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Using Economic Impact Analysis to Aid Planning

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Economics and MPO's

- Long Range Planning
  - Engaging the Private Sector
  - "Service Package" Concept

- Programming (TIP) prioritization
  - Benefit-Cost Ratio & Multi-Criteria Analysis

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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

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Basic Example of Project-Level Economic Benefits (Colorado Springs – PPACG)

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

Source: PPACG/TREDIS

Analysis Period: 2015-2035

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Basic Example of Project-Level Economic Impacts (Warwick, RI – RISPP)

	Jobs	Wage Income ($Million)	Value Added (GRP) ($Million)	Business Output
Construction	200	$28.1	$34.5	$62.3
Transportation Efficiency	30	$31.3	$42.3	$77.3
Total	N/A	$59.4	$76.8	$139.6

Source: RIDOT/TREDIS

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Beyond the Basics

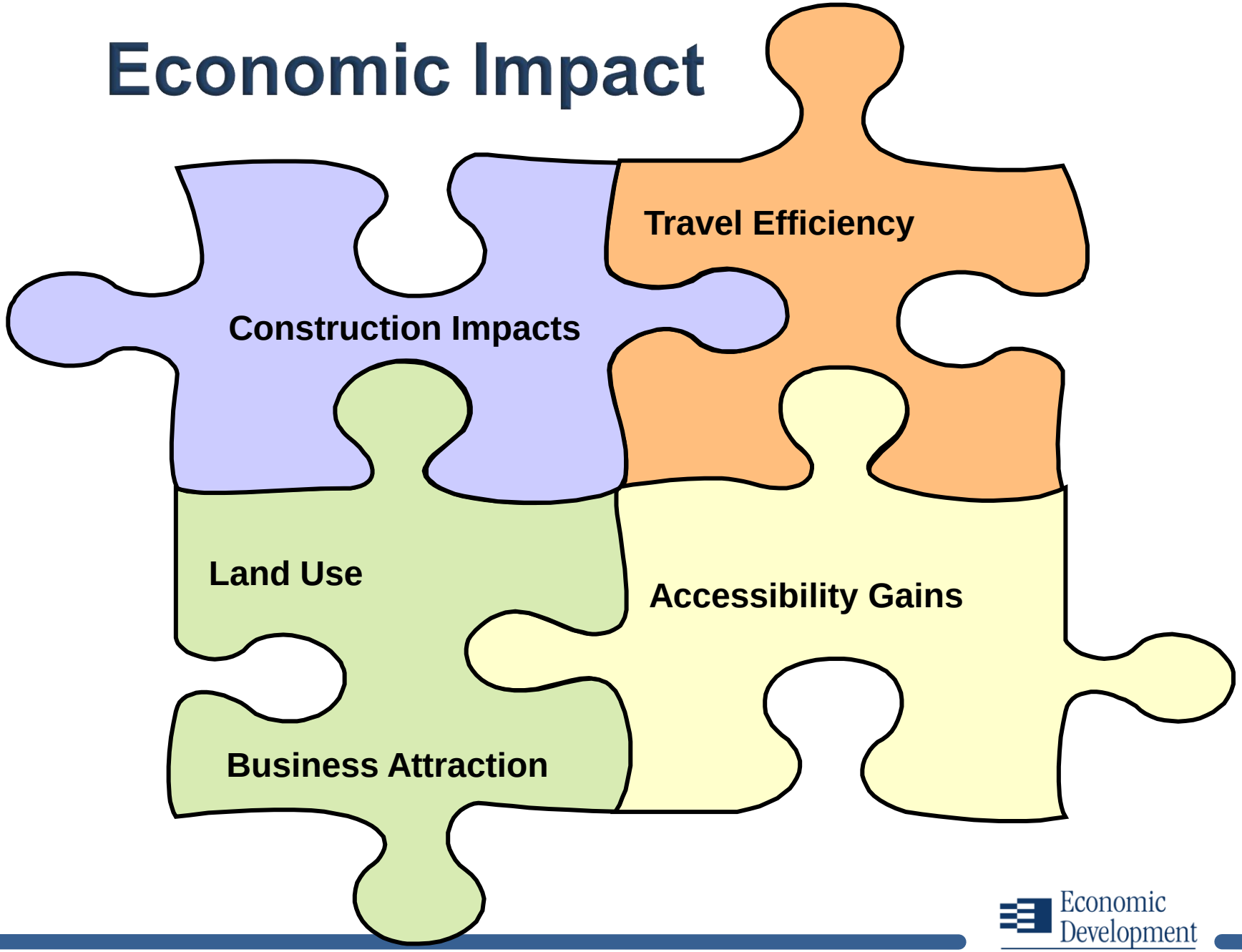
BASIC ANALYSIS

- 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



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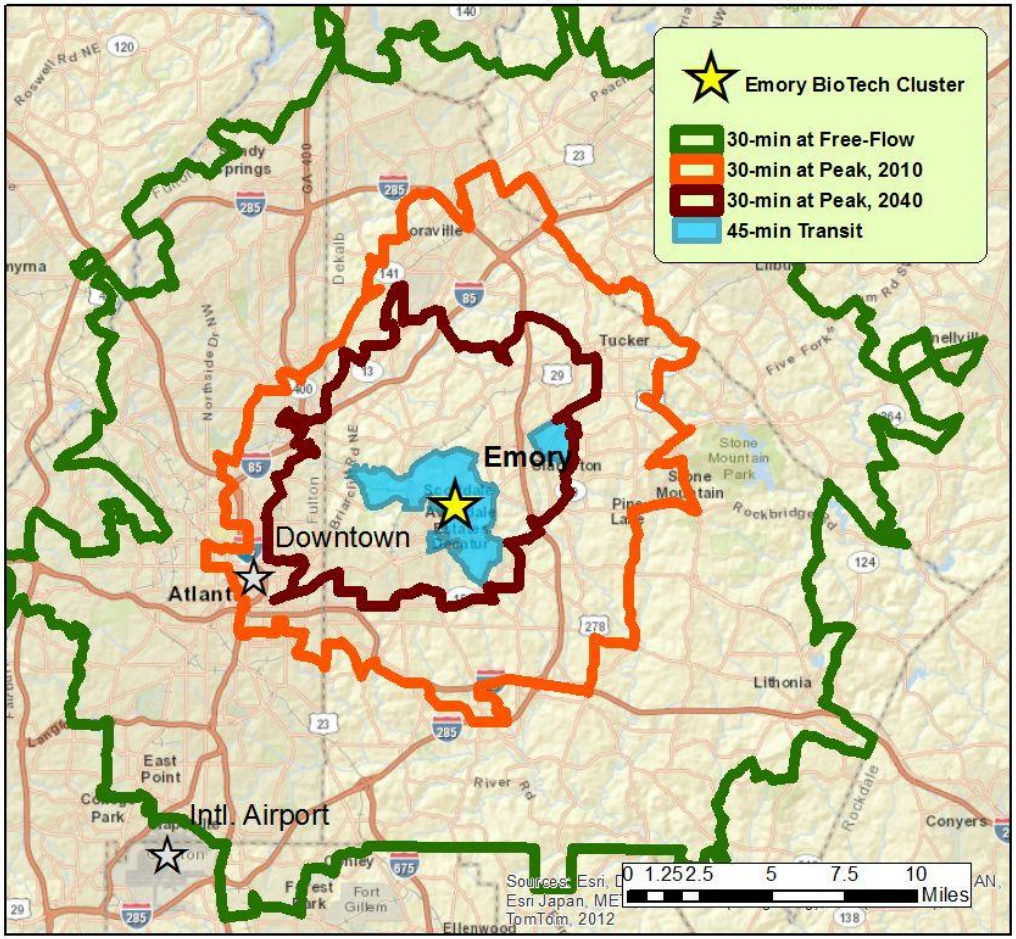
Accessibility (Market Access)

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



Example: Diminishing Accessiblity of Emory/CDC Site in Atlanta, GA

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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.***

