

SHRP2 C03: Interactions between Transportation Capacity, Economic Systems, and Land Use

Economic Development Research Group

In Association with:

ICF International

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SHRP2 C03 Study Objectives

- Identify LONG-TERM Economic Impacts from New/Capacity-Enhancing Highway Investments
- Provide Findings that Illustrate the Interaction between Highway Infrastructure and Non-Highway Investments and Initiatives
- Develop Preliminary Assessment Guidance for Policy-makers and Practitioners
- Design Web-Based Tool for Illustrating and Communicating Kinds of Economic Impacts
- Create Flexible System for Adding New Cases

Potential Uses of SHRP2 C03

- Compare Proposed Projects to Real-World Examples
 - Use case search to access outcomes of similar projects
- Evaluate Potential Range of Economic Impacts Associated with Proposed Highway Projects
 - Assess effects of key project characteristics
 - Identify potential effects of concurrent investments
- Prioritize Based on Long-Term Economic Development Potential
 - Decide which project types, settings and initiatives produce best overall results

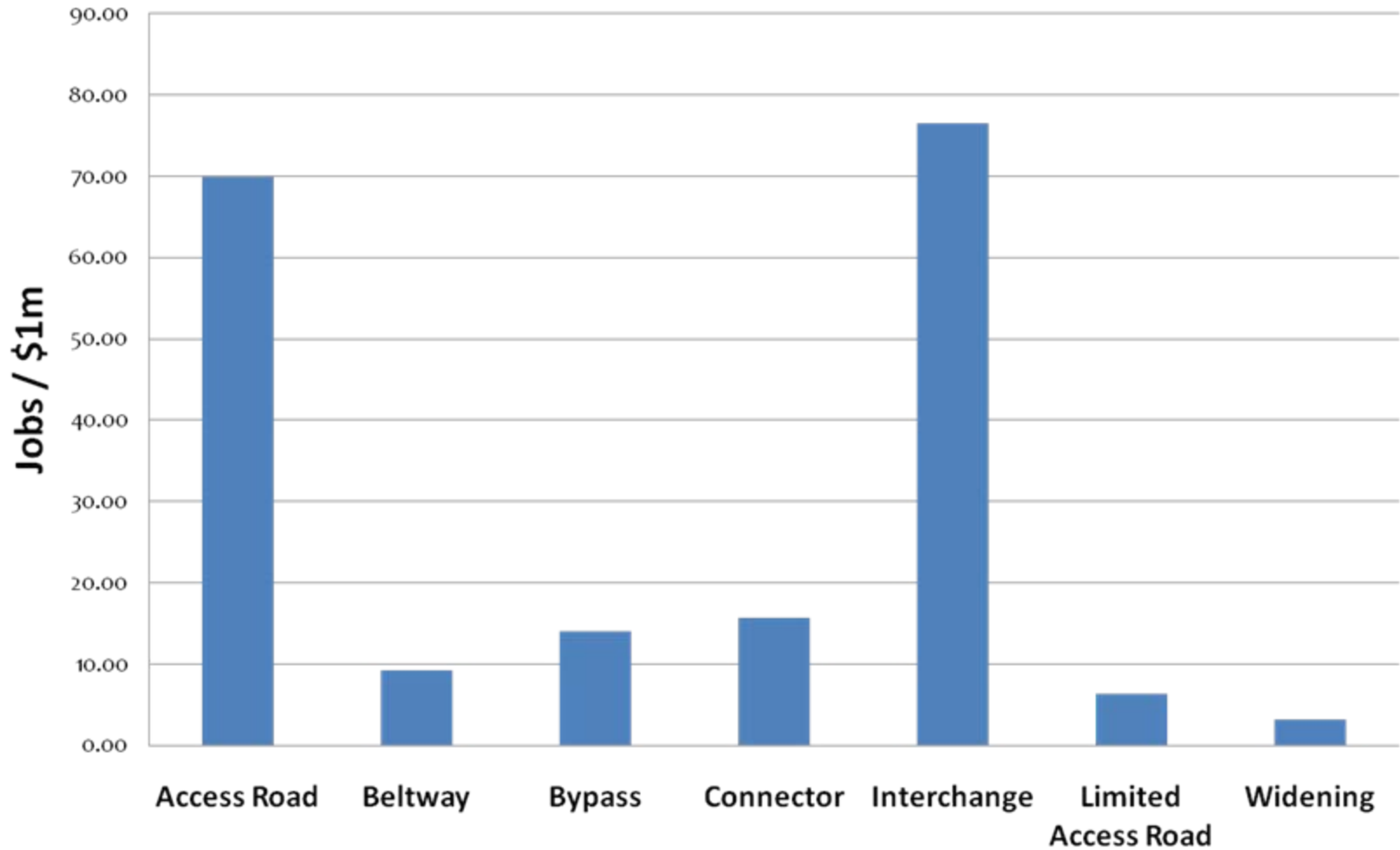
Case Characteristics

- **Project Type**
 - Nine types in current data
 - Two new types to be added
- **Urban/Rural Setting**
 - Directly affects level and type of economic impacts
- **Degree of Economic Distress**
 - Sets stage for leverage and potential factor interactions
- **Intensity of Activity**
 - Addresses traffic volume, market size and access to intermodal facilities (e.g., airport ports)

Case Characteristics

Project Type	Median Costs per Mile (<i>millions</i>)	Median AADT
Access Road	\$ 1.45	-
Beltway	\$ 24.78	58,000
Bypass	\$ 5.85	10,000
Connector	\$ 19.28	62,200
Interchange*	\$ 90.01	116,550
Limited Access Road	\$ 9.19	61,288
Widening	\$ 43.44	20,500

Median Jobs (per \$1 million)



