CONSULTING

THE UNIVERSITY OF KANSAS · SCHOOL OF BUSINESS

NFA NorthernFlyerAlliance

ECONOMIC BENEFIT STUDY

Background History

- The mission of the NFA is to restore passenger rail to the area between Oklahoma City and Kansas City
- This area has lacked passenger rail service since the closing of the *Lone Star* route in 1979. The *Heartland Flyer* has been serving the southern portion of the route for 10 years
- In order to make this route continuation a reality, it is important to demonstrate a Return on Investment (ROI) substantial enough to merit support from the legislature
- The best way to quantify this return is through an economic impact study considering all of the benefits passenger rail can bring

Objective

Perform an analysis to ascertain the economic justification for renewing passenger rail between KC and OKC.

Additionally, the analysis will determine the economic impact that the proposed passenger rail service would have on the states, counties, and municipalities along the route.

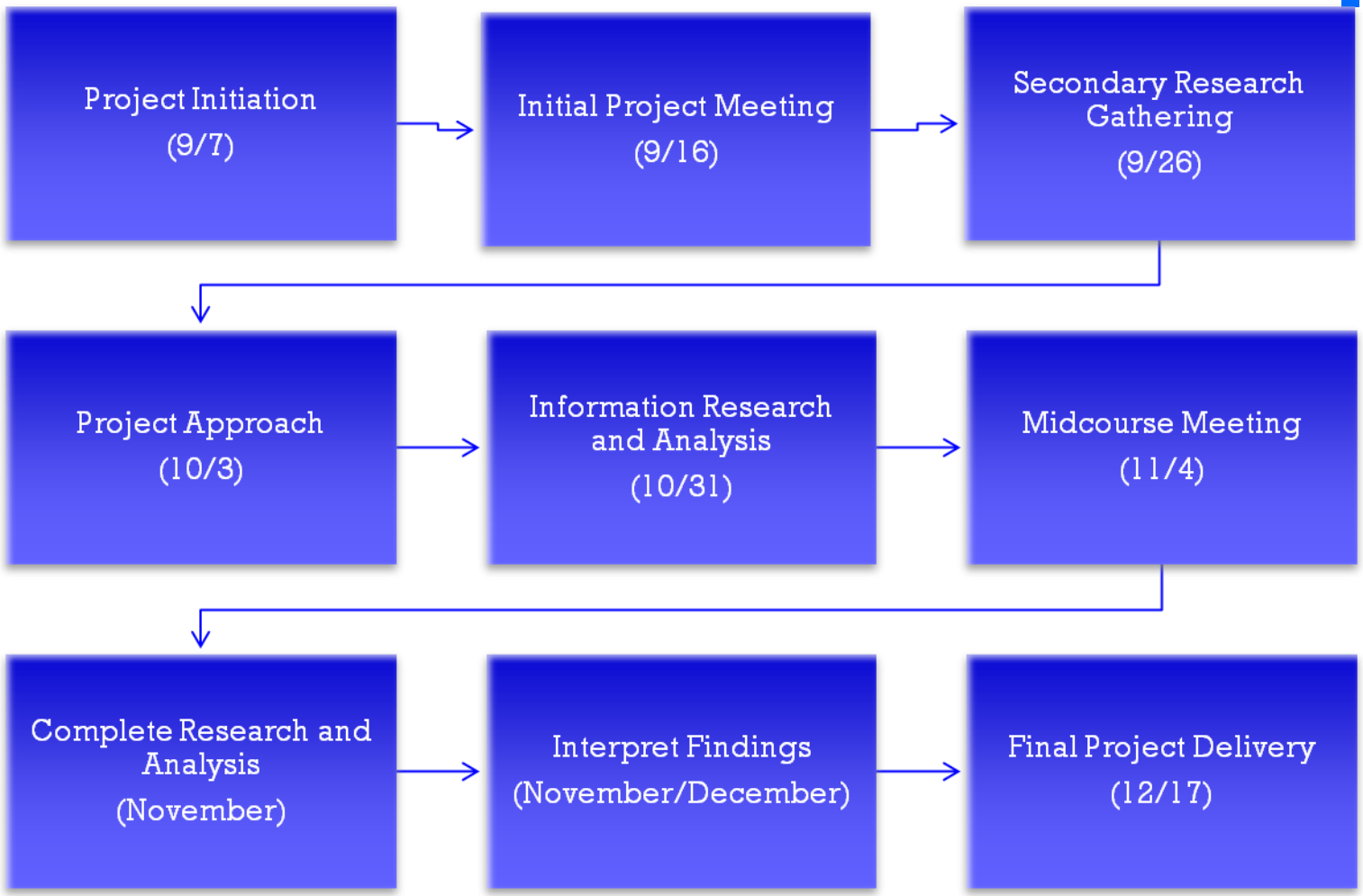
Parameters

- Use reliable data from trusted sources
  - ✓ Kansas Department of Transportation data
  - ✓ US Census data
  - ✓ Previous study data
- Avoid making assumptions without justification
- Limited to economic impact
- Provide an unbiased analysis
- Simple Return on Investment
- Focus on KC-OKC route with Heartland Flyer in mind

Ultimate Deliverable

- Simple Return on Investment calculation identifying positive economic impact resulting from investment in renewed passenger rail between KC and OKC
  - (i.e.: $1 investment =$5 positive economic impact to region)

Timeline


Project Initiation
(9/7)
Initial Project Meeting
(9/16)
Secondary Research Gathering
(9/26)
Project Approach
(10/3)
Information Research and Analysis
(10/31)
Midcourse Meeting
(11/4)
Complete Research and Analysis
(November)
Interpret Findings
(November/December)
Final Project Delivery
(12/17)

Initial Project Meeting
9/16/09

Initial Meeting

- Discussion of proposed route running from Kansas City to Oklahoma City