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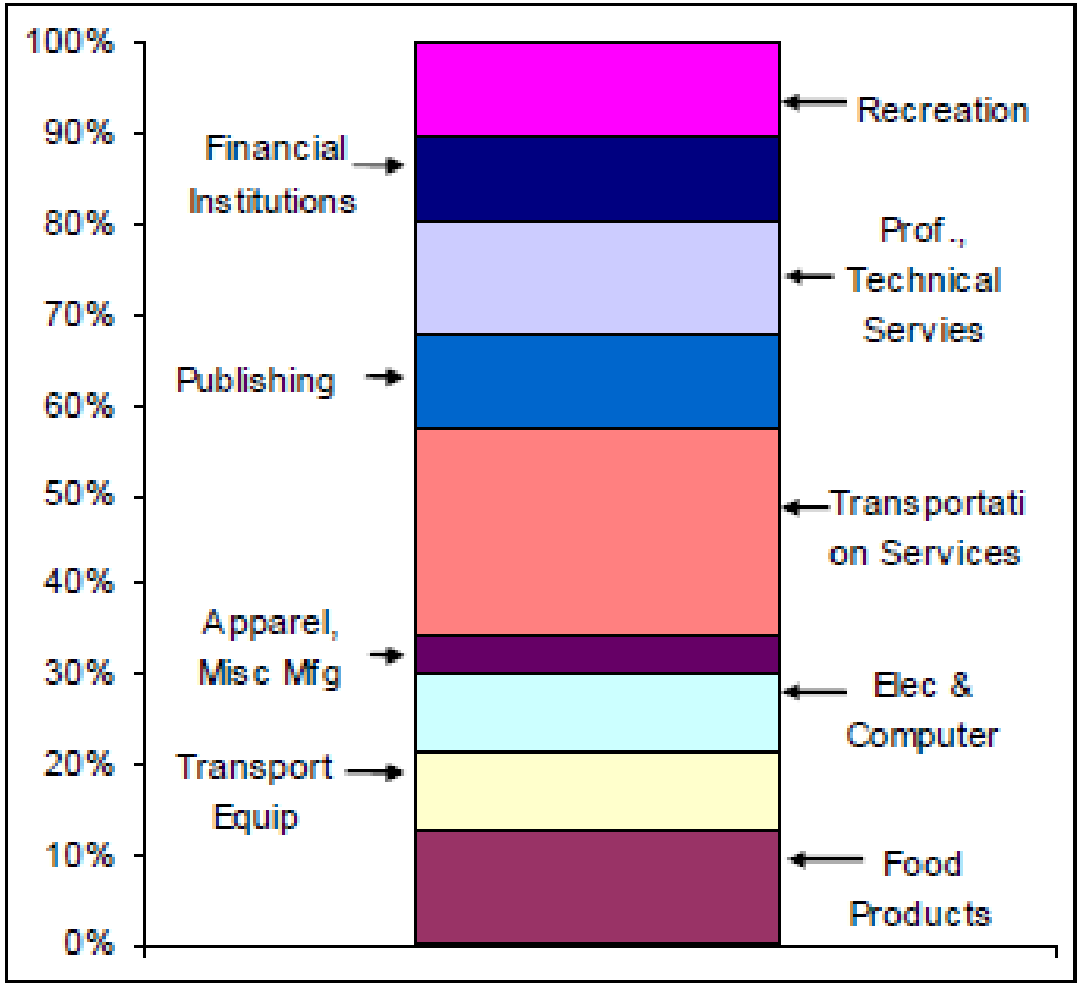
Portland, Oregon Example

- $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

Paying For Infrastructure

- 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?

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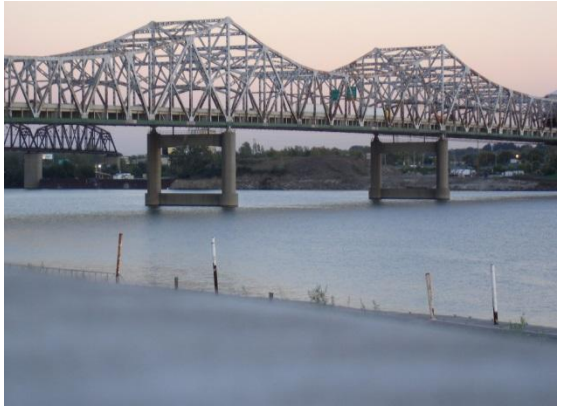

Net Impacts: Ohio River Bridges (Louisville, KY)