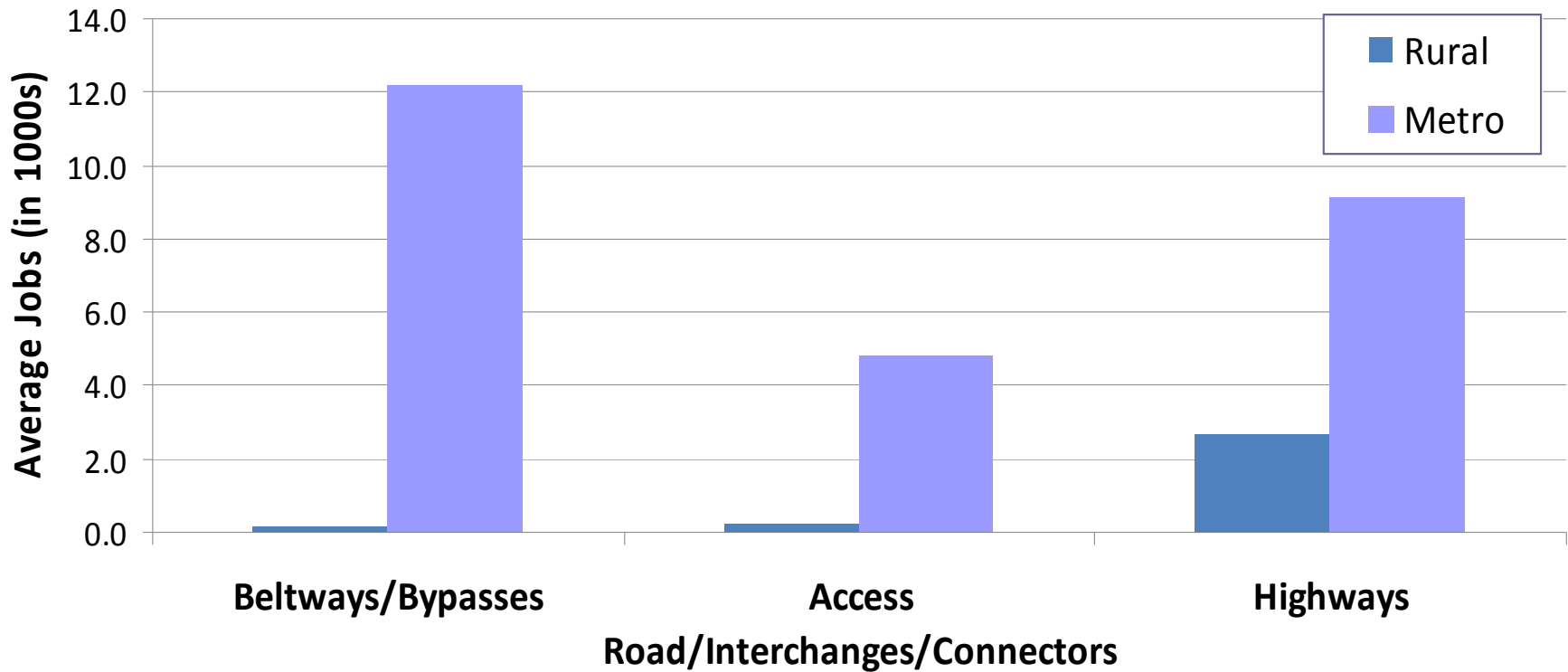
How Findings Were Developed

- Literature Review
 - Assessed prior studies, cases & ED research
- Synthesis of Case Studies/Interviews
 - Focused on project types & factors influencing economic impacts
- Assessment of Existing Models
 - Reviewed structural composition of ED models
- Statistical Analysis of Case Data
 - Identified key interactions & controlled for key factors
- Common Sense

