Alameda Countywide Transportation Plan Update
Evaluation Outcomes

presented to:
Technical Advisory Working Group

presented by:
Cambridge Systematics, Inc.

July 2011
Transportation leadership you can trust.

Agenda

- Describe the evaluation process
  - Vision and Goals
  - Screening & scenario evaluations
  - Performance analysis & modeling
  - Example of project & program outcomes

- Identify next steps in the evaluation process
**Evaluation Process**
**Vision and Goals Guiding the CWTP**

- **Foundation for all analysis performed for the CWTP Update**
  - Vision and Goals

- **Vision**
  - “Alameda County will be served by a premier transportation system that supports a vibrant and livable Alameda County through a connected and integrated multimodal transportation system promoting sustainability, access, public health and economic opportunities.”

**Goals for the transportation system**

- 1 - Multimodal
- 2 - Accessible, Affordable and Equitable for people of all ages, incomes, abilities and geographies
- 3 - Integrated with land use patterns and local decision making
- 4 - Connected across the county, within and across the network of streets, highways, transit, bicycle and pedestrian routes
- 5 - Reliable and Efficient
- 6 - Cost Effective
- 7 - Well Maintained
- 8 - Safe
- 9 - Supportive of a Healthy and Clean Environment
Evaluation Process
Defensible Evaluation Tools to Support the CWTP

- Objective screening
- Performance-based process to evaluate scenarios
- Objective project grouping
- State-of-the-practice tools applied to support the planning process
- Tools to inform and support decision-making, not to replace decision-making
- Provide credible data to decision-makers

Evaluation Process
Screening and Scenario Evaluation Processes
Evaluation Process
Screening Projects and Programs

Screening
» Includes CWTP/RTP Call for projects and programs
» Excludes committed projects
» Includes programmatic projects, programs

Projects/programs categorized by number of goals met and estimated project costs

- Medium-to-high performers/ Low-to-medium costs
- High performers/ High costs
- Low performers/ High costs

Evaluation Process
Scenario Packages Defined for Evaluation

Baseline
» Includes existing plus committed projects/programs

Unconstrained - $32b of funding
» Includes all transportation projects/programs identified in the Call for Projects

Constrained – $12b of finding for
» Programmatic – Emphasis on programs, 60% program, 40% capital project split
» Capital Project – Emphasis on projects, 40% program, 60% capital project split
» Land Use – Emphasis on land use, 50% split for programs and capital projects
Evaluation Process
Scenario Packages Defined for Evaluation

Evaluation Process
Two part process

- Evaluation in two parts
  » Screening (qualitative)
  » Scenario modeling (quantitative)

- Performance measures match evaluation tools and data available

Evaluation

- Qualitative Assessment
- Quantitative Assessment

Screening
Scenario Analysis
Evaluation Process
Performance Measure Evaluation Tools

- Model used to assess transportation impacts of scenarios (multimodal, land use)
- Model outputs used to assess scenario impacts (performance measures, GHG emissions analysis, maintenance conditions)
- GIS used to support screening and scenario analysis
- Sketch planning models used to evaluate GHG, maintenance, cost effectiveness and safety