- Existing Heartland Flyer route from Oklahoma City to Ft. Worth
- Revitalizing train depots along the route in Kansas and Oklahoma.
- Challenges of overcoming myths of trains
- Economic impacts of cities along route

Information Research and Analysis

Contact Resources

- ☑ Alexander King, Senior Freight Planner/ Analyst
  Smith Associates
- ☑ Joseph Gurskis
  Wilbur
- ☑ Pat Oslund
  KU Institute for Policy & Social Research
- ☑ Robert Honea and Ariel Heckler
  KU Transportation Research Institute
- ☑ Art Hall
  Director of Center for Applied Economics
- ☑ Alexander Metcalf
  Transportation & Economics Management Systems, Inc.
- ☑ Ron Kauffman and John Maddox
  Kansas Department of Transportation
- ☑ Jeremy Hill
  Wichita State University

Secondary Research Gathering

Background Research

- Gather and evaluate NFA materials to better understand the group and its objectives
  - NorthernFlyerAlliance.com resource documents and news
  - NFA Intercity Passenger Rail Initiative 2007-2010
  - NFA Cost-Benefit Study Scope
  - Amtrak's 1979 Lone Star Discontinuance
  - Carter Burgess Heartland Flyer Economic Benefit Report

Secondary Research Gathering

Research Other Economic Benefit Projects

- Collecting and analyzing previous studies of similar magnitude, including:
  - 2000 Kansas Rail Feasibility Study
  - Midwest Regional Rail Initiative Cost & Economic Analysis Study
  - Economic benefits of Amtrak Down-easter Service Study
  - Wichita State Economic & Fiscal Impact of Air Tran
  - Commonwealth of Virginia Department of Rail and Public Transportation Economic Assessment
  - American Public Transportation Association Resource Library
- Determine features of study materials to consider for the NFA Economic Benefit Study

Secondary Research Gathering

Additional Research Materials

- US Census Bureau Data
- Amtrak Boarding & Alighting figures
- Amtrak State Fact Sheets: Kansas, Oklahoma, Texas
- MassTransitMag.com transit news, including Louisiana Governor's Rejection of Funding for High-Speed Rail
- KDOT State-Supported Amtrak Service Report
- Articles on High-Speed Rail Stimulus Funding