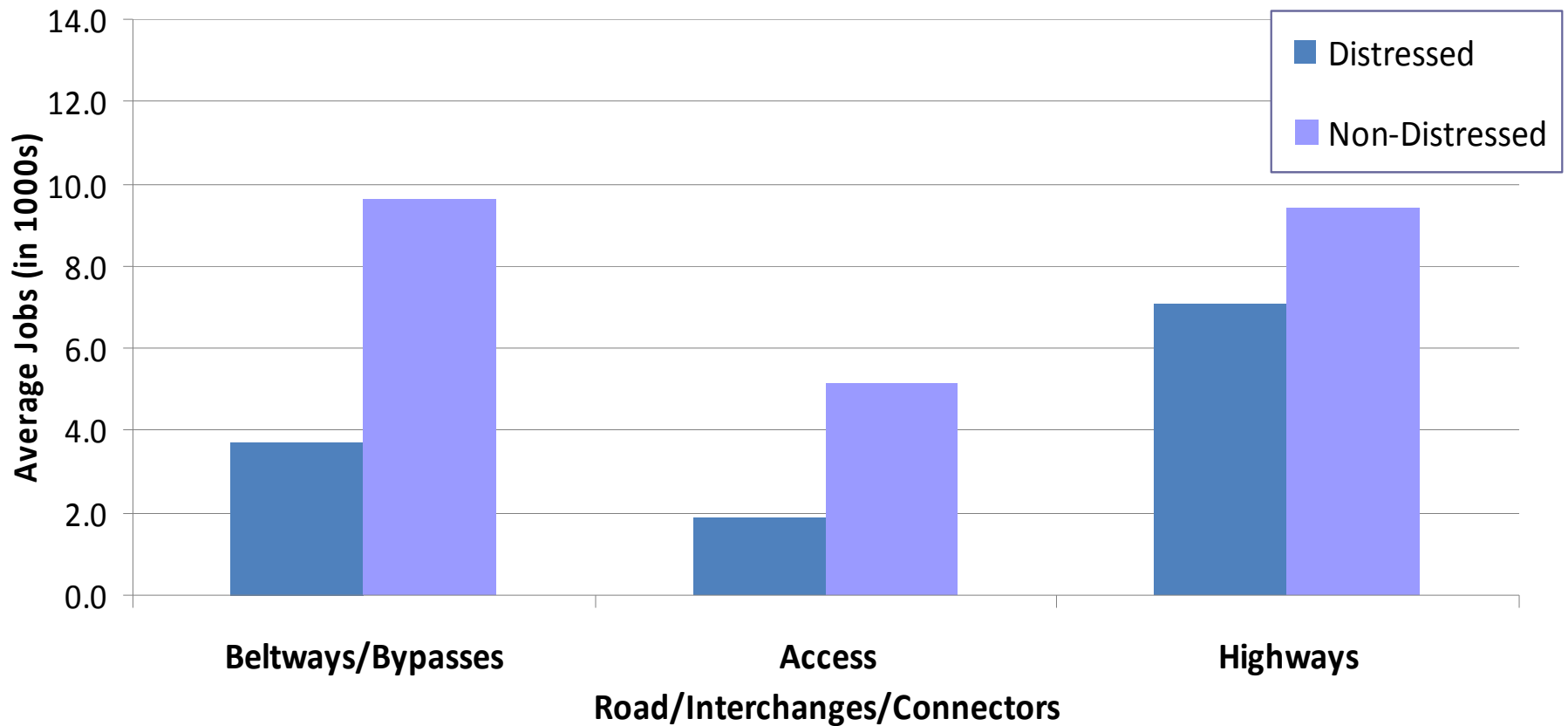
SHRP2 C03 – Findings To-Date

- Size of Investment (\$\$) is not the Primary “Driver” of Long-Term Economic Impacts
- Project Types and Economic Conditions Have Greatest Influence on Investment Outcomes
- Greatest Economic Effects Attributable to:
 - Regional setting
 - Current level of economic activity/distress
 - Location and intensity of use
 - Concurrent economic development policies

