Economics and MPO’s

• Long Range Planning
  • Engaging the Private Sector
  • “Service Package” Concept

• Programming (TIP) prioritization
  • Benefit-Cost Ratio & Multi-Criteria Analysis
Economics and MPO’s

- Addressing Public and Private Stakeholders
  - Business Implications of Choices
  - “Mode-Neutral” Answers
  - Addressing MPO Committees

- Making Models Relevant
  - Integrating Economic Impact to the TDM Stream
  - New ways to use your traffic model
# Basic Example of Project-Level Economic Benefits

(Colorado Springs – PPACG)

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Vehicle Operating Cost Savings</th>
<th>Time &amp; Reliability Savings</th>
<th>Value of Personal Time Savings</th>
<th>Logistics Cost Savings</th>
<th>Environment Benefits</th>
<th>Total Cost</th>
<th>Benefit Cost Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Alternative 2</td>
<td>6.5</td>
<td>4.6</td>
<td>60.6</td>
<td>0.1</td>
<td>0.3</td>
<td>16.2</td>
<td>4.46</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>2.4</td>
<td>1.7</td>
<td>22.0</td>
<td>0.1</td>
<td>0.1</td>
<td>7.1</td>
<td>3.66</td>
</tr>
<tr>
<td>Alternative 4</td>
<td>5.8</td>
<td>4.1</td>
<td>54.1</td>
<td>0.1</td>
<td>0.3</td>
<td>9.2</td>
<td>7.00</td>
</tr>
</tbody>
</table>

Source: PPACG/TREDIS

Analysis Period: 2015-2035
## Basic Example of Project-Level Economic Impacts (Warwick, RI – RISPP)

<table>
<thead>
<tr>
<th></th>
<th>Jobs</th>
<th>Wage Income ($Million)</th>
<th>Value Added (GRP) ($Million)</th>
<th>Business Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>200</td>
<td>$28.1</td>
<td>$34.5</td>
<td>$62.3</td>
</tr>
<tr>
<td>Transportation Efficiency</td>
<td>30</td>
<td>$31.3</td>
<td>$42.3</td>
<td>$77.3</td>
</tr>
<tr>
<td>Total</td>
<td>N/A</td>
<td>$59.4</td>
<td>$76.8</td>
<td>$139.6</td>
</tr>
</tbody>
</table>

Source: RIDOT/TREDIS
Beyond the Basics

BASIC ANALYSIS
- Cost/Benefit Analysis
- Construction Impact
- Transportation Efficiency Impact

BROADER EFFECTS
- Productivity from Increased Accessibility and Reliability
- Net Effects of Funding and Finance Strategies
- Effects on Land Use and Business Attraction Potential
Economic Impact

- Construction Impacts
- Travel Efficiency
- Land Use
- Accessibility Gains
- Business Attraction
Accessibility (Market Access)

- Typical Travel Models Can Show how a “trade area” is expanded by improved transportation performance.

Example: Diminishing Accessibility of Emory/CDC Site in Atlanta, GA
What is a “Market Access” Benefit?

- Employers Benefit from a Larger and More diverse labor pool
- Businesses benefit from a larger and more diverse pool of potential buyers and suppliers
- These factors enable businesses to be more productive
- This effect is separate from the effect of transportation savings, and actually relates to the firm’s internal process.
Portland, Oregon Example

- $844 Investment to Reduce Congestion
- Improved Productivity yields GRP Growth in many sectors.
- This is in addition to travel time, reliability and vehicle operating cost savings

Source: Portland Business Alliance, Port of Portland, Metro and ODOT/TREDIS
When do Performance Payoffs of Enhanced Funding Help more than Taxes & Fees Hurt?

Who Benefits from Improved Performance?

Tolls can help manage capacity and raise funding, but at what cost?
## Net Impacts: Ohio River Bridges (Louisville, KY)

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>Cumulative Earnings ($M)</th>
<th>Cumulative Output ($M)</th>
<th>Average Annual Employment Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Spending</td>
<td>$2,303</td>
<td>$5,724</td>
<td>1,532</td>
</tr>
<tr>
<td>Enhanced Market Access</td>
<td>$3,043</td>
<td>$7,504</td>
<td>1,950</td>
</tr>
<tr>
<td>Transportation Efficiency/Operations</td>
<td>$1,679</td>
<td>$4,234</td>
<td>1,279</td>
</tr>
<tr>
<td><strong>Impact of Tolls</strong></td>
<td><strong>-$2,211</strong></td>
<td><strong>-$5,580</strong></td>
<td><strong>-1,578</strong></td>
</tr>
<tr>
<td>Impact of Land Use</td>
<td>$22,489</td>
<td>$66,100</td>
<td>14,614</td>
</tr>
<tr>
<td><strong>Total Economic Impact</strong></td>
<td><strong>$27,303</strong></td>
<td><strong>$77,983</strong></td>
<td><strong>17,796</strong></td>
</tr>
</tbody>
</table>

