

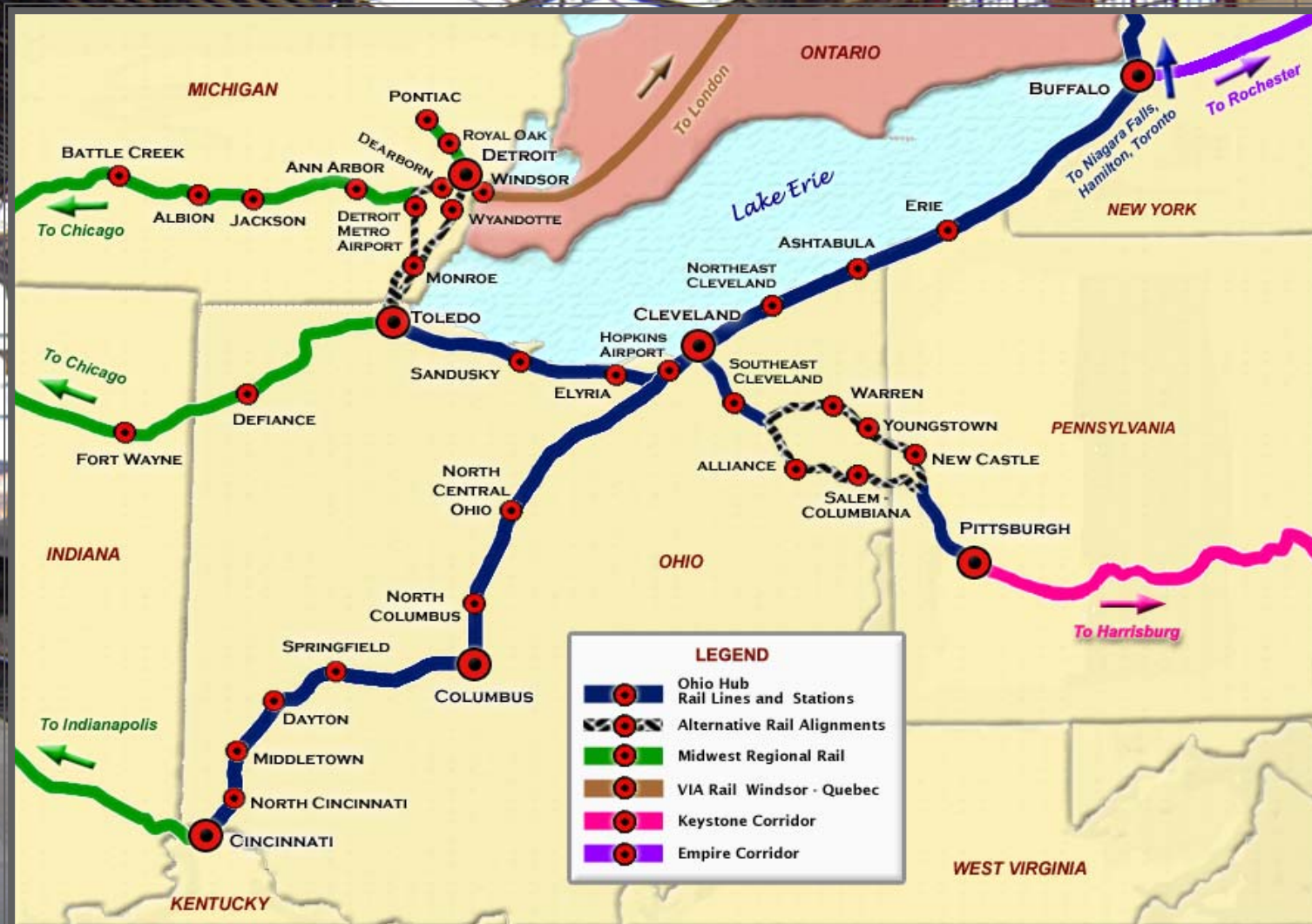
OHIO HUB



Economic Impact Study
Presentation to Executive Staff
August 28, 2007

Presented by: *TEMS* Transportation Economics & Management Systems, Inc.

Ohio Hub – Preliminary System Plan



An Interconnected Regional Rail Network



Expanded Ohio Hub and MWRRS Corridors (with train frequency)



Rail Service

Corridor	Round Trips	Train Time (hours)	Train Fare (\$)
Cleveland-Detroit	8	2.30	\$43
Cleveland-Pittsburgh	8	2.00	\$45
Cleveland-Buffalo	5	2.00	\$68
Cleveland-Cincinnati	8	3.30	\$95

USDOT FRA Cost Benefit Analysis

Benefit Cost Parameters (Billions of 2005\$)	Discount Rate:	
	3.9%	7.0%
Ohio Hub User Benefits:		
Consumer Surplus	\$2.3	\$1.3
System Revenues	\$3.6	\$2.0
Total Ohio Hub Use Benefits	\$5.9	\$3.3
Other Mode User Benefits & Resource Benefits	\$3.0	\$1.7
Total Benefits	\$8.9	\$5.0
Costs:		
Capital	\$2.9	\$2.4
Track Capital Maintenance	\$0.1	\$0.1
Operating	\$1.9	\$1.1
Total Costs	\$4.9	\$3.6
Net Present Value	\$4.0	\$1.4
Ratio of Benefits to Costs	1.8	1.4