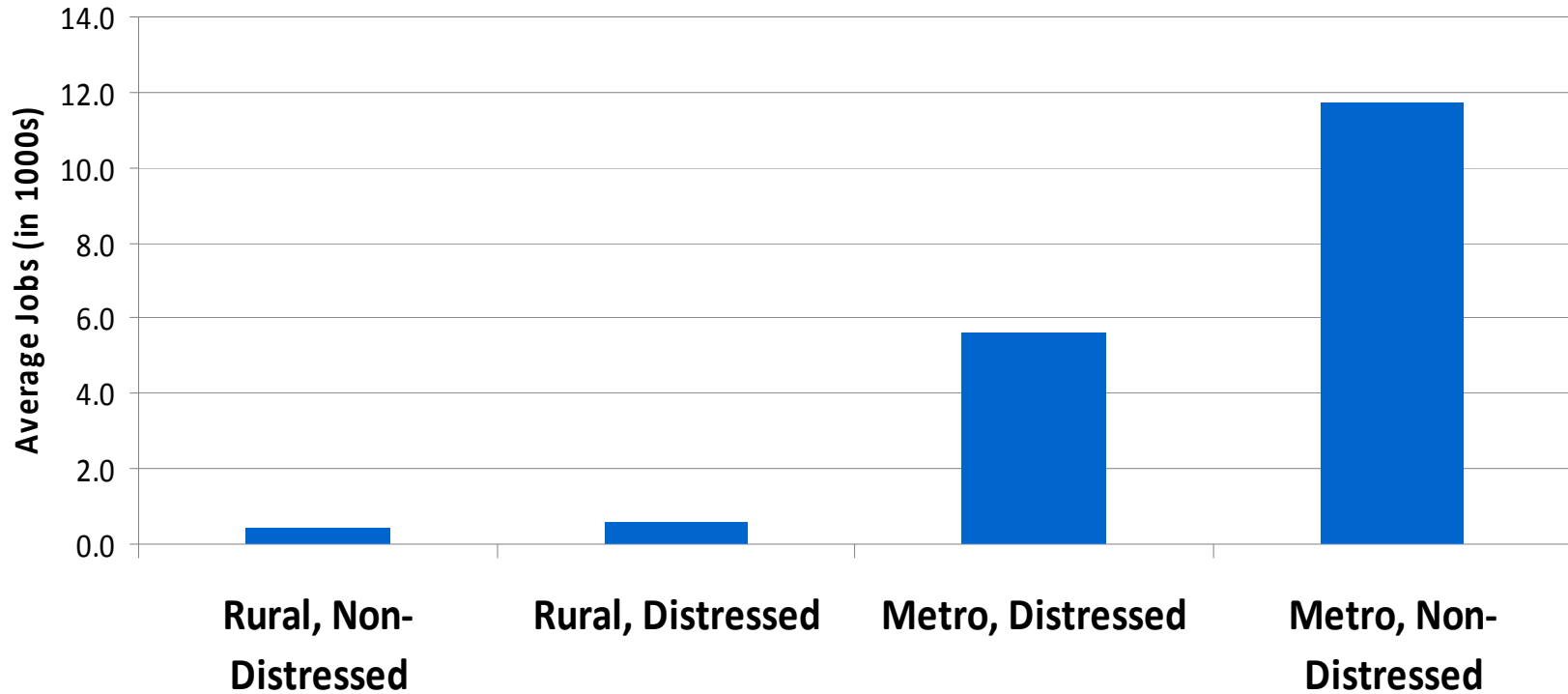
Actual Jobs Impacts by Density



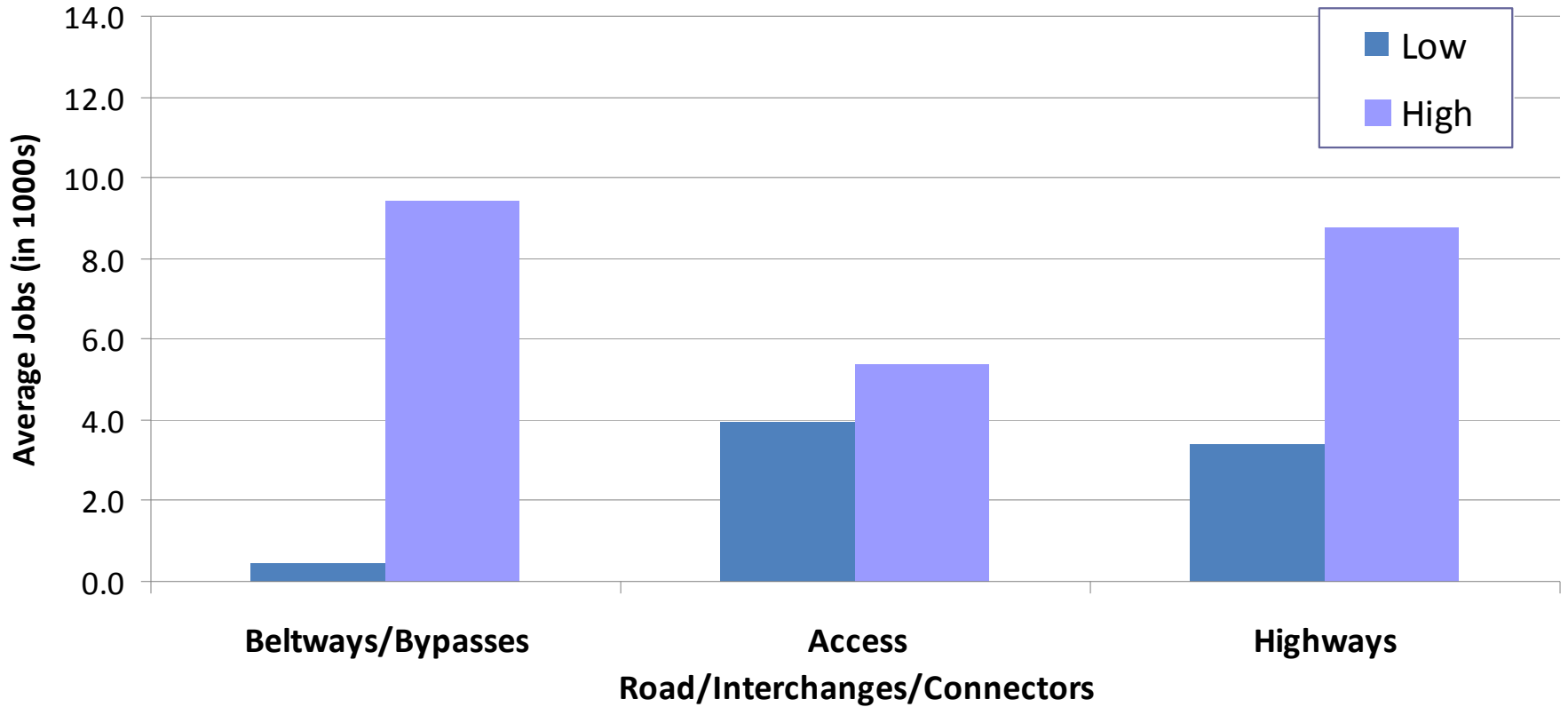
Actual Job Impacts by Distress Level



Interaction of Density and Distress



Actual Job Impacts by Intensity of Usage



Estimating Potential Economic Impacts

- **Based on User-Specified Project Characteristics**
 - Project type, location and economic conditions
- **Applies Findings from Cases and Synthesis of Studies**
 - Basic relationships establish range of economic impacts
- **Users Provide Supplemental Adjustments**
 - Includes policy and intensity of user-defined options
- **Includes Internal Consistency and Checks**

Setting Effects

- **Variation in AADT**
 - Metro areas 10% higher than median
 - Rural areas 74% lower than median
- **Variation in Costs per Mile**
 - Non-distressed areas 18.2% higher than mean
 - Distressed areas 17.5% lower than mean