Secondary Research Gathering

Research on Economic Impact Models

- Evaluate leading transportation economic impact models
  - Regional Input-Output Modeling System (RIMS II)
  - Regional Economic Models, Inc. (REMI)
  - Local Economic Impact Model (LOCI)
  - IMPLAN Input-Output Modeling System (IMPLAN)
- Reports on credible economic impact models
  - Economic Impact Models Explained, University of Georgia Business Outreach Services
  - Analyzing the Economic Impact of Transportation Projects Using RIMS II, IMPLAN, and REMI
- Selection of the model: IMPLAN
  - Breaks down impacts into direct, indirect, and induced effects
  - Ability to analyze impacts on counties, states, and regions
  - Produces multiple impacts on individuals and industries

Project Approach
(10/3)

Project Approach: 4 Component Strategy

KDOT Feasibility Study as Baseline for Ridership and Costs

Creative Marketing Programs to Build Ridership

Execute IMPLAN Model

\+ Enhancement of Value/ Cost Avoidance

= ECONOMIC BENEFIT

Project Approach (10/3)

KDOT Feasibility Study as Baseline for Ridership and Costs

- Estimated Annual Gain (Loss) from Operations:

Revenues	$ 9.79M
Operating Costs	(22.33)
Gain (Loss) from Operations	($12.54M)

  - *Figures in 2010 Dollars*

- Figures updated to 2010 dollars using US Bureau of Labor & Statistics Inflation Calculator

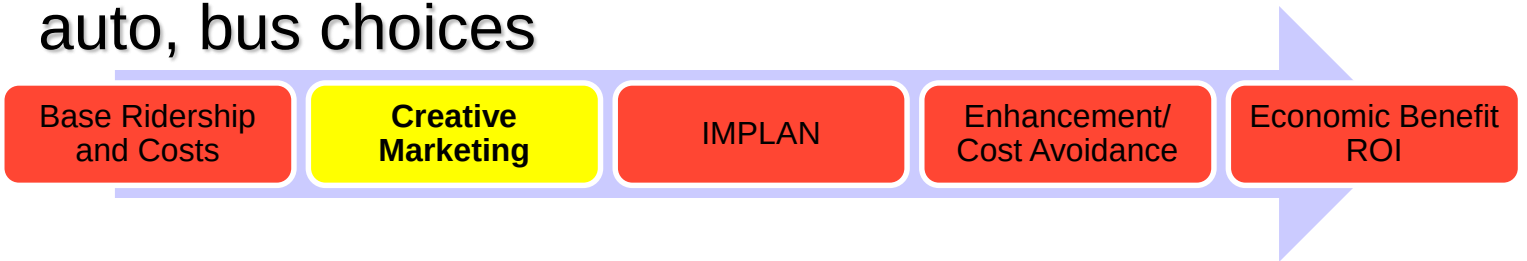
- Source: Kansas Rail Feasibility Study, March 2000

Base Ridership and Costs | Creative Marketing | IMPLAN | Enhancement/ Cost Avoidance | Economic Benefit ROI

Project Approach (10/3)

Creative Marketing Programs to Build Ridership

- Develop marketing strategies to attract incremental ridership from:
  - Big XII Travelers
  - VIP Travelers
  - Senior Travelers
- Construct advertising strategy to enhance potential traveler awareness and substitution for auto, bus choices



Big 12 Travelers

- 7 of the 12 universities in the Big 12 can be accessed via the Heartland Flyer route and a connecting route
- Hundreds of thousands of alumni of Big 12 universities live in the KC, OKC, and DFW areas or along the route
- Students, fans, and alumni can use passenger rail to travel with their team on road games






Base Ridership and Costs | **Creative Marketing** | IMPLAN | Enhancement/ Cost Avoidance | Economic Benefit ROI

VIP Travelers

- First class and/or lounge coach cars
- Charters and tours
- Premium food and beverage services
- Allow parties to reserve entire coach cars

Base Ridership and Costs | **Creative Marketing** | IMPLAN | Enhancement/ Cost Avoidance | Economic Benefit ROI