Economic Rent Transportation Efficiency Elasticity

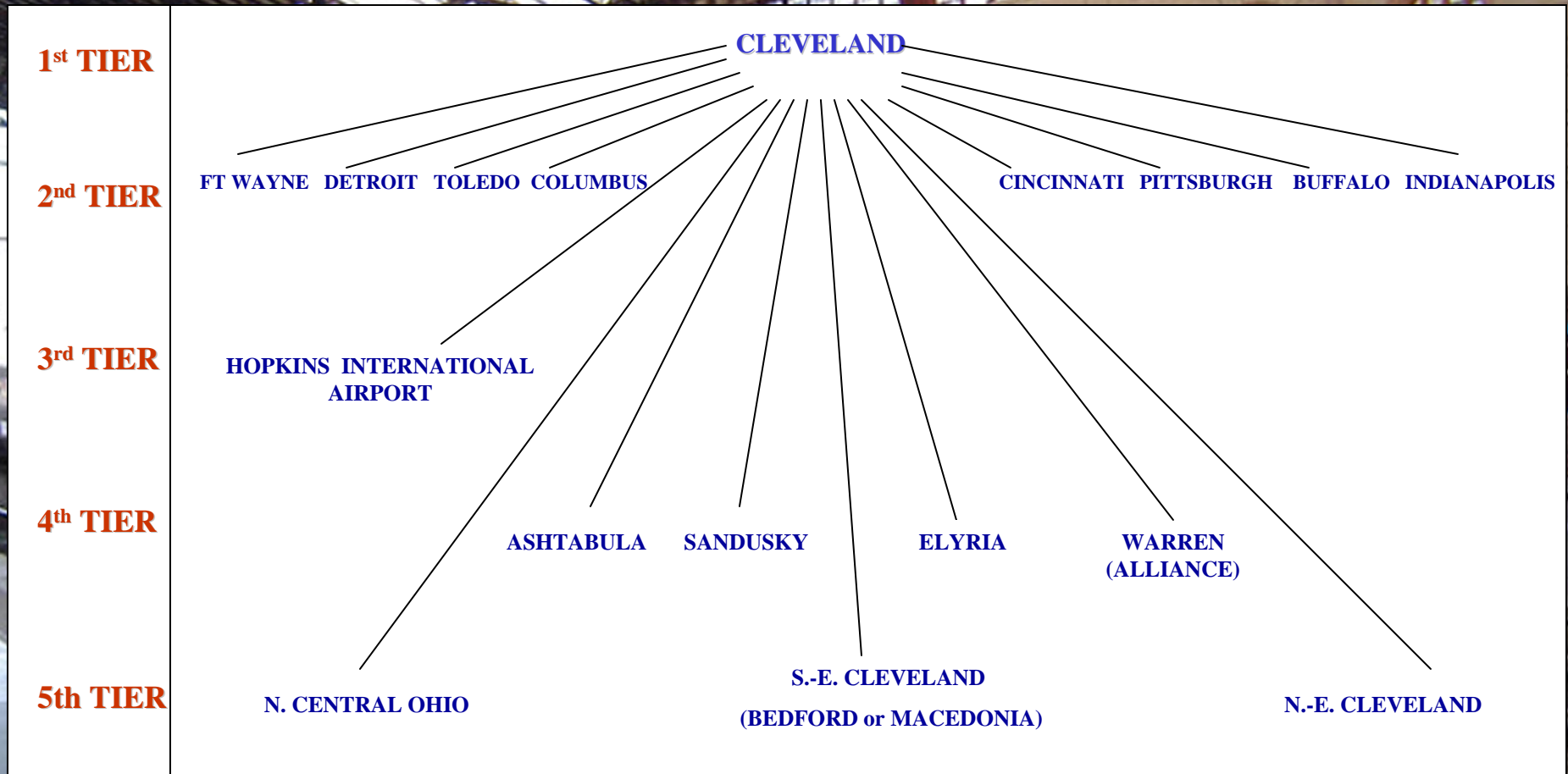
Economic Rent Profile measures the level of impact that transportation efficiency improvements will have on the economy of any location. As such, the economic rent elasticity shows how responsive the local economy is to transportation investments and improvements.

The larger the market, the more interaction there is between producers and consumers and, consequently, the higher the economic rent elasticity and profile.