### Evaluation Process
Performance Measures

<table>
<thead>
<tr>
<th>Goal</th>
<th>Screening Measure</th>
<th>Scenario Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Multimodal</td>
<td>- Number of passenger and freight modes improved or affected by the investment</td>
<td>- Percent of all trips made by alternative modes (bicycling, walking, or transit)</td>
</tr>
</tbody>
</table>
| 2. Accessible, Affordable, & Equitable | - Number of activity centers & transit hubs within ½ mi of the investment  
- Number of traffic analysis zones (TAZs) with above-average proportion of low-income households that are intersected by an investment | - Share of households, by income group, within a given travel time to activity centers  
- Share of households, by income group, geographically close to frequent transit service |
| 3. Integrated w/ Land Use Patterns & Local Decision-Making | - Number of PDAs intersected by an investment | - Share of households, by income group, geographically close to frequent transit service  
- Transit ridership per revenue hour |
<table>
<thead>
<tr>
<th>Goal</th>
<th>Screening Measure</th>
<th>Scenario Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Connected</td>
<td>• Ability to complete or improve a link in the regional transportation system</td>
<td>• Average travel time (auto, carpool, truck, transit)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Ratio of peak to off-peak travel time</td>
</tr>
<tr>
<td>5. Reliable &amp; Efficient</td>
<td>• Located on an identified Congestion Management Plan route</td>
<td>• Average travel time (auto, carpool, truck, transit)</td>
</tr>
<tr>
<td></td>
<td>• Located on a route with above average heavy trucks</td>
<td>• Ratio of peak to off-peak travel time</td>
</tr>
<tr>
<td>6. Cost Effective</td>
<td>• Reflected in grouping process, which groups investments based on performance measure evaluation and cost</td>
<td>• Reflected in grouping process, which groups investments based on performance measure evaluation and cost</td>
</tr>
<tr>
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<tr>
<td>Goal</td>
<td>Screening Measure</td>
<td>Scenario Measure</td>
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<tr>
<td>---------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7. Well Maintained</td>
<td>• This measure was not used in screening evaluation</td>
<td>• Percent of roads, by facility type, in excellent, good, low or failing condition</td>
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<tr>
<td></td>
<td></td>
<td>• Estimating the remaining service life remaining for all transit assets</td>
</tr>
<tr>
<td>8. Safe</td>
<td>• Number of freeways and arterial roadways with fatal crash rates above the statewide average (“safety areas”) that the investment overlaps</td>
<td>• Collision-related injuries and fatalities for all modes</td>
</tr>
<tr>
<td>9. Clean &amp; Healthy</td>
<td>• This measure was not used in screening evaluation</td>
<td>• Average daily travel time for bicycle and pedestrian trips</td>
</tr>
<tr>
<td>Environment</td>
<td></td>
<td>• Per-capita CO₂ emissions from cars and light-duty trucks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Per-capita fine particle emissions from cars and light-duty trucks</td>
</tr>
</tbody>
</table>
Evaluation Process
Grouping Projects/Programs

- A process was developed to create a framework to group projects/programs by performance value versus cost.
- Combined results from screening and scenario evaluations used to identify groups:
  - Used equal weights to create total performance value by project/program.
  - Total performance value and capital cost determined group for each project/program.
  - Based on funding limits that apply specifically to capital projects/programs.

Evaluation Process
Grouping Projects/Programs (continued)

- Groups not interpreted as “good” or “bad” projects.
- Groups provide a way to identify projects that offer similar performance value:
  - All projects/programs within a given group should be viewed as having equivalent performance-versus-cost value.
Evaluation Process
Grouping Projects/Programs (continued)

- Score by performance measure
- Average performance measures such that each of the 9 goals has one value
- Assign relative high, medium and low scores
- Sum the scores to determine total score for each project and program
- Compare to cost
- Group projects and programs

Evaluation Process
Other Factors to Create CWTP

- Limited available funding
- Create both “Constrained” and “Vision” project and program packages
- Combine projects and program investments
- Meet CWTP Vision and Goals
- Projects and programs may be funded in part by TEP
Evaluation Process
Organization of Results

Evaluation results presented by Subarea and Investment Strategies
  » Investment strategies are groups of similar project types
  » Designed to identify project/scenario impacts in a concise manner
    – Transit Capital
    – Transit Operations
    – Pedestrian and Bicycle
    – Surface Streets
    – HOV/HOT Lanes
    – Freeway Bottleneck Removal

Evaluation Process
Organization of Results (continued)

5 subareas used to organize results geographically
  » North County: Albany, Berkeley, Oakland, Piedmont and Emeryville
  » North-Central County: Oakland, Fruitvale, Coliseum Area, Eastmont, and Alameda
  » Central County: San Leandro, Hayward, Castro Valley, Cherryland, and San Lorenzo, Unincorporated areas
  » South County: Union City, Newark, and Fremont
  » East County: Dublin, Pleasanton, Livermore, and Unincorporated Areas

North-Central subarea is subset of North County subarea to provide greater detail for multiple travel markets
Evaluation Process
Organization of Results - Subareas

Evaluation Outcomes
Examples

- Present the entire evaluation process for an example project and program
  - Screening
  - Scenario evaluation

