ANALYZING THE ECONOMIC IMPACTS OF TRANSPORTATION PROJECTS

STUDY BRIEFING

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Study Background

➤ **Investments in transportation are typically motivated by the need to address transportation related considerations**

➤ **Transportation investments are also initiated to promote economic development in a region**

➤ **With the changing landscape of funding, regulatory review, project evaluation criteria, and public education:**

   – **There is a growing need to quantitatively analyze the economic value of transportation projects**

Study Background (2)

➢ **Study Considerations**

- **Effective programs and policies to meet larger goals of the region**

- **Changing landscape of funding**
  - ✓ **Funding to financing**
  - ✓ **Value capture**

- **Evaluate alternative transportation investments**

Project Objectives

➢ **Identify economic impact analysis tools tailored specifically for a Connecticut application**

- – **Review state-of-practice for analyzing economic impacts**

- – **Identify methods and approaches for analyzing economic value/benefits**

- – **Identify and provide an assessment of the candidate software tools**

BRIEF STATEMENT OF PRIMARY CONCLUSION

➢ **The transportation system and users of transportation infrastructure interact with the economy in complex ways, causing economic impacts**

➢ **Therefore, in order to effectively analyze the economic impact of transportation projects, ConnDOT should consider:**

– **Establishing the role of economic impact analysis in the state's strategic transportation planning process**

– **Adopting an objective, independent and consistent process for conducting economic impact analyses that incorporates the state's regional, economic and political considerations**

– **Building ConnDOT staff capacity including understanding of economic impact analysis and tools used to conduct such analyses for use in the strategic planning process and to support and manage analysts that conduct the analyses**

BRIEF STATEMENT OF PRIMARY CONCLUSION (2)

- Utilizing analysts well versed in the principles of transportation planning/engineering and economic theory, and knowledgeable about the interrelations between the two for the purpose of ensuring validity of the results

- Establishing a partnership with an organization or consultant with the capacity to conduct economic analyses to achieve consistency in analyses over time

- Selecting an economic analysis software model to analyze the economic impact of transportation projects. Of the models considered in this study, currently REMI TranSight and TREDIS are recommended for ConnDOT's consideration

- Customizing and communicating the results of the analyses in meaningful terms for various audiences (e.g., decision makers, stakeholders and the public)

Chapter 1: Overview

➤ INTRODUCTION

1.1. Need for Analyzing Economic Impacts of Transportation Investments

1.2. Study Considerations

1.3. Project Objectives

Chapter 1: Recommendations

Section 6.1

➢ **Need for Analyzing Economic Impacts Due to Transportation Investments**

- **Institutionalize procedures for conducting systematic economic impact analysis for future transportation projects**

- **Clearly define the role and contribution of economic analysis for use in ConnDOT's strategic transportation planning process**

- **Establish criteria for selecting, programming and prioritizing transportation investments**

Chapter 2: Overview

➢ **CHARACTERIZING ECONOMIC DEVELOPMENT DUE TO TRANSPORTATION INVESTMENTS**

2.1. Economic Development Due to Transportation Investments

2.2. Dimensions of the Transportation System and Economic Impacts

2.3. Processes Characterizing Economic Impacts Due to Transportation Investments

2.4. Transportation Investments as a Facilitator of Economic Development

2.5. Measures of Economic Impacts

2.6. Summary

Chapter 2: Summary of Findings

➢ **Transportation investments are not enough to promote economic development**

➢ **Need a clear understanding of the linkages between transportation investments and economic development activity**

➢ **Need awareness of different dimensions and processes, combined with a clear purpose of the analysis *(estimation versus evaluation)***

Chapter 2: Recommendations

Section 6.2.1

➢ **Transportation Investments as a Facilitator of Economic Development**

- **Ensure that analysts that conduct the analyses are well versed in economic theory and its linkage to transportation**

- **Analysts need to have a clear understanding of the different dimensions of economic development**

- **Acknowledge the role of transportation as a facilitator of economic development**

- **Analysts should have an understanding of the need for and identify other non-transportation related conditions to promote economic development**

Chapter 2: Recommendations (2)

Section 6.2.2

➢ **Processes Characterizing Economic Impacts**

 – **Ensure that the analysts understand the processes underlying the influence of transportation investment on the economy**

Section 6.2.3

➢ **Measuring Economic Impacts**

 – **Clearly define the analysis area and region of interest**

 – **Ensure that the analysts are aware of and understand what the measures represent and how the measures are estimated**

Chapter 3: Overview

➢ **METHODOLOGIES FOR CONDUCTING ECONOMIC IMPACT ANALYSES OF TRANSPORTATION INVESTMENTS**

3.1. Purpose of Economic Impact Analysis

3.2. Estimating and Evaluating Economic Impacts of Transportation Investments

3.3. Methodologies for Estimating Economic Impacts of Transportation Investments

3.4. Methodologies for Evaluating Economic Impacts of Transportation Investments

3.5. Other Considerations for Analyzing Economic Impacts of Transportation Investments

3.6. Summary

Chapter 3: Summary of Findings

➢ **In the context of studies analyzing economic development impacts, there are two different, but related objectives –** *estimating* **and** *evaluating*

➢ **The models employed in estimating and evaluating are not directly comparable; they provide answers to different aspects of economic impact analysis**

➢ **Applied independently**

- **Recent recognition that the longer-term economic benefits be included in evaluating economic impacts establishes a potential linkage**

Chapter 3: Summary of Findings (2)