Senior Travelers

- Senior citizens who are unable/unwilling to drive long distances could use the train for transportation
- Provide an opportunity to travel along the corridor to visit family or travel recreationally that might not otherwise exist
- Potential discount for seniors to increase ridership

Base Ridership and Costs | **Creative Marketing** | IMPLAN | Enhancement/ Cost Avoidance | Economic Benefit ROI

Train Wrap Advertising

- ✓ Creates a large moving billboard that will be seen over a large area.
- ✓ Customizable to all companies needs.
- ✓ Additional revenue stream to Amtrak
- ✓ New age of media advertising

Base Ridership and Costs | **Creative Marketing** | IMPLAN | Enhancement/ Cost Avoidance | Economic Benefit ROI

Project Approach (10/3)

Calculation of Ridership Estimate

Kansas Rail Feasibility Ridership (2000)	130,000
Average Midwest Gas Prices (Cents per Gallon)	
2000	147.4
2008	319.1
Difference	*171.7*
*% Ridership Increase per $.01 Increase in Gas Price	0.06%
% Increase in Ridership	10.302%
Tentative Ridership Estimate	143,393
Creative Marketing Impact on Ridership Growth	5%
Total Ridership Estimate (Including 5% Growth from Creative Marketing Impact)	**150,562**

**Transit Ridership Models: Present Status and Future Needs*
Regional Transportation Authority

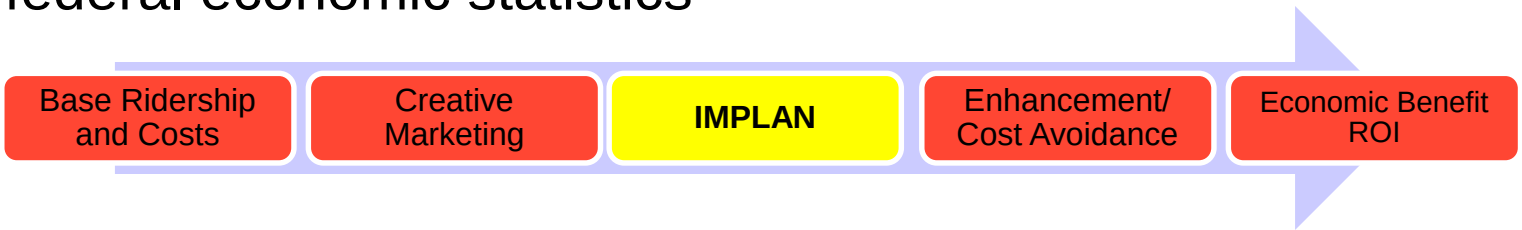
Base Ridership and Costs | **Creative Marketing** | IMPLAN | Enhancement/ Cost Avoidance | Economic Benefit ROI

Project Approach (10/3)

Execute IMPLAN Model

About the IMPLAN Model:

- Allows users to conduct customized input-output analysis
- Measure the effect on surrounding economies from new projects
- Database includes current county, state, zip code, and federal economic statistics



Project Approach (10/3)

Execute IMPLAN Model

How Does IMPLAN Work?

- Social Accounting Matrix (SAM)
  - Identifies accounting flows across industry sectors, households, corporations, and governments
  - Describes transactions between producers, intermediates, and consumers
  - “Snapshot” of economy spending patterns
- Multipliers measure effects on economies
  - Direct
  - Indirect
  - Induced

Project Approach (10/3)

Execute IMPLAN Model

Applying IMPLAN to NFA:

- Construct economic impact models
  - Infrastructure
  - Station area spending and operational costs
  - Tourist and business traveler spending
- Economic impact results for each model
  - Direct, indirect, and induced effects
  - Employment, labor income, total output
  - Total Value Added: Best measure of economic impact

Project Approach (10/3)

Execute IMPLAN Model

Selection of Event Impacts:

- Infrastructure Impacts
  - Track improvements
  - Station improvements
- Station Area and Operational Impacts
  - Rider spending
  - Operational costs
- Tourism and Business Traveler Impacts
  - Visitor spending
  - Lodging