- Project example
  - I-880 Northbound HOV/HOT Lane Extension (north of Hacienda to Hegenberger)

- Program example
  - Transportation and Land Use (PDA) Program #9
### Evaluation Process

#### Screening (continued)

**Screening Performance Analysis**

<table>
<thead>
<tr>
<th>Projects &amp; Programs</th>
<th>CWTP Vision and Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Goal 1 Multimodal</td>
</tr>
<tr>
<td></td>
<td>Goal 2a Activity Center Access</td>
</tr>
<tr>
<td></td>
<td>Goal 2b Income Equity</td>
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<tr>
<td></td>
<td>Goal 3 PDA Access</td>
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<td></td>
<td>Goal 4 Connected</td>
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<tr>
<td></td>
<td>Goal 5 Congested Routes</td>
</tr>
<tr>
<td></td>
<td>Goal 8 Safety</td>
</tr>
</tbody>
</table>

#### Project: I-880 Northbound HOV/HOT Lane Extension
- **Goal 1 Multimodal**: Low
- **Goal 2a Activity Center Access**: Medium
- **Goal 2b Income Equity**: Medium
- **Goal 3 PDA Access**: Medium
- **Goal 4 Connected**: Low
- **Goal 5 Congested Routes**: Low
- **Goal 8 Safety**: Low

#### Program: Transportation and Land Use (PDA) Program
- **Goal 1 Multimodal**: Medium
- **Goal 2a Activity Center Access**: Medium
- **Goal 2b Income Equity**: Medium
- **Goal 3 PDA Access**: Medium
- **Goal 4 Connected**: Low
- **Goal 5 Congested Routes**: Low
- **Goal 8 Safety**: Low

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### Evaluation Process

#### Performance Measures Example

**Scenario Performance Measure Analysis**

<table>
<thead>
<tr>
<th>Scenarios of Projects and Programs</th>
<th>Goal 1 Pavement Condition</th>
<th>Goal 2a Transit Vehicle Condition</th>
<th>Goal 2b No. of Crashes All Modes</th>
<th>Goal 3a No. of Non-Motorized Travel Time</th>
<th>Goal 4 GHG Emissions</th>
<th>Goal 4f Fine Particle Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project: I-880 Northbound HOV/HOT Lane Extension</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Program: Transportation and Land Use (PDA) Program</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

#### Project: I-880 Northbound HOV/HOT Lane Extension
- **Goal 1 Pavement Condition**: Medium
- **Goal 2a Transit Vehicle Condition**: Low
- **Goal 2b No. of Crashes All Modes**: Medium
- **Goal 3a No. of Non-Motorized Travel Time**: Low
- **Goal 4 GHG Emissions**: Low
- **Goal 4f Fine Particle Emissions**: Low

#### Program: Transportation and Land Use (PDA) Program
- **Goal 1 Pavement Condition**: Low
- **Goal 2a Transit Vehicle Condition**: Low
- **Goal 2b No. of Crashes All Modes**: Low
- **Goal 3a No. of Non-Motorized Travel Time**: Low
- **Goal 4 GHG Emissions**: Medium
- **Goal 4f Fine Particle Emissions**: Medium

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Legend:
- **High**: ●
- **Medium**: ○
- **Low**: ○
Evaluation Process
Grouping Process – Project Example

<table>
<thead>
<tr>
<th>Estimated Project Cost (millions)</th>
<th>Project Ability to Meet CWTP Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3,000</td>
<td></td>
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<tr>
<td>$2,000</td>
<td></td>
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<tr>
<td>$1,000</td>
<td></td>
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<tr>
<td>$500</td>
<td></td>
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<tr>
<td>$100</td>
<td></td>
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<tr>
<td>$0</td>
<td></td>
</tr>
</tbody>
</table>

Next Steps
On-going Tasks and Milestones

- **July**: Present CWTP evaluation outcomes
  - July 21 - Presentation of results to all working group members
  - July 28 - Presentation of results to Steering Committee
- **September**: First draft of CWTP and preliminary Transportation Expenditure Plan projects and program lists
- **October**: Conduct second evaluation of constrained list based on Steering Committee recommendations
- **September/October**: Second round of outreach and polling
- **November/December**: Present second draft CWTP and first draft TEP to Committees
- **December**: Present second draft CWTP and first draft TEP at Commission Retreat
- **January**: Commission approves draft plans
Questions and Answers

