



Project Performance Assessment Preliminary General Findings

Partnership Board

May 1, 2008

Process

TRANSPORTATION 2035 VISION

- Develop Performance-Based Scenarios
 - Define performance measures
 - Achieve with defined strategies
- Adopt Policy Performance Objectives (Jan. 08)

Project/Program Performance Assessment

Policy Assessment (adopt March 08)
Based on Vision Policy Strategies
- Investments, Land Use, Pricing, Technology,
Travel Behavior

Quantitative Evaluation (adopt Feb 08)
Based on Performance Objectives
- Delay, Emissions, Safety, VMT, Affordability

Financially Constrained Investment (adopt July 08)
• Project Assessment: Policy & Performance Evaluation
• Tradeoff Discussions

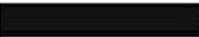


Qualitative Policy Assessment

- All potential discretionary investments
- 21 project types representing 700+ projects
- Assess support for Vision Policy Strategies
 - Investments
 - Land Use
 - Pricing/Affordability
 - Technology
 - Travel Behavior

Preliminary Results

| Project Type | T-2035 Goals and Qualitative Results | | | | |
|---|--|---|---|--|---|
| | Maintenance/ Security/ Safety | Reliability/ Efficient Freight (Congestion Relief) | Clean Air/ Climate Change | Livable Communities | Access |
| Criteria: Project types support specific Vision Policy Strategies | <u>Investment</u> -safety -maintenance | <u>Investment</u> -transit mobility -local mobility -gap closure -freight mobility -new technology -pricing | <u>New Technology</u> -GHG reducing technology <u>Individual Behavior</u> -encourages mode shift away from SOV | <u>Focused Growth</u> -supports PDAs: project located in a PDA and supportive of focused growth | <u>Investment</u> -access- youth, elderly & disabled <u>Pricing & Affordability</u> -provides transit alternative -reduces transportation costs |
| Maintenance: regional programs plus other | | | | | |
| Seismic and bridge rehab | | | | | |
| Climate and Emissions Reductions | | | | | |
| CBTP, Lifeline | | | | | |
| Bike and ped | | | | | |
| TOD/PDA support | | | | | |
| Streetscape & soundwalls | | | | | |
| Transit or intermodal centers | | | | | |
| Transit efficiency, including BRT | | | | | |
| Transit Expansion: service increase, connectivity | | | | | |
| Freeway and Arterial ITS | | | | | |
| HOT | | | | | |
| HOV- includes park and ride | | | | | |
| Freight | | | | | |
| Freeway and expressway expansion | | | | | |
| Fwy to fwy interchange | | | | | |
| Aux lanes and fwy operations | | | | | |
| Local interchange improvements | | | | | |
| Arterial Improvements | | | | | |
| Grade Separations | | | | | |
| Local streets and roads (expansion) | | | | | |

 Strongly Supports
 Supports



Quantitative Evaluation

- **Compare benefits and costs relative to Performance Objectives**
 - Reduce delay, emissions, collisions, VMT
 - Improve affordability and system maintenance
- **Identify outliers**
- **Focus on key investment decisions**
 - Approx. 75 higher-cost projects/programs evaluated (beyond committed)
 - Transit and roadway expansion/operations – regional travel model (similar to CMIA analysis)
 - Regional programs – alternative methods



Performance Measures

- **Benefit-cost measure (monetized)**
 - Delay/travel time
 - Particulate and CO2 emissions
 - Collisions
- **Additional metrics**
 - Vehicle miles traveled and cost per VMT reduced
 - *Cost per low-income household served - incomplete*
- **Annualized benefits & costs in year 2035**