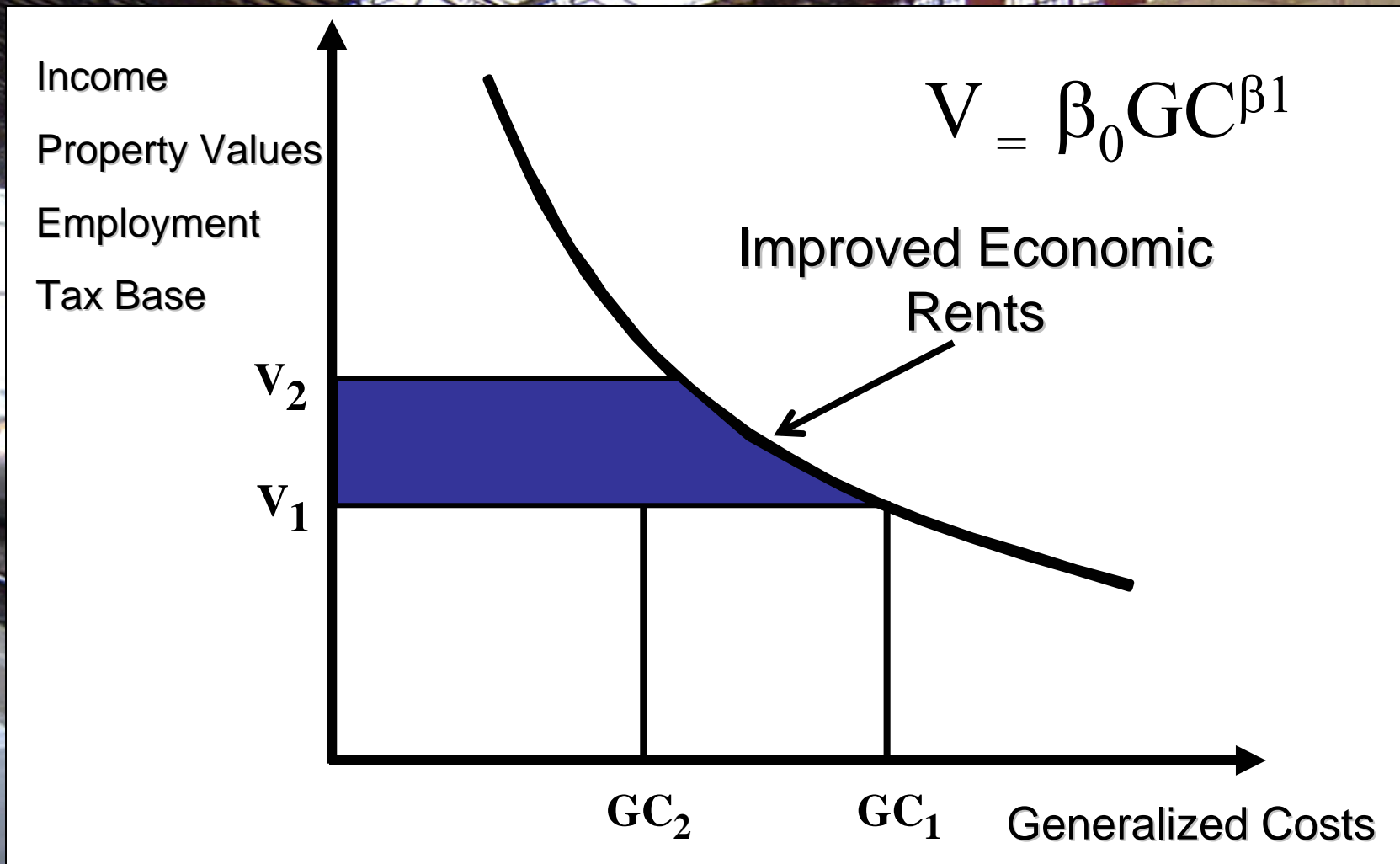
Ohio Hub Super Zone System



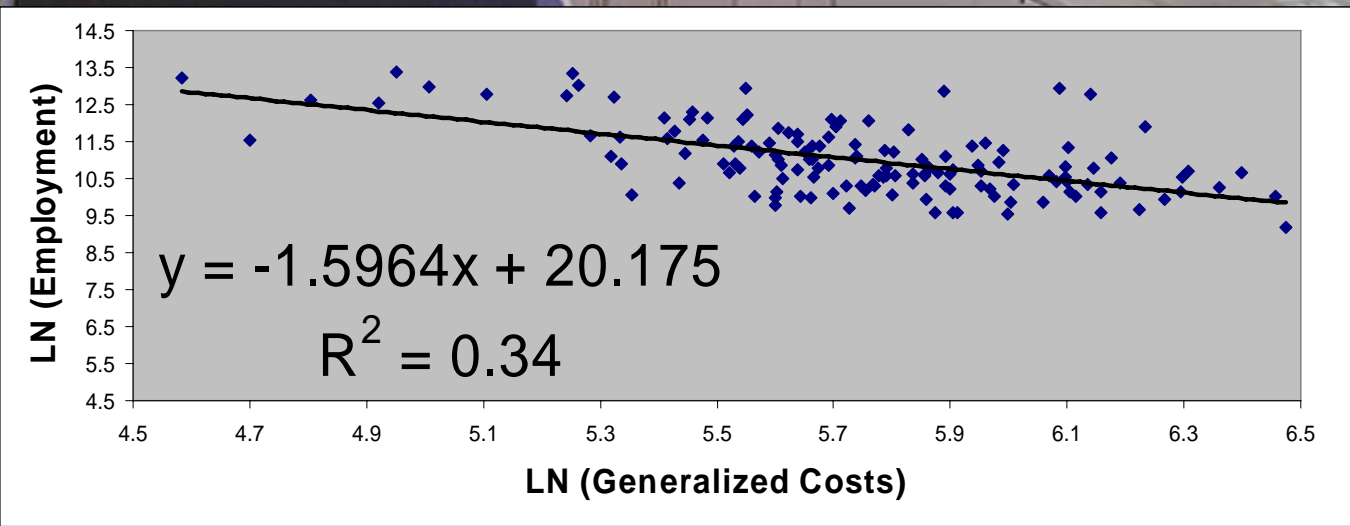
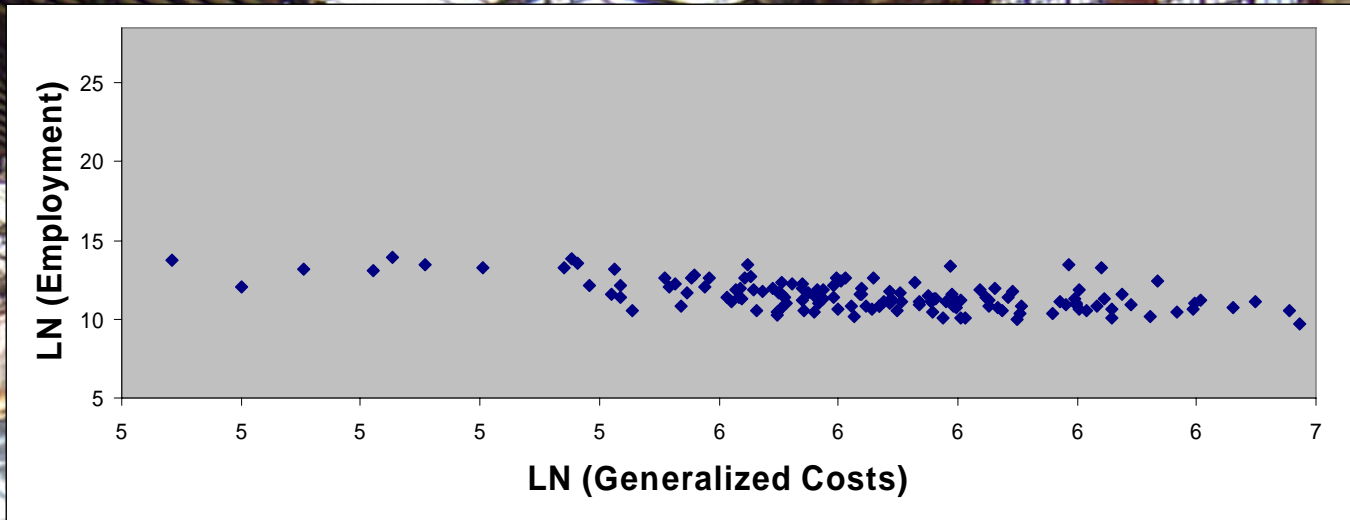
Cleveland Hierarchy of Urban Settlement