*Source: EDR Group/TREDIS – Derived from KPDA Model*
What is an Efficient Toll Rate? (Portland, OR Pricing Evaluation)

Source: EDR Group/TREDIS – (with Data from Portland Metro Model)
Optimal Benefit & Optimal Revenue

Source: EDR Group/TREDIS – (with Data from Portland Metro Model)
Economic Break-Even Point

Source: EDR Group/TREDIS – (with Data from Portland Metro Model)
# When Enhanced Performance “Pays Back” Utah Unified Plan (MPO’s & UDOT)

<table>
<thead>
<tr>
<th>Tax/Fee Collector</th>
<th>Tax/Fee Description</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Government</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Fuel Tax</td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>Income Profits</td>
<td></td>
<td>$5,453</td>
</tr>
<tr>
<td>Social Insurance Tax (FICA)</td>
<td></td>
<td>$7799</td>
</tr>
<tr>
<td>Miscellaneous Fees &amp; Taxes</td>
<td></td>
<td>$892</td>
</tr>
<tr>
<td><strong>Total Federal Government</strong></td>
<td></td>
<td>$14,144</td>
</tr>
<tr>
<td><strong>State and Local Government</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Fuel Tax</td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>Motor Vehicle License Fees</td>
<td></td>
<td>$240</td>
</tr>
<tr>
<td>Income/Profits</td>
<td></td>
<td>$1847</td>
</tr>
<tr>
<td>Sales tax</td>
<td></td>
<td>$2,853</td>
</tr>
<tr>
<td>Property Tax</td>
<td></td>
<td>$2,034</td>
</tr>
<tr>
<td>Social Insurance Tax</td>
<td></td>
<td>$10</td>
</tr>
<tr>
<td>Miscellaneous Fees &amp; Taxes</td>
<td></td>
<td>$1,162</td>
</tr>
<tr>
<td><strong>Total State and Local Government</strong></td>
<td></td>
<td>$8,146</td>
</tr>
<tr>
<td><strong>Grand Total for Federal, State and Local Government</strong></td>
<td></td>
<td>$22,290</td>
</tr>
</tbody>
</table>
Land Use & Business Attraction

- “Amenity Value” of Transportation Improvement
- Can Attract New Development or Channel Existing Development
- Can Complement other types of impact

South Coast Rail (CTPS)

- Multi-Modal transportation and land-use corridor planning initiative
- Fastest Growing Region of Massachusetts
- Restoring Commuter Rail and Connecting to Boston
- Economic analysis showed:
  - Enhanced viability of sites for business attraction
  - Suggested land use strategy
  - Disproportionate growth in higher paying industries
Plan Bay Area 2040
San Francisco (MTC)

- Sustainable Communities Strategy
- Scenarios Vary Land use and Transportation Mix
- Balance on Many Dimensions
  - Modes
  - Conservation & Growth
  - Geographic Balance

Expected Bay Area Gross Regional Product Output in 2005 and in 2035 for Each Plan Bay Area Scenario

# Other Pertinent Examples

<table>
<thead>
<tr>
<th>City (MPO)</th>
<th>Key Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago, IL (CMAP)</td>
<td>Multi-Modal Prioritization, Land-Use/Transportation, Global Competitiveness</td>
</tr>
<tr>
<td>Fort Worth, TX (NCTCOG)</td>
<td>Infrastructure Investment and Fees</td>
</tr>
<tr>
<td>MetroLinx (Toronto)</td>
<td>Rail Transit Electrification, Workforce Mobility</td>
</tr>
<tr>
<td>Gulf Coast Rail District</td>
<td>Impacts of Improved Freight Access &amp; Reliability</td>
</tr>
<tr>
<td>Atlanta, GA (ARC)</td>
<td>Business Attraction &amp; Transportation Impacts of a Multi-Modal Transportation Center</td>
</tr>
</tbody>
</table>
Tools of the Trade

FREE TOOLS (COST-BENEFIT)

- STEAM (FHWA)
- HERS-ST
- MBCA (TREDIS)
- FAF Benefits Estimation Tool
- StratBenCost/MicroBenCost

PRIVATE & CONSULTING MODELS

- “Off the Shelf Models”
  - TREDIS
  - REMI TRANSIGHT
  - LIFT (Inforum)

- Consulting Models
  - SROI (HDR)
  - PRISM (PB)
  - HEAT (CS)
Thank You!

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