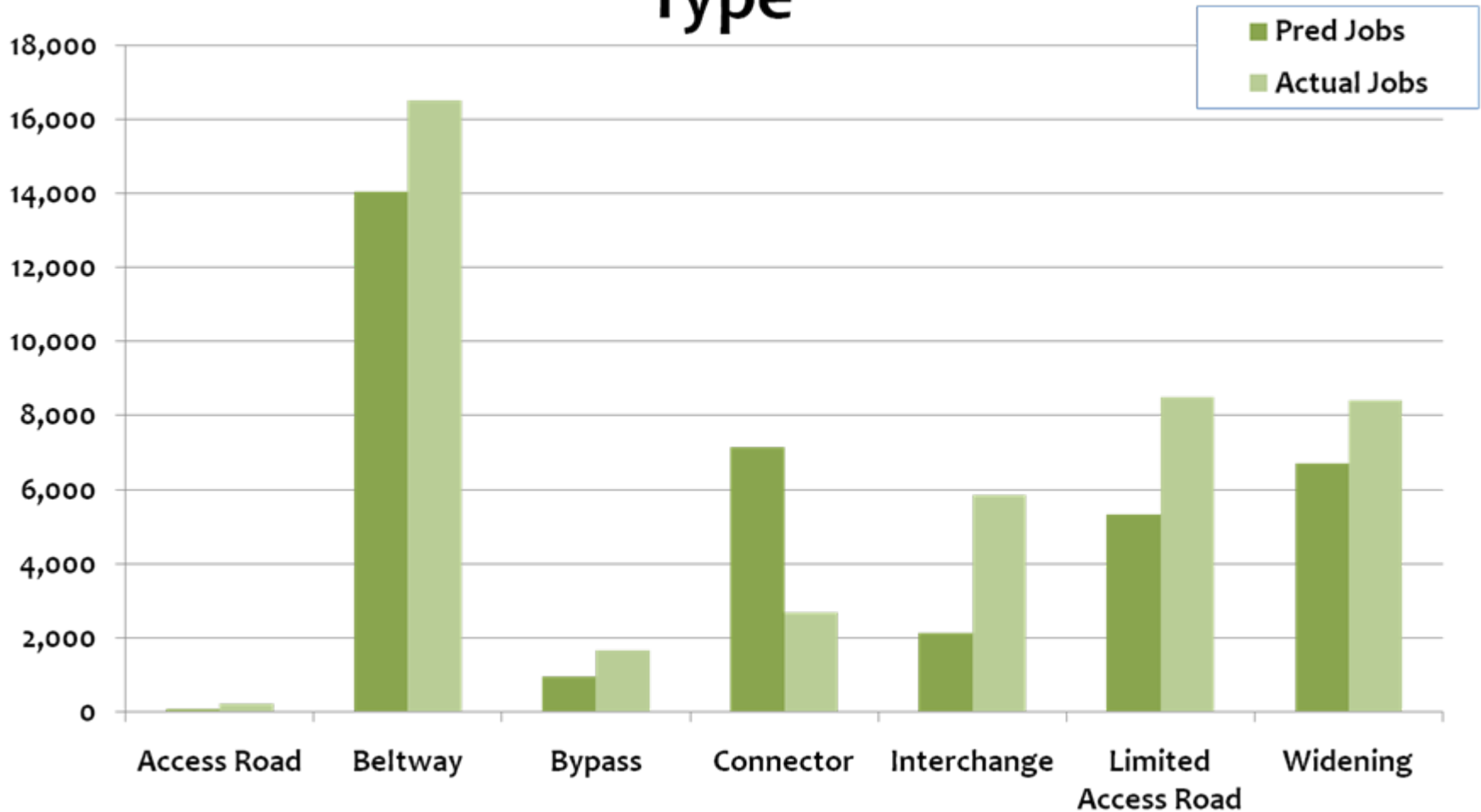
Key Interaction Factors

- Access to Alternative Modes
 - Airports
 - Rail Intermodal Facilities
 - Seaports
- Market Access
 - Labor Markets
 - Freight/Delivery Markets
- Congestion
 - Shifts spatial distribution of economic impacts

Effects of Interactions

- **Effects of Concurrent Infrastructure**
 - Water, sewer, broadband, power, etc.
 - Range of effects: -35% to +20%
- **Supportive Land Use Policies**
 - Permitting, zoning, special districts, etc.
 - Range of effects: -20% to +11%
- **Business Incentives**
 - Tax increment financing, abatements, job training programs, etc.
 - Range of effects: -5% to +8%

Actual and Predicted Job Impacts by Type



Challenges in Case Development

- **Obtaining Retrospective Data on Cases**
 - Economic impacts take time to manifest themselves
 - Timing differs by project type
- **Distinguishing Cyclical Effects from Investment-Induced Effects**
 - Historical baselines for property values and taxes are often unavailable or incomplete
- **Separating Highway Investment Effects from Other Economic Development Initiatives**
 - Urban/rural and distressed/non-distressed areas
- **Assessing Effects of Large, Phased Projects**

SHRP2 C03 – Next Steps

- Add 40 New Case to:
 - Expand range of project types