Economic Rent Curve



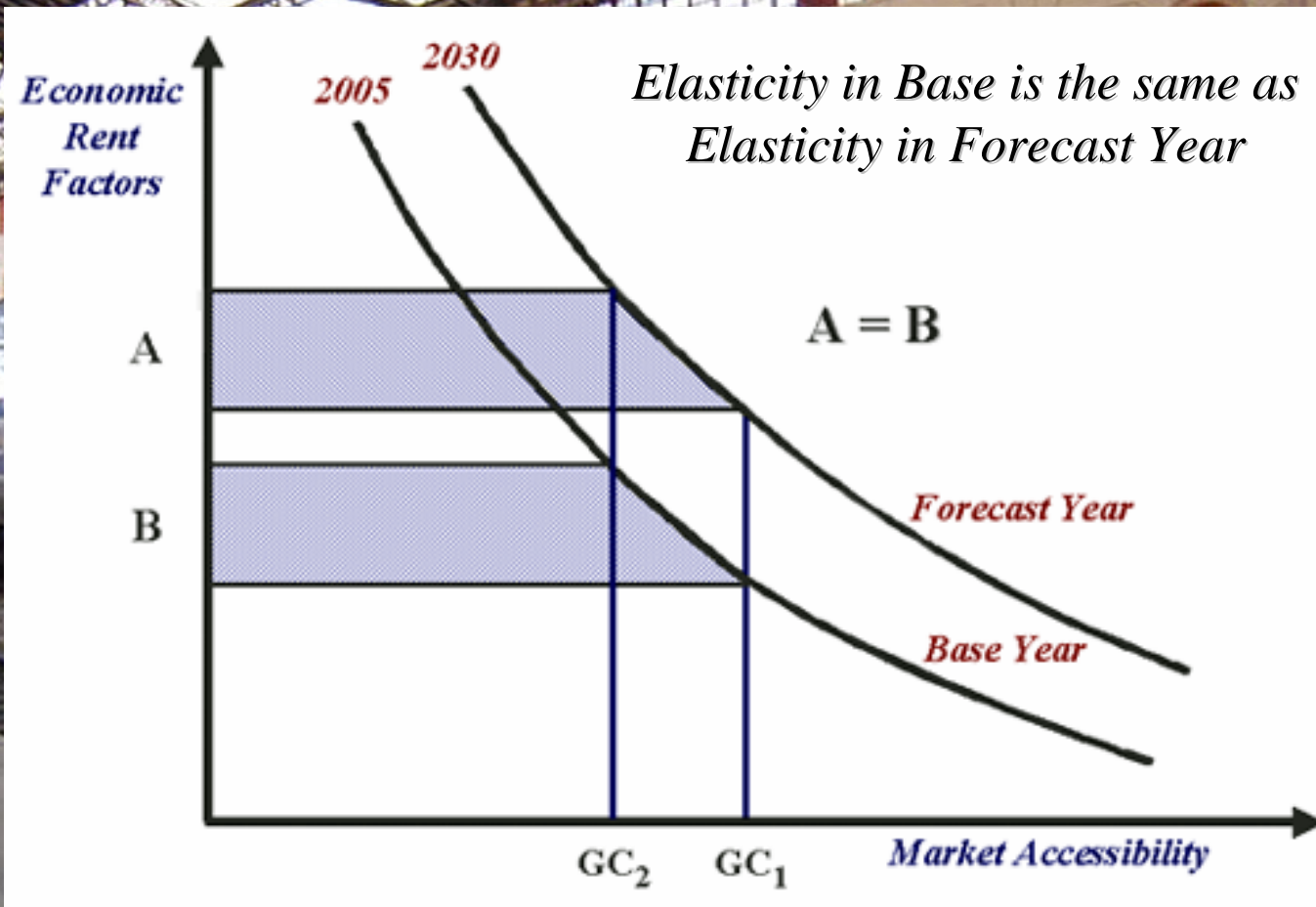
Employment as a Function of Accessibility