Project Approach (10/3)

Execute IMPLAN Model

Constructing the Impact Models:

- Identify station counties in Oklahoma and Kansas
- Select impact events to be measured in 2010 dollars
- Determine inputs and sectors for each impact
- Evaluate results with a focus on Total Value Added

Research and Analysis

Execute IMPLAN Model

Infrastructure Impact Models:

- Counties analyzed: All counties along the route
- Sector: Construction of other non-residential structures
- Estimated infrastructure cost: $47,704,564
  - 2000 KDOT Feasibility Study: $38,000,000
  - Updated to 2010 dollars

Research and Analysis

Execute IMPLAN Model

Infrastructure Input Values

- Infrastructure costs allocated by miles of rail in KS & OK

Infrastructure Costs By State			
State	**Miles of Rail**	**Allocation**	**Amount Spent**
Kansas	281.72	70.836%	**$33,791,783**
Oklahoma	115.99	29.164%	**$13,912,782**
Total Infrastructure Cost of Proposed Railway*			**$47,704,565**
** 2010 Figure (updated for inflation)*			

- Infrastructure Input Values
  - Kansas: $33,791,783
  - Oklahoma: $13,912,782

Research and Analysis

Execute IMPLAN Model

Infrastructure Economic Impact Summary

	Employment	Labor Income	Total Output	Total Value Added
Kansas	439.4	$21,003,200	$59,304,832	$27,230,912
Oklahoma	162.4	$7,280,560	$21,474,432	$9,171,584
Totals	601.8	$28,283,760	$80,779,264	$36,402,496

- Total Value Added: Best dollar figure estimate of economic impact

Base Ridership and Costs → Creative Marketing → **IMPLAN** → Enhancement/ Cost Avoidance → Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Rider Spending and Operational Impact Models:

- Counties analyzed: All KS and OK station counties
- Sectors impacted
  - Rider spending at station area stops
    - Retail – general merchandise
    - Food services and drinking places
  - Operational spending
    - Support activities for transportation
- Estimated Annual Operating Costs: $22,333,268
  - 2000 KDOT Feasibility Study: $17,790,000
  - Updated to 2010 dollars

Economic Impact-Stations

Conservative estimate of $10 spent per rider

Base Ridership and Costs | Creative Marketing | **IMPLAN** | Enhancement/ Cost Avoidance | Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Projected Rider Spending

Station	County	Ridership by Station	% of Total Ridership	*Station Area Spending (per year)
Kansas City	Wyandotte/Johnson	43,763	29.07%	$437,626
Lawrence	Douglas	7,295	4.85%	$72,949
Topeka	Shawnee	11,107	7.38%	$111,068
Emporia	Lyon	2,261	1.50%	$22,608
Strong City	Chase	178	0.12%	$1,783
Newton	Harvey County	2,141	1.42%	$21,408
Wichita	Sedgwick	30,697	20.39%	$306,972
Winfield - Ark City	Cowley	2,166	1.44%	$21,656
Newkirk - Ponca City	Kay	2,901	1.93%	$29,010
Perry	Noble	710	0.47%	$7,100
Guthrie	Logan	2,422	1.61%	$24,223
Edmond	Oklahoma	5,604	3.72%	$56,040
OKC	Oklahoma	39,318	26.11%	$393,180

Base Ridership and Costs → Creative Marketing → **IMPLAN** → Enhancement/ Cost Avoidance → Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Projected Operational Spending

- Operational costs allocated by miles of rail in KS & OK

Calculation of Operational Costs by State			
State	**Miles of Rail**	**Allocation**	**Cost**
Kansas	281.72	70.83%	$15,819,890
Oklahoma	115.99	29.16%	$6,513,378
Totals	**397.71**	**100%**	**$22,333,268**

Research and Analysis

Execute IMPLAN Model

Rider Spending and Operational Inputs

Kansas		
Activity	**Sector (s) Impacted**	**Input Values**
Station Area Rider Spending	Retail-General	$498,035
	Food & Drinking	$498,035
Operational Spending	Support Activities for Transportation	$15,819,890