Proposed CWTP Report Outline
Overview of Report

- Follows generally the same outline as previous CWTPs
- Structure with a different look and feel
  - Streamlined
  - Graphically oriented
  - Executive Summary style document
- Alameda CTC’s first CWTP as a combined agency
- Stand-alone appendices provide detailed technical material
Draft CWTP Report Outline
Overview of Report (continued)

1.0 Introduction
   » Background
     – Agency Direction, Mandate
     – Changes to CWTP from previous Updates
     – Integration with the Transportation Expenditure Plan (TEP)
     – Guidance to Support On-going Planning, Policy, and Funding
     – Plan Development Process and Title VI
   » Summary of each report section

2.0 A Vision of the Future
   » Mission, Vision, and Goals
   » Linkages to Regional Planning Activities
   » Engagement of the Public and Stakeholders
   » Performance Objectives
     – Mobility, equity, environment, etc.
   » Policy Objectives

Draft CWTP Report Outline
Overview of Report (continued)

3.0 Existing Conditions
   » Summary of the Briefing Book’s Introduction Section

4.0 Future Expected Conditions
   » Summary of Briefing Book’s Introduction Section

5.0 A Diversified Strategy
   » Lessons learned
     – Focus how the CWTP has changed since 2004/2008
   » Elements of the Diversified Strategy
   » Highlight specific policies and strategies of the CWTP
Draft CWTP Report Outline
Overview of Report (continued)

6.0 Management and Investment Strategies
» Funding Priorities
» Planning Guidelines
» Incentives

7.0 Revenue
» Why Funding Continues to be Limited
» Available Funding Sources
» Innovative Funding Methods
» Funding Gap versus Transportation System Needs
  – Existing
  – Expected Future
» Revenue Issues

Draft CWTP Report Outline
Overview of Report (continued)

8.0 Integration of Transportation and Land Use
» Previous Regional and Alameda County Land Use Perspective
» Vision and Current Approach
  – Regional, SCS Overview
  – Alameda County Linkage to SCS
» Alameda County Land Use Patterns: Existing and Future
  (To be determined through SCS process)
» Key Transportation Issues and Improvements (linked to land use)
Draft CWTP Report Outline
Overview of Report (continued)

9.0 Capital Project and Programmatic Strategies
   » Funding Challenges
   » Investment Program
      – Capital Projects, Programs, and Programmatic Projects
      – Linked to MTC RTP
      – Screening & scenario evaluation (summary)
      – Investment Emphasis Areas
   » Implementation Issues

10.0 Monitoring and Evaluation
   » CWTP Emphasis on Performance-Based Planning
   » Linkage to MTC RTP processes
   » Performance Measures
   » Performance Monitoring Recommendations

Draft CWTP Report Outline
Overview of Report (continued)

11.0 Implementation Issues
   » Next Steps for On-going Planning and Policy Development
      – Relationship to TEP
      – Define Alameda CTC’s Short-term Work Plan
         • Define Policy Initiatives
         • Define Analysis and Scoping Needs by Corridor and System
   » Transportation and Land Use
      – Define Analysis and Scoping Needs For
         • Priority Development Area/Growth Opportunity Area/Transit Oriented Development Plan
         • Short-term Implementation Plan
         • Long-term Implementation Plan
         • On-going
   » Address Outstanding Issues for Preparation of the Next CWTP
Draft CWTP Report Outline
Overview of Report (continued)

Technical Appendices
- A. Glossary of Acronyms
- B. Metropolitan Transportation System
- C. Briefing Book (existing and future trend conditions)
- D. Summary (or full) White Papers
- E. Performance-Based Evaluation Process
- F. List of Projects (by Tier)
- G. List of Programs
- H. Land Use, Demographics, and SCS Consistency
- I. Transportation Funding and Revenue
- J. Major Transit Operations
- K. GHG Emissions and Future Targets
- L. Legislation and Initiatives: State and Regional
- M. Stakeholder and Public Outreach Process and Title VI
- N. Working Group Membership