Economic Rent Coefficients

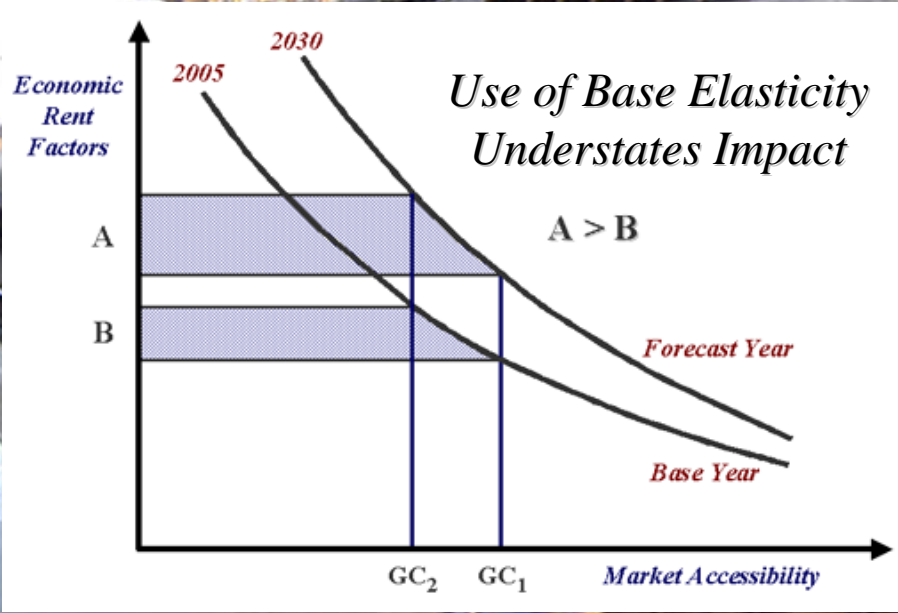
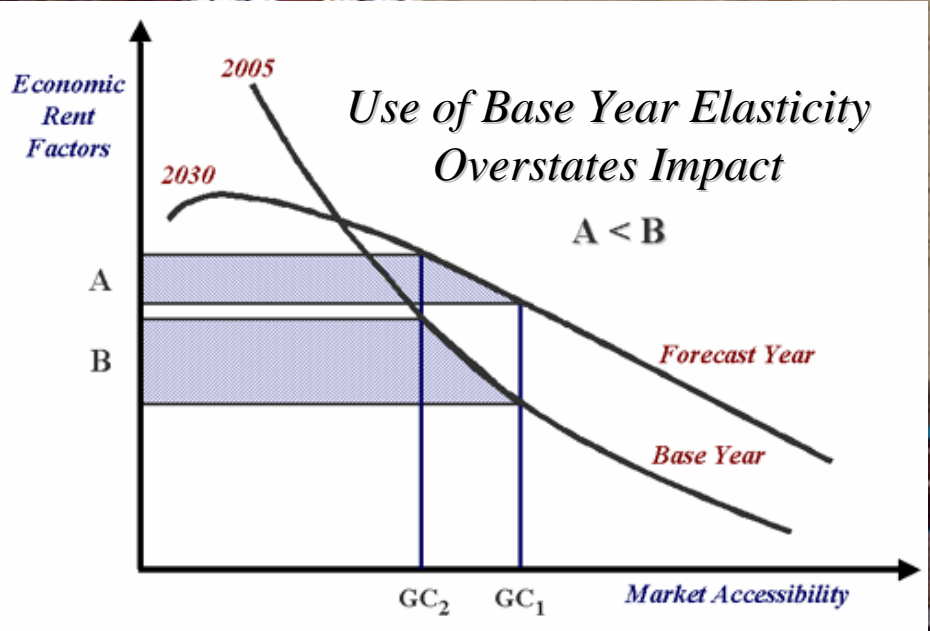
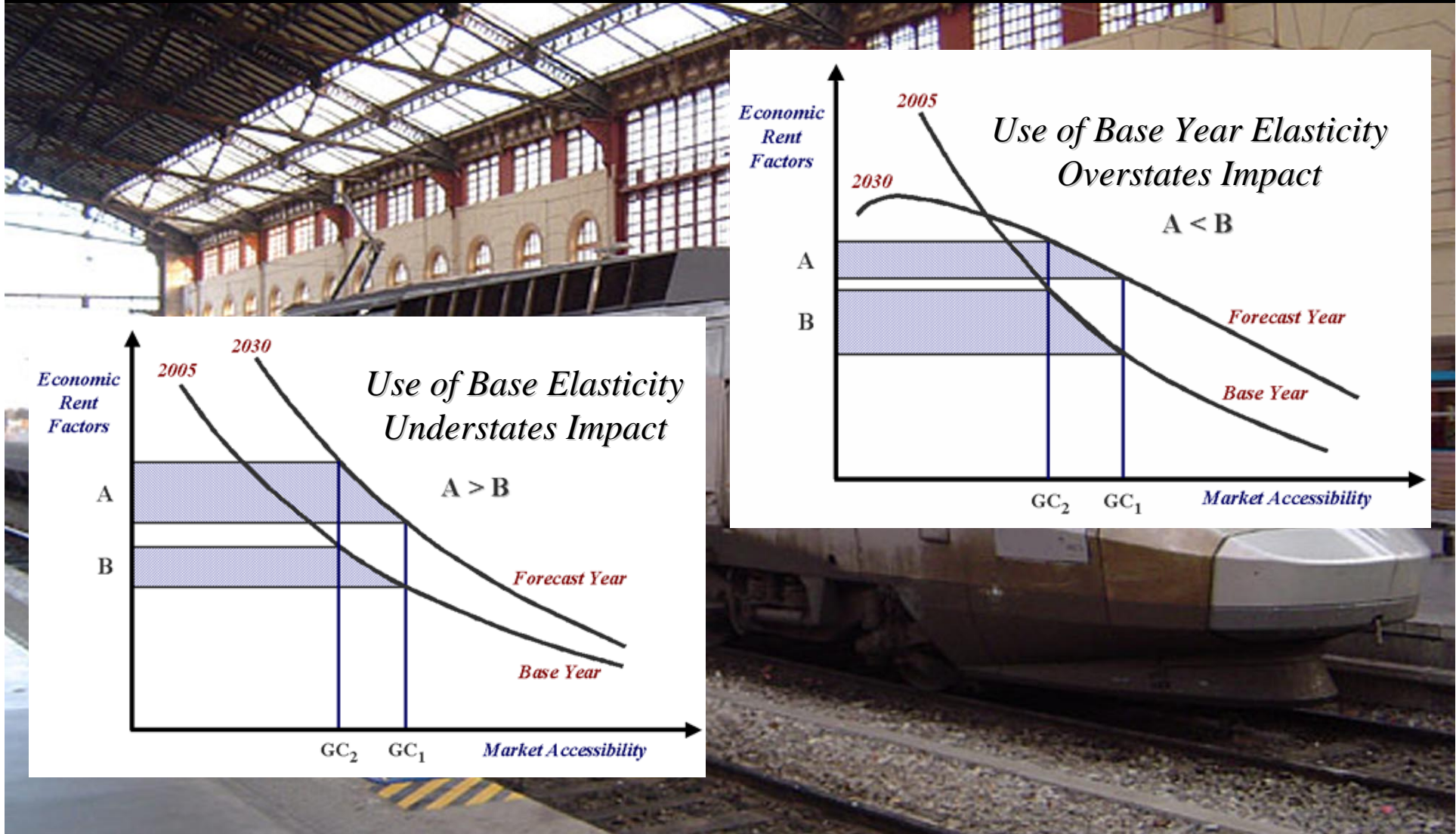
Socioeconomic variable	β_1	T - Statistics For β_1	R ²	Multiple R
Employment	-1.60	-8.38	0.34	0.58
Household Income	-1.79	-8.73	0.35	0.60
Property Value	-1.81	-8.90	0.36	0.60
# Households	-1.56	-8.04	0.32	0.56
# Housing Units	-1.50	-8.13	0.32	0.57