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

Source: EDR Group/TREDIS – Derived from KPDA Model

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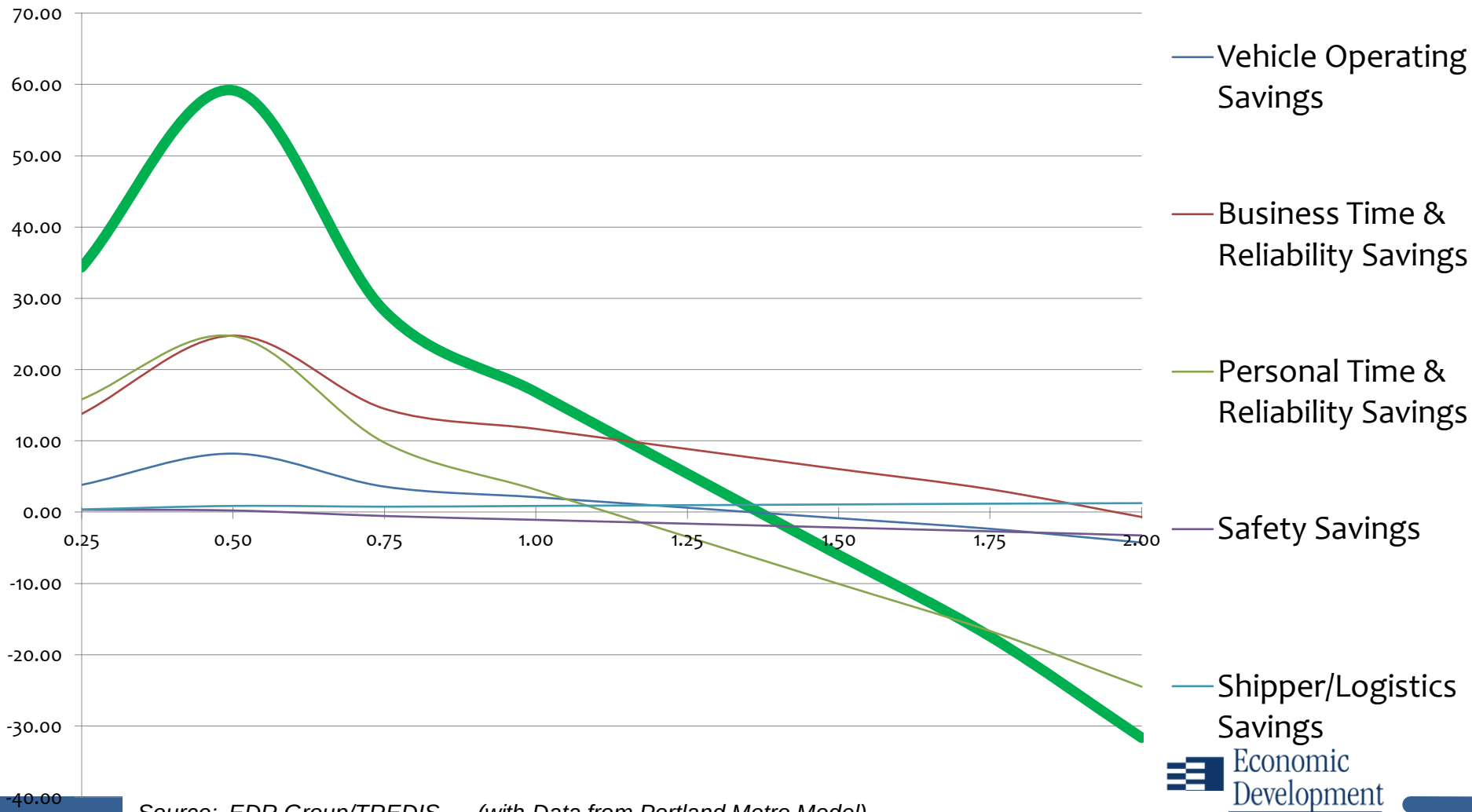
What is an Efficient Toll Rate? (Portland, OR Pricing Evaluation)



Source: EDR Group/TREDIS – (with Data from Portland Metro Model)