 - Add key information to under-represented case data
- Roll-out Project Tools and Results
 - Web tool prototype – January 2010
 - Complete set of 100 Cases – July 2010
 - Practitioner's guide and user's handbook – October 2010
- Apply Findings and Methods to New Investment Initiatives



Case Search

You enter data characteristics of your own project. Then you can view projects that are similar to yours, and use the data to estimate the likely impacts of your project.

[View Results](#)

Basic Criteria

Other Criteria

Potential Matches: **7**

Project Type:

[De-Select All](#)

- Bypass Limited Access Road Beltway Interchange Widening
- Bridges Access Road Bundled Connector

Region:

[De-Select All](#)

- New England/Mid-Atlantic Southwest Southeast International
- Rocky Mountain/Far West Great Lakes/Plains

Motivation:

[De-Select All](#)

- Air Access Labor Market Int'l Border Access Site Development Tourism
- Rail Access Delivery Market Marine Port Access Congestion Mitigation

Urban/Class Level:

- Rural Mixed Metro

Economic Distress:

- All Distressed Only Non Distressed Only

Keywords:

[Search Keywords](#)

[Clear](#)



Case Search

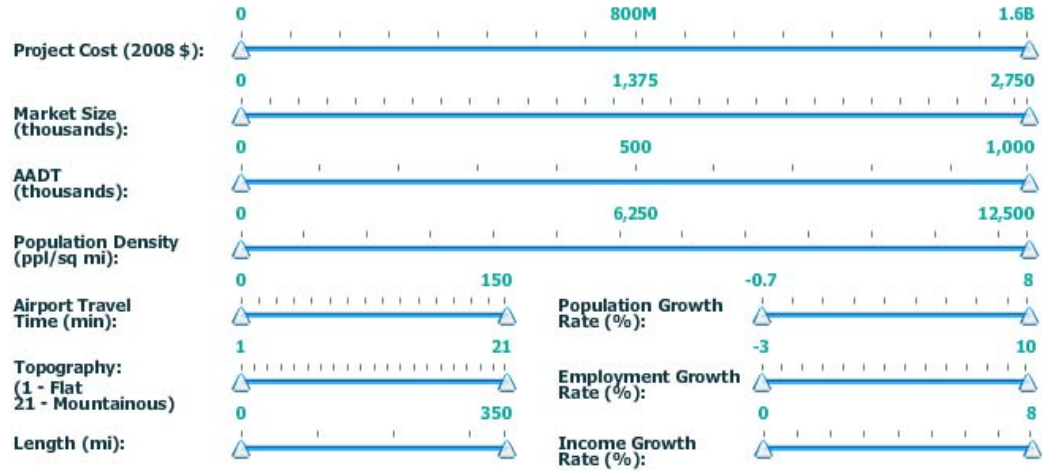
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[View Results](#)