Impact of Forecasting Assumption Case 1: Constant Elasticity

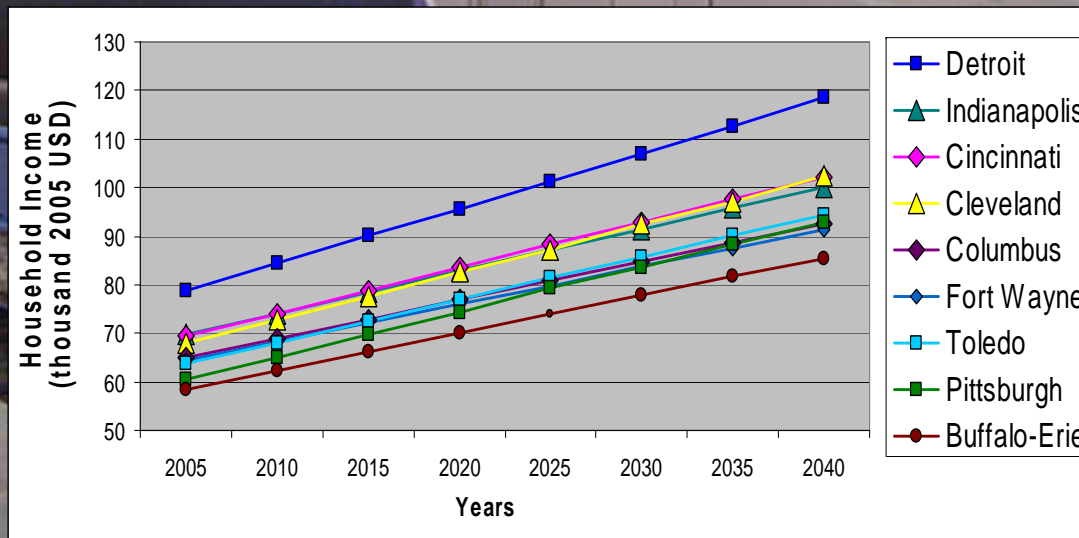
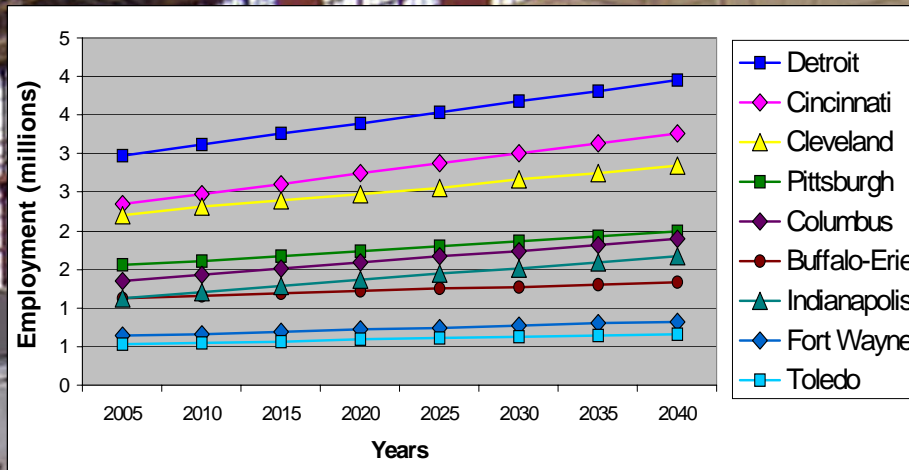
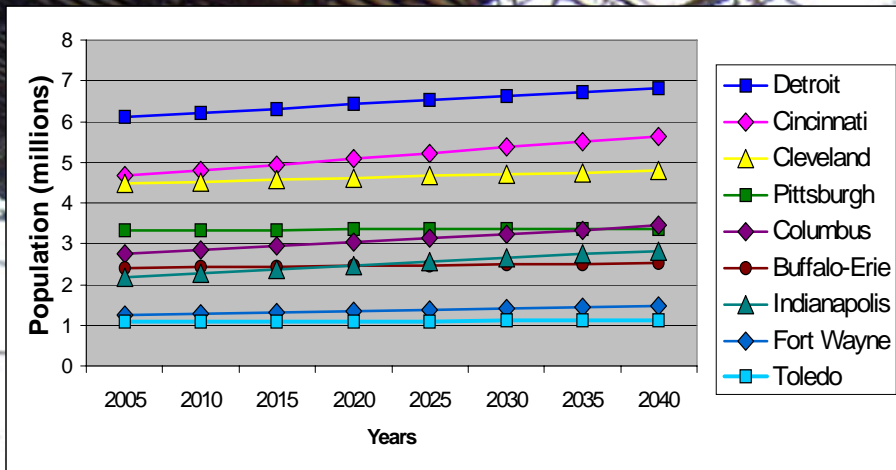