Oklahoma		
Activity	Sector (s) Impacted	Input Values
Station Area Rider Spending	Retail-General	$254,777
	Food & Drinking	$254,777
Operational Spending	Support Activities for Transportation	$6,513,378

Base Ridership and Costs | Creative Marketing | **IMPLAN** | Enhancement/ Cost Avoidance | Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Rider Spending and Operational Economic Impact Summary

	Employment	Labor Income	Total Output	Total Value Added
Kansas	277.7	$14,858,112	$26,555,584	$20,738,560
Oklahoma	114.6	$5,884,720	$10,193,504	$8,082,672
Totals	392.3	$20,742,832	$36,749,088	$28,821,232

- Total Value Added: Best dollar figure estimate of economic impact

Base Ridership and Costs | Creative Marketing | **IMPLAN** | Enhancement/ Cost Avoidance | Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Tourism & Business Traveler Impact:

- Counties analyzed: 5 largest metro areas based on ridership estimates
  - Kansas City (Johnson/Wyandotte)
  - Lawrence (Douglas)
  - Topeka (Shawnee)
  - Wichita (Sedgwick)
  - Oklahoma City (Oklahoma)

Research and Analysis

Execute IMPLAN Model

Tourism & Business Traveler Impact:

- Sectors impacted
  - Amusement & Recreation Industries
  - Hotels/Motels, including Casino Hotels
  - Food Services & Drinking Places
  - Retail – General Merchandise
- Visitor data provided by Chambers of Commerce for each of the 5 metropolitan areas
  - Average # of visitors per year
  - Estimated annual visitor revenue generated

Kansas City



Nebraska Furniture Mart

Visitors Per Year:

16,500,000

Annual Visitor Revenue:

$3,150,000,000

Average Dollars Spent Per Visitor:

$191

*www.visitkc.com

Lawrence

Visitors Per Year:

Chamber of Commerce Data N/A

Annual Visitor Revenue:

Chamber of Commerce Data N/A

Average Dollars Spent Per Visitor:

$35 *

*Estimated by comparing ridership to Kansas City/Wichita

Topeka

Visitors Per Year:

Chamber of Commerce Data N/A

Annual Visitor Revenue:

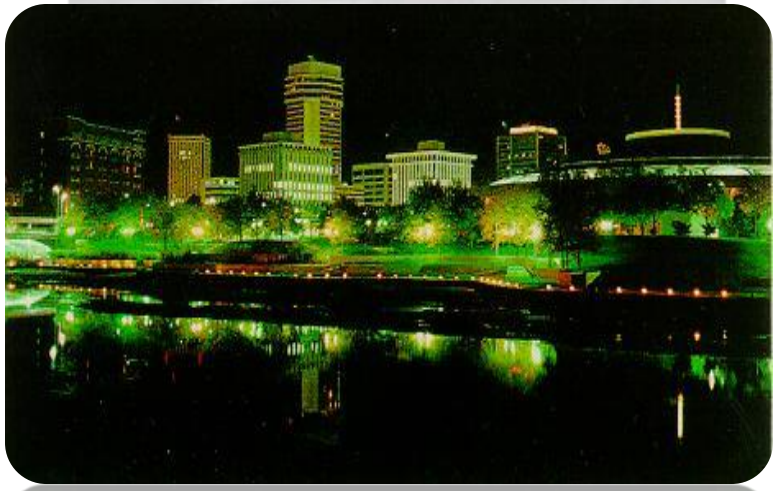
Chamber of Commerce Data N/A

Average Dollars Spent Per Visitor:

$53*

*Estimated by comparing ridership to Kansas City/Wichita

Wichita



Visitors Per Year:

3,400,000

Annual Visitor Revenue:

