1 INTRODUCTION

The development of the Ohio Hub Intercity Passenger Rail System calls for a substantial investment by both the state of Ohio and the Federal Government. While it is unclear exactly what the size of the Federal government's contribution will be it is likely to be in the range of 50 to 80 percent of the total investment. As a result the Ohio Hub needs to complete cost benefit studies that satisfy the Federal government's requirements. At the same time the state of Ohio will also be a major investor and it would like to understand not just the Federal government's cost benefit requirements, which are largely demand-side benefits to travelers, but also the supply-side benefits to the Ohio economy as well as the specific impacts to each community.

In addition to the economic analysis being completed by TEMS, Inc., GEM Real Estate services, Inc. will access the transfer payments to Ohio from the spending of Federal grants and building the Ohio Hub system. Together these documents will show how the construction and operation of the Ohio Hub System will stimulate economic activity in Ohio.

The purpose of this study therefore is to measure both the demand and supply benefits by the development of the Ohio Hub intercity passenger rail system. Two related techniques were used by TEMS, Inc. in evaluating the Economic Impacts for the Study[1]. These are –

- Consumer Surplus Analysis of demand side user benefits as approved by USDOT
- Economic Rent Analysis of supply side community economic benefits

These two techniques play a significant role in the modern theory of transportation economics [1]. They provide two ways of evaluating the benefits of a transportation project. They estimate the benefits of a project from both a supply and demand prospective.

The first, the Consumer Surplus technique is well established in the economic literature providing a measure of the benefits to users of the transport system [2], [3]. The underlying methodology has been developed into a well established set of criteria that can be used in evaluating projects.

The second, the Economic Rent Analysis is equally well established in the economic literature [3], [4] as the "mirror image" of consumer surplus but is a less well used methodology. This is because it is more difficult to measure economic rent than to measure consumer surplus. The work on specific measurement techniques for Economic Rent has only been conducted in the last ten years. This reflects the growth of computer power and the ability of modern computers to handle the large number of calculations associated with conducting an Economic Rent Analysis.

As documented in the literature [5] - [7] the initial work on Economic Rent grew out of urban economics and in particular the measurement of property prices and commuting activity. This work was later supplemented by the development of transportation analysis techniques that greatly enriched the Economic Rent measurement process. This included transportation access measurement (by measuring utility) and traffic movement databases

[1] Input-Output analysis is the third technique applied in the Study by GEMS Public Services Group.

(showing market interaction) that are so critical to Economic Rent[2]. The final formulation of Economic Rent techniques required the inclusion of the Economic Theory of Location and specifically Central Place Theory [9], [10] to provide a structure of "markets" to which the general Economic Rent proposition could be applied. This then provided an effective application method.

The following report describes the techniques as applied to the Ohio Hub in more detail, identifying the methodology, the measurement techniques, databases, and the results for each technique. The report includes -

Chapter 1: Introduction

Chapter 2: Economic Analysis Framework

This includes a brief assessment of the overall Economic Framework and the relationship between Consumer Surplus and Economic Rent.

Chapter 3: Demand Size: Consumer Surplus Methodology

Chapter 4: Supply Side: Economic Rent Methodology

These two chapters cover theoretical and technical issues of the two developed techniques – Consumer Surplus (evaluating the demand side of the Study) and Economic Rent (evaluating the supply side).

Chapter 5: The Economic Evaluation Databases

This describes the process of developing socioeconomic and transportation databases, as well as different techniques necessary to perform both parts of Economic Impact Study.

Chapter 6: Consumer Surplus Analysis and Results

Chapter 7: Economic Rent Analysis and Results

The results of the Ohio Hub system evaluation by the two developed techniques are presented.

Chapter 8: Station Development Results

Issues regarding economic evaluation results for Ohio Hub stations (including their development potential) and multimodal connectivity are discussed here.

Chapter 9: Freight Rail Benefits

The benefits to Ohio's freight rail system of the extra rail capacity generated by the Ohio Hub are analyzed.

Chapter 10: Commuter Rail Benefits

[2] Accepting a generalized cost structure as its utility function is assumed by transportation-planning model. Lancaster developed this proposition, which argues for a broader definition of consumer theory (and thus economic welfare) than that provided by the basic economic model [8].

The benefits to potential commuter rail system being developed in Cleveland, Columbus and Cincinnati are investigated.

Chapter 11: The Economic Benefit to Hopkins International Airport from Developing the Ohio Hub

This analysis considers the benefits of improved access to Hopkins International Airport.

Chapter 12: Tourism Impacts

This analysis estimates the specific impacts of intercity rail on the Tourist Industry.

13: Conclusion

This chapter accesses the overall benefits to Ohio of building the Ohio Hub passenger rail system.