Impact of Forecasting Assumption

Cases 2 – 3: Increase (Decrease) in Elasticity



Socio-economic Forecasts by Super Zone



Economic Rent Results

Economic Benefits	Ohio Hub
Employment (person years)	16,718
Household Income* (ml)	1,077
Property Value* (ml)	3,103
Average** Income (\$)	94
Average** Residential Housing Value (\$)	201

*Results on income and property (housing) value are given in 2005 \$

**Calculated here Average is referred to Ohio Hub Super Zone system

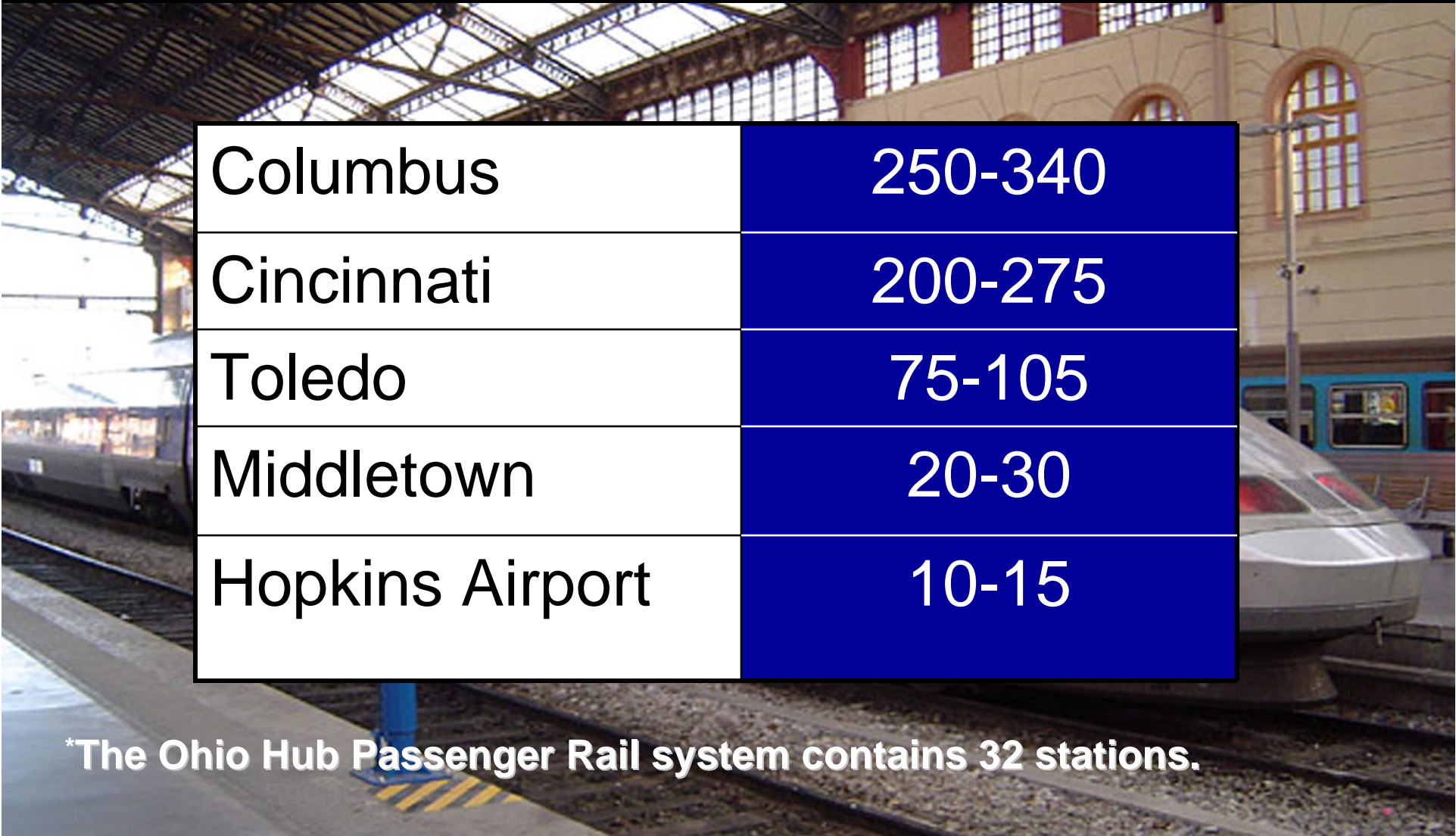
Economic Rent Results by State

State of Ohio

Economic Benefits	Ohio Hub	MWRRI (Ohio)	Total
Employment (person years)	9,570	3,520	13,090
Household Income (ml)	619	60	679
Property Value (ml)	1,833	251	2,084
Average Income* (\$)	132	13	145
Average Housing Value* (\$)	292	41	333

*Results on income and property (housing) value are given in 2005 \$

Joint Development Station Results* (ml. 2005 \$)



Columbus	250-340
Cincinnati	200-275
Toledo	75-105
Middletown	20-30
Hopkins Airport	10-15

*The Ohio Hub Passenger Rail system contains 32 stations.

Cincinnati, Ohio



Joint Development
\$275 Million



Middletown, Ohio



Joint Development
\$30 Million



Increase in Freight Train Capacity for Final Rail Line Configuration

# Tracks Before	# Tracks After	Old Freight Capacity	New Freight Capacity	Freight Capacity Increase
		(trains per day)		
0	1	0	15	15
1	2	30	55	25
2	3	80	100	20

Freight Rail Economic Benefits

- Freight railroads would enjoy revenues of \$163-\$356 million per year. This is equivalent to \$ 1.79 billion over the life of the project.
- Ohio shippers would enjoy benefits equal to \$127 million per year or an NPV of \$750 million. This is equivalent to \$2.27 billion over the life of the project.
- Highway maintenance savings are estimated at \$41 million per year. This is equivalent to \$0.74 billion over the life of the project.

Ohio Commuter Rail Cost-Benefits in Conjunction with Ohio Hub

City	Incremental Cost (ml)	Incremental Benefit (ml)	Incremental Cost Benefit Ratio
Cleveland	\$679	\$1,400	2.06
Columbus	\$100	\$466	4.66
Cincinnati	\$50	\$233	4.66
TOTAL	\$829	\$2,099	2.53

Economic Benefits to Cleveland Hopkins International Airport

- The accessibility provided by the Ohio Hub passenger rail system would gain a market share of at least 10-20 percent of airport users and would increase domestic airport passengers by 6 percent.