Basic Criteria

Other Criteria

Potential Matches: 55



[Reset Sliders](#)

Include cases with missing data

[Change Search Parameters](#)

Case Search Results

Matches: 7

Click on a column table header (for example, 'Project Cost') to sort the results by that column. Click two or more checkboxes in the 'Compare' column and click 'Compare Projects' to compare project data. Click on a case study title to view detailed information about that case. Project Cost is in 2008 dollars.

Your case search parameters are:

Project Type: Bypass, Limited Access Road, Beltway, Connector
Urban Class: Mixed, Metro
Region: Southwest, Rocky Mountain/Far West
Motivation: Air Access, Labor Market, Site Development, Congestion Mitigation
Project Cost (2008): \$0 - \$160,000,000

Compare	Title	Description	Project Type	State	BEA Region	Project Cost (2008)	End Date
<input type="checkbox"/>	US Highway 28...	US 281 is a new highway constructed from the downtown sector of San Antonio to the San Antonio International Airport and provides freeway access to fastest growing part of region.	Connector	TX	Southwest	\$40,400,000.00	1978
<input type="checkbox"/>	Beltway 8 Hous...	Beltway 8 is a toll facility owned and operated by the Harris County Toll Road Authority (HCTRA). As the outer highway loop surrounding the city, Beltway 8 provides direct access between large residential and commercial development outside of the downtown area. Construction of the first 27.5 mile section of Beltway 8 between Hwy 59 and I-45 in west Houston initiated in 1985 and finished in July 1990. The improved accessibility accelerated the growth of residential and	Beltway	TX	Southwest	\$77,651,700.00	1988

[Download Search Results](#)

[Print Search Results](#)

[Compare Projects](#)



My Project Tools

You enter data characteristics of your own project. On the View Results Screen you can see the likely ranges of economic impacts from your project, and estimates of project cost and traffic volume. You will have the opportunity to adjust cost and traffic estimates, and to adjust complementary regional economic development factors to properly reflect your region. In turn, these adjustments will drive changes in expected economic impacts of your project.

View Results

Project Type:

- Bypass
 Limited Access Road
 Beltway
 Interchange
 Widening
 Bridges
 Access Road
 Bundled
 Connector

Region:

- New England/Mid-Atlantic
 Southwest
 Southeast
 International
 Rocky Mountain/Far West
 Great Lakes/Plains

Urban/Class Level:

- Rural
 Mixed
 Metro

Economic Distress:

- Distressed Only
 Non Distressed Only

Length of your Project:

25 Miles



My Project Tools

You can change the average project cost and expected AADT of your project, and adjust the characteristics of your region to reflect local conditions. These changes will affect the economic impacts of your project.

Current Project Cost (\$):

\$271 million

Estimated Project Cost (\$):

\$271 million

Estimated AADT (thousands):

61,000

[Change Search Parameters](#)



	Jobs	Wages	Output
Direct Impacts	1,780 - 2,960	\$236,793,000 - \$394,655,000	\$236,793,000 - \$394,655,000
Supplier and Wage Impacts	1,070 - 1,780	\$142,076,000 - \$236,793,000	\$142,076,000 - \$236,793,000
Total Impacts	2,850 - 4,740	\$378,869,000 - \$631,448,000	\$378,869,000 - \$631,448,000



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