Benefit-Cost for Regional Funding Programs

- **Transit and Roadway Maintenance Shortfalls**
 - Avoided public and private costs to users
 - Total savings is huge: \$2 to \$40 billion
- **Focused Growth (TLC, Bike Network)**
 - Reductions in congestion and emissions from estimated VMT reductions, based on research
- **Affordability (Lifeline, Means-Based Transit Discount)**
 - Direct private savings in auto ownership and transit fare expenditures; congestion & emissions not estimated
- **Emissions Reduction (Climate Protection, Port Emissions/Truck Retrofit)**
 - Emissions reductions only; congestion not estimated

Preliminary Results: Benefit-Cost

High: B/C 10 or Higher

Transit efficiency

- SFMTA & AC Transit transit priority meas.
- Van Ness BRT

Roadway expansion - SR 84 widening

Freeway efficiency

- Freeway Performance Initiative (FPI)
- HOT lanes + express bus (Santa Clara, Regional)

Medium-High: B/C between 5 and 10

Roadway maintenance

Roadway operations/expansion

- I-580 Truck climbing lanes
- Sol-80 reliever route
- Jepson parkway connection (Solano)

Freeway efficiency – HOT lanes + express bus/BRT (Alameda)

Fwy-to-fwy interchange – SR237/US101

Transit efficiency – Geary BRT

Preliminary Results, cont.

Mid-Range: B/C Between 1 and 5

Transit maintenance

Transit expansion/efficiency

- BART to Livermore
- Marin County Transit
- I-80, I-580, I-680 express bus
- Geneva/Harney BRT

Fwy-to-fwy interchanges

- I-80/I-680/SR12
- I-580/US 101
- I-680/SR4
- SR 237/SR 85
- SR 25/US 101/Santa Teresa Blvd

Roadway expansion

- SR 12 widening
- SR 92 uphill passing lane
- SR 239 Brentwood/Tracy expressway
- SR 152 new alignment
- US 101 widening south Santa Clara County
- Jepson parkway phases 1 and 2
- Widen SR 4 to San Joaquin County Line

Regional programs

- TLC+ (TOD emphasis)
- Port Emissions/Truck Retrofit

Low: B/C Under 1

Transit expansion

- Capital corridor
- MTA historic streetcar

Regional Programs

- Lifeline
- Regional Bike Network

- Climate Protection

Roadway

- Dumbarton Bridge access (San Mateo)
- Single, direct HOV connectors/ramps
- Upgrade SR4 West to freeway
- I-580/I-680 interchange

General Findings: CO₂

| | Tons CO ₂ Reduced in 2035 (000s) | Cost per Ton CO ₂ Reduced |
|---|---|---|
| Most Effective and Most Cost-Effective | | |
| HOT networks + express bus | 100 to 600 | \$200 - \$800 |
| Climate Protection Program | 300* | \$200 |
| Freeway Performance Initiative | 200 | \$300 |
| TLC + (TOD emphasis) | 100 | \$800 |
| Limited Impact and Less Cost Effective | | |
| "Reliever" routes | 10 to 20 | \$500 to \$2,000 |
| Transit exp./efficiency | 1 to 5 | \$1,000 to |
| Selected roadway exp./ interchanges | | \$45,000 |
| Increase CO₂ Emissions | | |
| Selected roadway expansion | -1 to -15 | NA |

* For year 2015



CO₂ Emissions Reductions Context

- Reduction of 100,000 tons per year is equivalent to*
 - 16,000 passenger cars and light duty trucks not driven for one year
 - One year of electricity use by 18,000 California households
 - Replacing 1.2 million standard light bulbs with compact fluorescent lamps
- 100,000 tons is 1.7% of total transportation emissions in 2035 (15,000 tons is 0.04%)

* Adapted from ARB Fact Sheet,
Conversion of 1MMT CO₂ to Familiar Equivalentents (10/07)

General Findings: VMT

| | Millions VMT Reduced in 2035 | Cost per Thousand VMT Reduced |
|---|------------------------------|-------------------------------|
| Most Effective | | |
| HOT networks + express bus | 200 to 800 | \$100 to \$500 |
| TLC+ (TOD emphasis) | 200 | \$500 to \$800 |
| Moderately Effective | | |
| Regional Bike Network | 60 | \$1,000 |
| High volume transit (e.g., transit priority measures, SFMTA BRT, BART to Livermore) | 7 to 50 | \$200 - \$7,000 |
| Roadway projects that provide direct routing (e.g., I-80 reliever, SR84) | 6 to 8 | \$500 to \$1,000 |
| Increase VMT | | |
| Most roadway expansion projects | -1 to -25 | NA |
| Freeway Performance Initiative | -66 | NA |

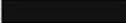


How Can We Use Results in Trade Off Discussions ?