- The total increase in passengers at Hopkins International would be 900,000 passengers per year: 300,000 international and 600,000 domestic.
- Connecting the Ohio Hub to Hopkins International Airport could add nearly 1000 jobs at the airport, with direct income impact of over 30 million per year and add between \$0.5 to \$1.0 Billion of economic benefit to the Ohio Economy.

Tourism Impacts

- **0.2 per cent improvement in travel utility generated by Ohio Hub will increase tourist travel by 0.25 per cent.**
- **This increases tourism by 320 thousand overnight trips and the tourism benefits by almost \$80 million per year in Ohio Gross Domestic Product.**
- **Tourist employment will be expanded by 1,400 jobs and wages from tourism will increase by \$22.5 million per year.**
- **Direct taxes from tourism spending will generate an extra \$5 million per year.**

Demand Side Benefits

- **User Benefits - Nearly \$9 billion in traveler benefits and resource savings.**
- **Freight Rail Benefits - in the range of \$3 – \$6 billion with a likely impact of \$4.9 billion.**
- **Commuter Rail Benefits - in the range of \$1 – \$2 billion in the three cities of Cleveland, Columbus and Cincinnati.**
- **Tourism Benefits - tourism will increase by 320,000 overnight trips per year, which increases the Ohio economy by \$80 million per year or more than \$1.4 billion over the life of the project.**

Supply Side and Other Benefits

- **Job Creation - Over 16,700 long-term jobs or over 500,000 person years of work.**
- **Development Benefits - over \$3 billion in station and terminal related development.**
- **Income Benefits - over \$1 billion per year of increase income in Ohio Hub region.**
- **Hopkins International Airport Benefits in the range of \$0.5 – \$1 billion, with a 5 percent increase in traffic.**
- **Transfer Payment Tax Benefit - A State income and sales tax benefit of more than \$1 Billion for the Ohio Hub region over the life of the project.**

Overall Results

- **\$1 billion Invested
gives \$17 billion return**

Recommendations

- **Expand the Economic Analysis to the full Ohio Hub System.**
- **More forward with the PEIS process.**
- **Continue coordination with freight railroads, and development of freight strategies.**
- **Build grass roots support by public outreach.**
- **Develop funding package for the project including federal/state/local funds.**



Thank You