- **In estimating economic impacts – change in economic indicators**

  - **Regional Economic Models (REM)**

  - **Also referred to as Economic Impact Analysis (EIA)**

- **In evaluating economic impacts – quantifying the value/net return**

  - **Benefit-Cost Analysis (BCA)**

- **Economic analysis along with other non-economic considerations inform the final decision about transportation investment**

Chapter 3: Recommendations

Section 6.3

➢ **Analyzing Economic Impacts**

- **Need a clear understanding of the mechanisms and processes so that an appropriate analysis technique can be applied**

- **Need to be aware of the questions that need to be answered and the audience(s) for whom the analysis is intended**

Chapter 3: Recommendations (2)

Section 6.3.1

➢ **Methodologies for Estimating Economic Impacts**

- **Use Regional Economic Models to model the economy – general equilibrium models are recommended because of their ability to capture induced impacts**

- **Even general equilibrium model implementations capture only a limited set of impacts**

- **Analysts must be knowledgeable about the capabilities and limitations**

Chapter 3: Recommendations (3)

Section 6.3.2

➢ **Methodologies for Evaluating Economic Impacts**

- **Use BCA for evaluating the net value or net return of a transportation investment**

- **Consider the full range of benefits and costs to the society at large**

- **Be aware of measurement issues when estimating economic benefits**

- **Consider benefits/costs beyond direct impacts in a BCA – incorporate wider economic benefits**

Section 6.3.3

➢ **Other Considerations for Analyzing Economic Impacts**

   – **The impact of the transportation choices and location decisions should be modeled using appropriate analytical tools. The fidelity and richness of the analytical tools will depend on the types of projects being analyzed**

Chapter 4: Overview

> **REVIEW OF CANDIDATE SOFTWARE FOR ANALYZING ECONOMIC IMPACTS FROM TRANSPORTATION INVESTMENT**

4.1. Models Selected for this Review: REMI TranSight and TREDIS

4.2. Overview of Model Methodology

4.3. Similarities Between TranSight and TREDIS

4.4. Differences Between TranSight and TREDIS

4.5. Perspectives from Other Models

4.6. Summary

➢ **Both models are based on a regional input output industry structure and provide benefit cost analysis and economic impact estimates for critical economic metrics by year and by industry based on regional changes including impacts from changes to the transportation infrastructure**.

➢ **Both models also can analyze projects based on the concepts of:**

  ✓ **transit oriented development**

  ✓ **multi-modal investments**

  ✓ **any other transportation solutions, if they can be economically quantifiable**

Chapter 4: TranSight and TREDIS DIFFERENCES

➢ **TranSight's methodology is more complex and requires greater familiarity with economic theory than TREDIS**

➢ **TranSight estimates the economic activity on a much broader range of variables than TREDIS**

➢ **TREDIS uses a 440 industry structure. TranSight uses 70 industries**

➢ **The TREDIS software provides the analyst with a stepwise template structure—while TranSight is more open, object oriented and may require more estimations outside of the model**

Chapter 4: Recommendations - Models

SECTION 6.3.4

➢ **A model selected for a transportation project must include the ability to easily implement travel demand and market access components**

➢ **It must be regionally aware, built using a strong theoretical methodology, and include temporal dynamics in both the model inputs and reports**

➢ **The model must utilize acceptable data sources in estimating the regional impacts**

Chapter 4: Recommendations – Software & Data

- ➢ **The model's software should be easy to use and peer reviewed in academic and professional arenas**

- ➢ **The model should be developed and maintained by an organization with a legacy and a vision for continual development and refinement**

- ➢ **The regional economic data should accommodate the state of Connecticut and critical geographies in the state and nearby regions**

- ➢ **The software should provide the flexibility to adjust the regional data and accommodate historical and projected analyst adjustments**

Chapter 5: Overview

➢ **REVIEW OF THE STATE OF PRACTICE FOR ANALYZING ECONOMIC IMPACTS**

5.1. State of Practice in United States

5.2. State of Practice in States with Established Economic Impact Analysis Procedures

5.3. State of Practice in States without Established Economic Impact Analysis Procedures

5.4. State of Practice in Connecticut

5.5. Summary

Chapter 5: Summary of Findings

➢ **Transparency in conducting and applying the results of economic analysis**

➢ **Communication is needed throughout the economic analysis process**

➢ **Performance measures need to be identified; metrics need to be customized based on audience and stakeholder groups**

➢ **The economic models and methodologies used in the analysis of economic impacts vary with the type and size of the project**

Chapter 5: Recommendations

Section 6.4.1

- **Role of Analyzing Economic Impacts in the Transportation Investment Decision Making Process**

  - **A systematic practice should be established to ensure economic analyses conducted are objective, independent, and consistent**

  - **Transportation investment decision-making should incorporate a multi-criteria approach; the contribution of economic impact analysis should be clearly defined**

Section 6.4.2.1

➢ **Model Selection and Resources**

– **Maintain a statewide economic model that integrates with existing models and analytical tools**

– **Analysts should be required to have working knowledge of economic analysis and modeling; familiarity with the Connecticut economy and the region is desirable**

– **Conduct economic analysis internally or on a contract basis**

– **Ensure consistency in economic analysis; uniformly apply the same model (by same group of analysts) with appropriate oversight from economic experts**

– **Train ConnDOT staff in economic analysis methods and results**

Chapter 5: Recommendations (3)

<u>Section 6.4.2.2</u>

➢ **Implementation**

- **Transparency in conducting and applying the results**

- **Consistency throughout project analysis and selection**

- **Communication throughout the economic analysis process**

- **Identify performance measures and establish criteria for project selection (multi-criteria approach)**

- **The models and methods must be appropriate for the type and size of the project**

Questions???

Thank You

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