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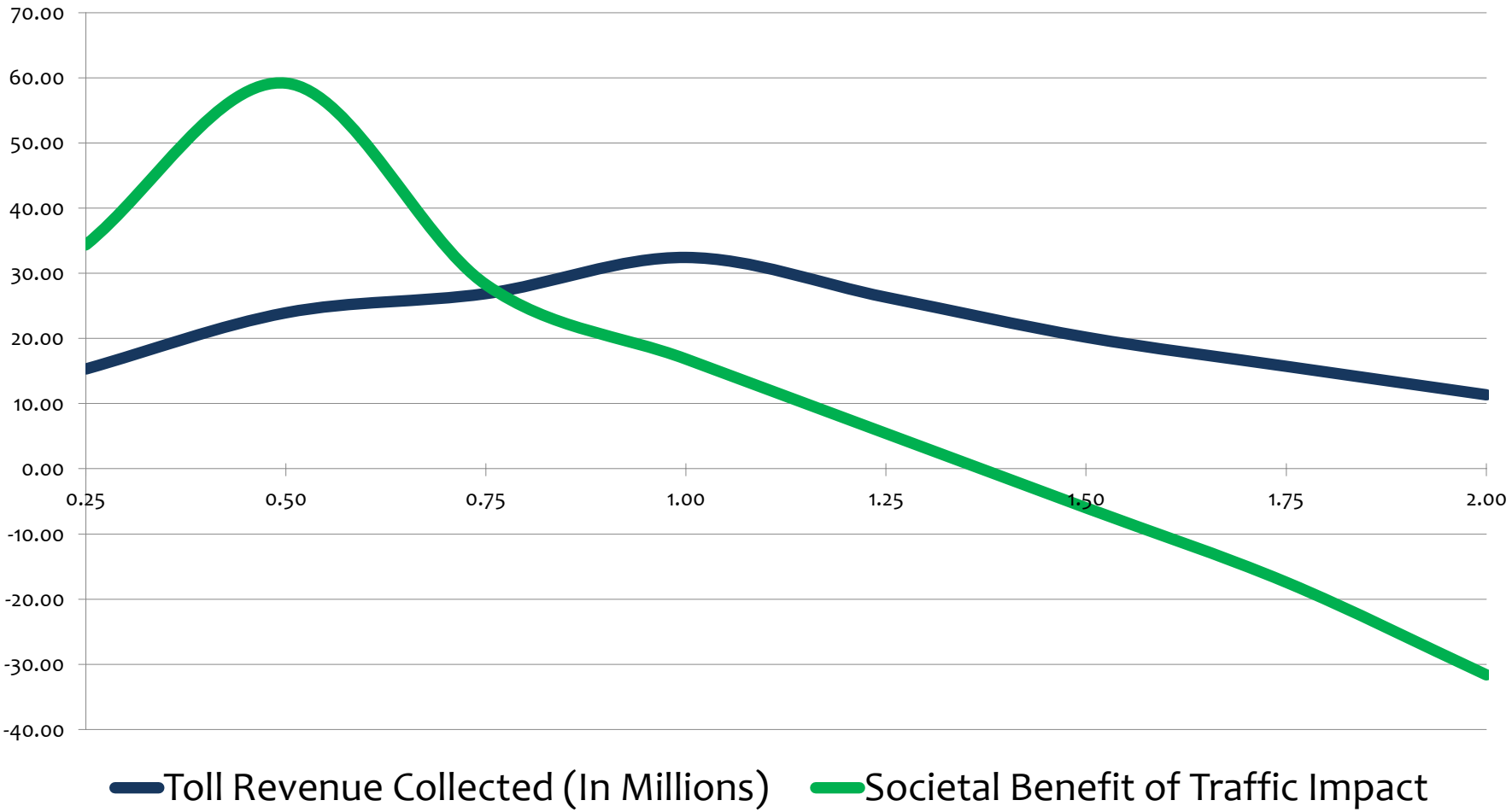
Optimal Benefit & Optimal Revenue



Source: EDR Group/TREDIS – (with Data from Portland Metro Model)