1. Highlight investments addressing multiple Goals
2. Identify most effective and/or most cost-effective investments under each Goal

Integrating the Results

| Project Type | Number Goals Addressed | T-2035 Goals and Qualitative Results | | | | | Quantitative Results [1] | | |
|---|------------------------|--------------------------------------|--|---------------------------|---------------------|--------|--------------------------|--------------------------------------|-------------------------------|
| | | Maintenance/ Security/ Safety | Reliability/ Efficient Freight (Congestion Relief) | Clean Air/ Climate Change | Livable Communities | Access | Benefit-Cost Ratio | CO ₂ / VMT Reductions [2] | Total Annual Benefit (2007\$) |
| Transit efficiency, including BRT | 4 | | | | | | 4 to 30 | M / M | 7 to 350 M |
| Transit Expansion: service increase, connectivity | 4 | | | | | | 1 to 10 | M / M | 5 to 190 M |
| Bike and ped | 3.5 | | | | | | <1 | M / H | 20 to 40 M |
| Transit or intermodal centers | 3 | | | | | | NA | NA | NA |
| Freeway and Arterial ITS | 2.5 | | | | | | 28 | H / X | 1.6 B |
| TOD/PDA support | 2.5 | | | | | | 1 | H / H | 139 M |
| HOT | 2 | | | | | | 6 to 24 | H / H | 670 M to 3.8 B |
| Maintenance: regional programs plus other | 2 | | | | | | 2 to 5 | NA | 50 M to 1.5 B |
| Fwy to fwy interchange | 2 | | | | | | <1 to 5 | X-L / X-L | 2 to 200 M |
| Local interchange improvements | 2 | | | | | | NA | NA | NA |
| Climate and Emissions Reductions | 1.5 | | | | | | <1 to 1 | H / NA | 5 to 20 M |
| CBTP, Lifeline | 1.5 | | | | | | <1 | NA | 2 to 25 M |
| HOV- includes park and ride | 1.5 | | | | | | TBD | TBD | TBD |
| Grade Separations | 1.5 | | | | | | NA | NA | NA |
| Aux lanes and fwy operations | 1.5 | | | | | | 5 to 8 | X / X | 8 to 30 M |
| Freeway and expressway expansion | 1 | | | | | | <1 to 5 | X-M / X-L | 0 to 90 M |
| Seismic and bridge rehab | 1 | | | | | | NA | NA | NA |
| Freight | 1 | | | | | | NA | NA | NA |
| Arterial Improvements | 0.5 | | | | | | <1 to 13 | M / X | 3 to 50 M |
| Local streets and roads (expansion) | 0.5 | | | | | | NA | NA | NA |
| Streetscape & soundwalls | 0.5 | | | | | | NA | NA | NA |

 Strongly Supports
 Supports

[1] For selected projects within the type.
 Delay and travel time reductions represent the largest component of monetized benefits for project types except maintenance and CBTP/Lifeline

[2] H = High reduction and/or cost-effectiveness
 M = Medium reduction and/or cost-effectiveness
 L = Low
 X = Increase



Performance Measures Review

- Technical Review – comments due 5/7
- Present General Findings
 - Partnership Ad Hoc Committee 4/29
 - Partnership Board 5/1
 - Planning Committee 5/9
 - Joint Policy Committee 5/16
 - Partnership TAC 5/19
 - Commission Workshop 5/27