td>
<td>105</td>
</tr>
</tbody>
</table>

- MTC continues to advocate for broader Disadvantaged Community definition
Who We Are

The SFMTA plans, designs, builds, operates, regulates and maintains one of the most comprehensive transportation networks in the world.
Muni Light Rail System at a Glance

- Zero emission backbone of the system
- Key to meeting service goals & delivering special events
- Serves a quarter of our riders (170k weekday boardings)
- Recent introduction of Hillway and Castro shuttles to alleviate crowding
San Francisco is Growing

- We anticipate 130,000+ new households and 310,000+ new jobs by 2040
- LRV ridership expected to grow by about 50 percent in that time period
• Improves **safety** with 151 replacement LRVs and up to 113 expansion vehicles
• Increases **ridership** by over 80,000 new weekday boardings
• **Integrates** with regional and statewide transit
• **Reduces greenhouse gas emissions** by almost 1 million metric tons
• **Delivers on our promise for equity**
First New Light Rail Vehicle Arrived!
State-of-the-Art Safety Features

• Ergonomically designed operator cab improves working environment and visibility

• Crash energy management system protects passengers and operators

• Optimized truck design to accommodate track conditions and lower the risk of derailment

• Advanced propulsion and braking systems provide a smoother ride and reduce harsh braking and acceleration
**Improved Performance**

- Five times less likely to break down in service compared to current fleet
- Modular components allow rapid replacement to reduce downtime
- Train Operator Display provides info to help operator quickly diagnose issues
- Color-block destination signs & LCD screens improve wayfinding
- Improved passenger amenities and access for people with disabilities
Using New Vehicles in Service!

- Use new LRVs for capacity in segments with highest demand
- Frequent T Third from Chinatown to Bayview
- Longer trains on N Judah, S Shuttle, and J Church
- Evaluating multiple service scenarios including express trains, route interlining and coupling practices for increased flexibility
- Assessing bypass tracks at selected locations
Surface Signaling and Related Investments

Capital Investments

- Dynamic surface signaling and positive train control
- New Warriors Platform
- Signal redesign at bottleneck locations
- New pocket track on Embarcadero to relieve Muni Metro Turnback

Benefits

- Reduced collisions
- Better special event management and incident recovery
- Fewer service gaps, more even vehicle spacing
- Builds on current investment (e.g., transit signal priority)
Investing in San Francisco light rail leverages:

- Integration with existing regional and state transportation
- The City’s existing Climate Action Strategy, policies, & commitments
- Citywide transit and transportation improvements (e.g., Muni Forward, Vision Zero)
Delivering on our Promise for Equity

• New vehicles will provide immediate benefits to low income neighborhoods and Citywide customers from low-income households.

• Half of Muni customers (51%) live in households that qualify as low income, a much higher proportion than the City average (31%).
• Leading Regional Economic Engine
• Addressing Sustainable Jobs and Housing Growth
• Providing Affordable/Equitable Transportation
• Enhancing the environment