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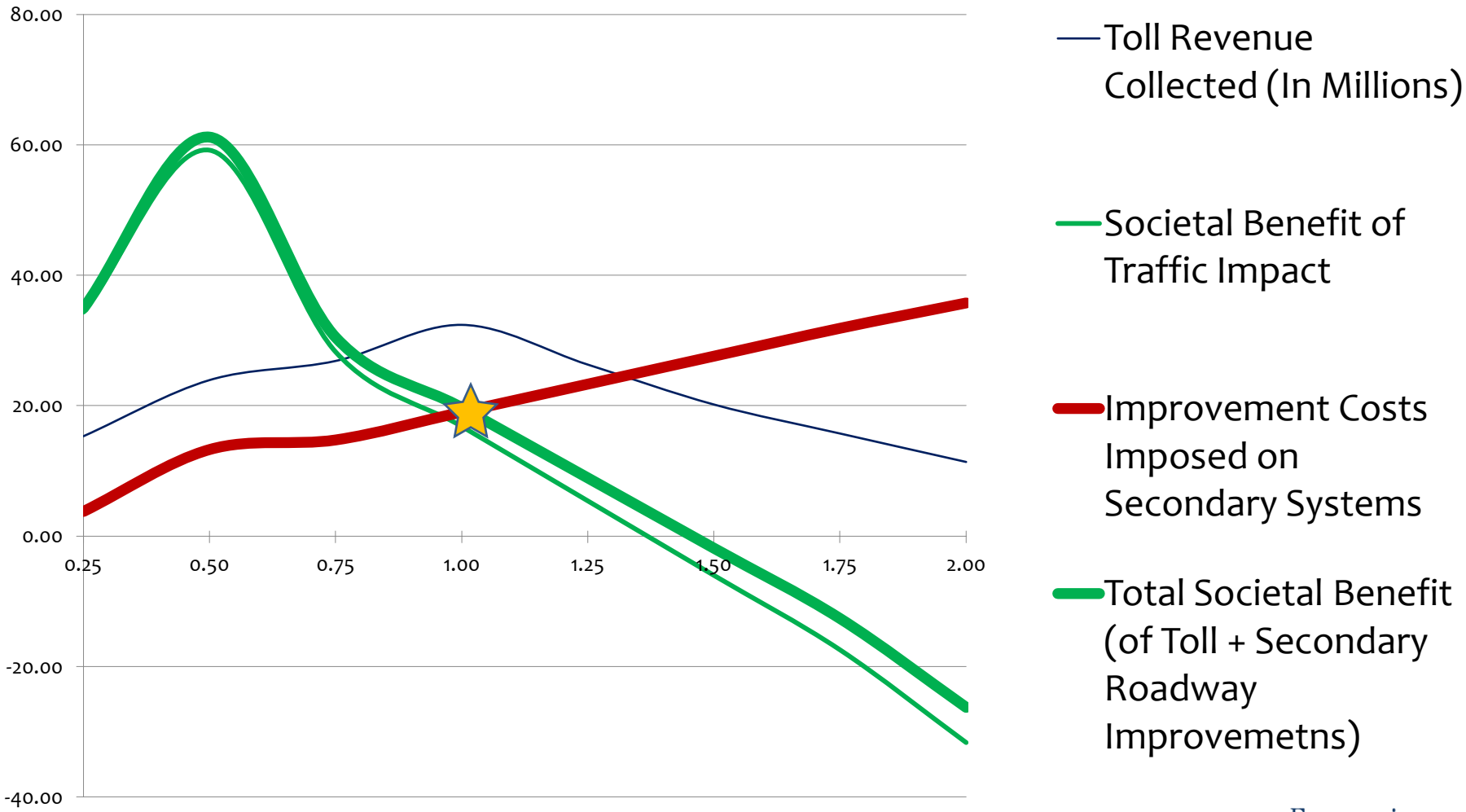
Economic Break-Even Point



Source: EDR Group/TREDIS – (with Data from Portland Metro Model)

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When Enhanced Performance "Pays Back"
Utah Unified Plan (MPO's & UDOT)

Tax/Fee Collector	Tax/Fee Description	Totals
Federal Government	Motor Fuel Tax	$0
	Income Profits	$5,453
	Social Insurance Tax (FICA)	$7799
	Miscellaneous Fees & Taxes	$892
	Total Federal Government	**$14,144**
State and Local Government	Motor Fuel Tax	$0
	Motor Vehicle License Fees	$240
	Income/Profits	$1847
	Sales tax	$2,853
	Property Tax	$2,034
	Social Insurance Tax	$10
	Miscellaneous Fees & Taxes	$1,162
	Total State and Local Government	**$8,146**
Grand Total for Federal, State and Local Government		**$22,290**

Land Use & Business Attraction

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

Source: Economic Impact Analysis of Downtown Green Line Vision Plan and Georgian Multi-Modal Passenger terminal – Central Atlanta Progress/Atlanta Downtown Improvement District, 2012

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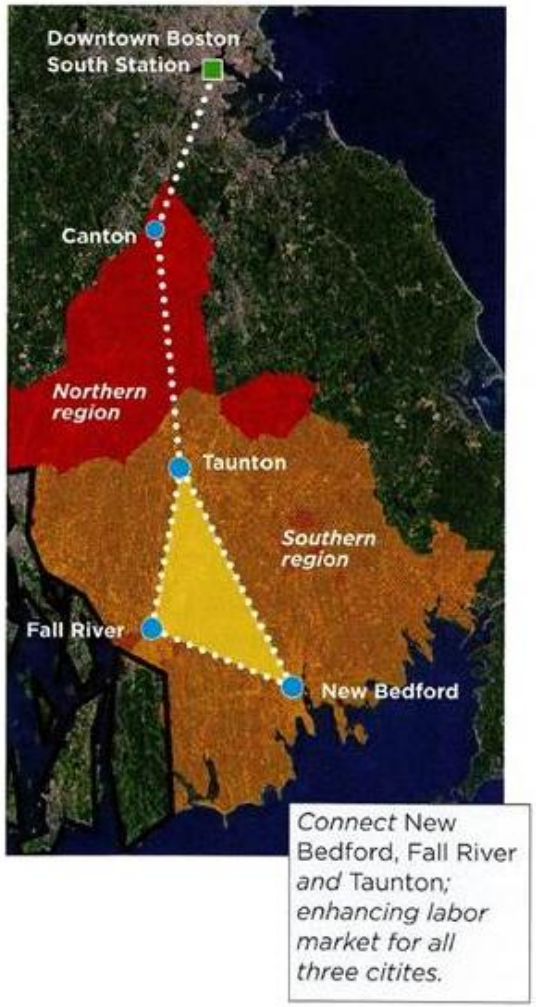
South Coast Rail (CTPS)

- 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



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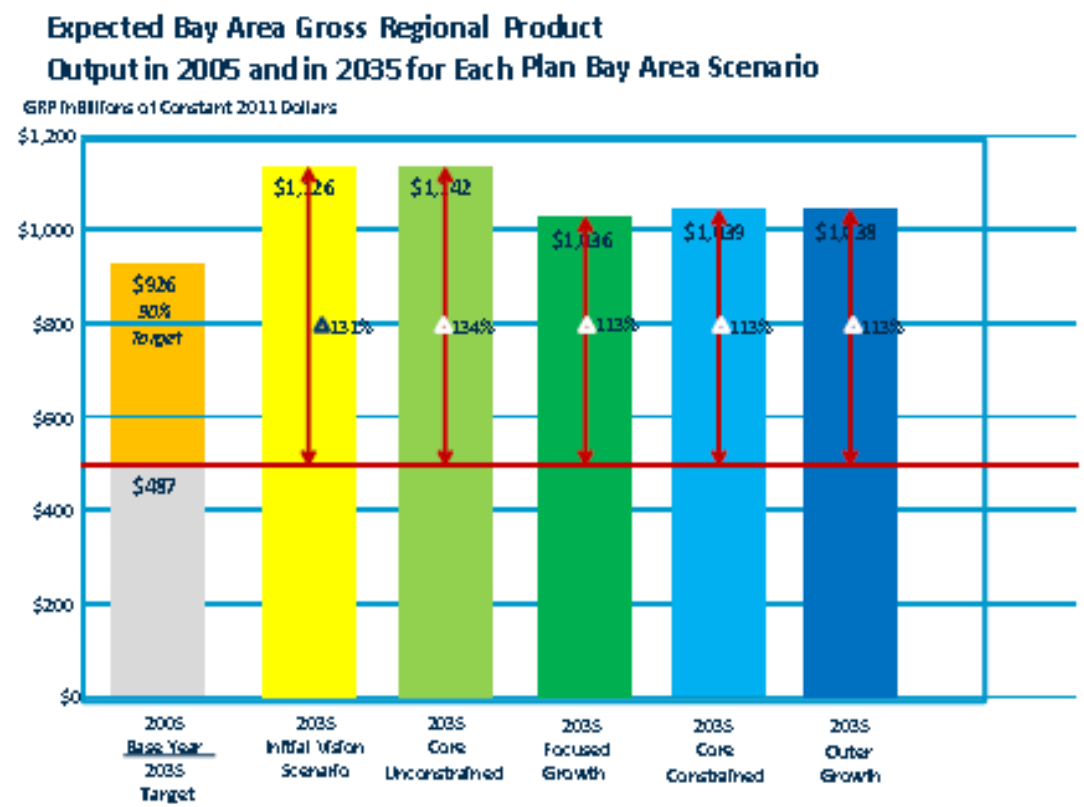
Plan Bay Area 2040
San Francisco (MTC)

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



Source: Cambridge Systematics, 2013 – based on TRENDIS model output.

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Other Pertinent Examples

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

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)

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Thank You!

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