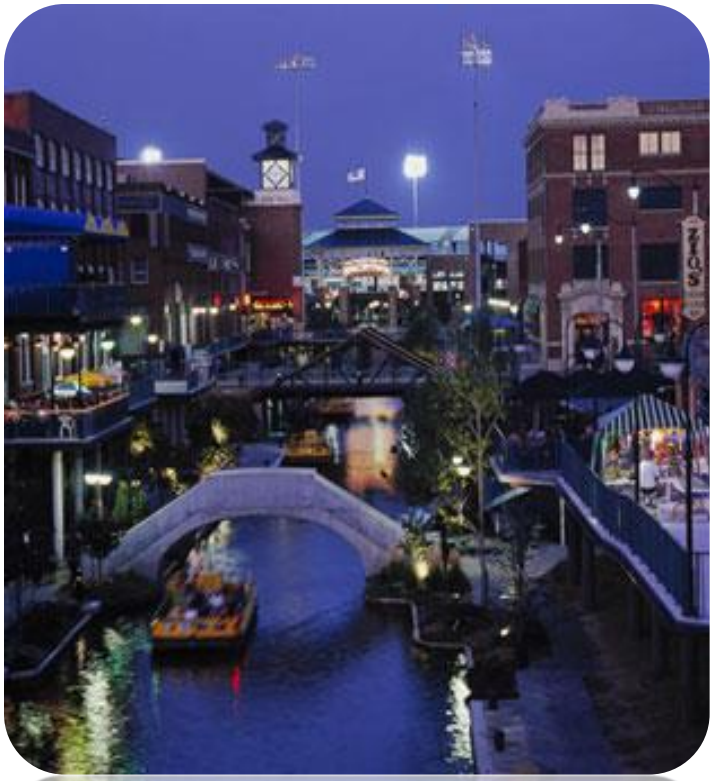
$356,000,000

Average Dollars Spent Per Visitor:

$105

*www.360wichita.com

Oklahoma City



Visitors Per Year:

7,500,000

Annual Visitor Revenue:

$1,500,000,000

Average Dollars Spent Per Visitor:

$200

*www.okccvb.org

Research and Analysis

Execute IMPLAN Model

Estimates of Tourist & Business Traveler Spending

Major Metropolitan Area	Dollars Spent Per Visitor	Ridership to Area	Rider Tourism Dollars
Kansas City	$191	43,763	$8,354,672
Lawrence	$35	7,295	$251,830
Topeka	$53	11,107	$583,777
Wichita	$105	30,697	$3,214,175
Oklahoma City	$200	39,318	$7,863,600
		Kansas	**$12,404,454**
	Totals	**Oklahoma**	**$7,863,600**
		Combined	**$20,268,054**

Base Ridership and Costs → Creative Marketing → **IMPLAN** → Enhancement/ Cost Avoidance → Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Tourism & Business Traveler Spending Inputs

Kansas		
Activity	**Sector (s) Impacted**	**Input Value**
Tourism/Business Spending	Amusement & Recreation Industries	$3,101,113
Lodging	Hotels/Motels, Incl. Casino Hotels	$3,101,113
Retail Spending	Food & Drinking	$3,101,113
	Retail-General	$3,101,113
	TOTAL	**$12,404,454**

Base Ridership and Costs → Creative Marketing → **IMPLAN** → Enhancement/ Cost Avoidance → Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Tourism & Business Traveler Spending Inputs

Oklahoma		
Activity	**Sector (s) Impacted**	**Input Value**
Tourism/Business Spending	Amusement & Recreation Industries	$1,965,900
Lodging	Hotels/Motels, Incl. Casino Hotels	$1,965,900
Retail Spending	Food & Drinking	$1,965,900
	Retail-General	$1,965,900
	TOTAL	**$7,863,600**

Base Ridership and Costs → Creative Marketing → **IMPLAN** → Enhancement/ Cost Avoidance → Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Tourism & Business Traveler Spending Economic Impact Summary

	Employment	Labor Income	Total Output	Total Value Added
Kansas	183.4	$5,269,040	$17,477,312	$8,991,744
Oklahoma	115.8	$3,038,606	$10,270,342	$5,169,088
Totals	**299.2**	**$8,307,646**	**$27,747,654**	**$14,160,832**

- Total Value Added: Best dollar figure estimate of economic impact

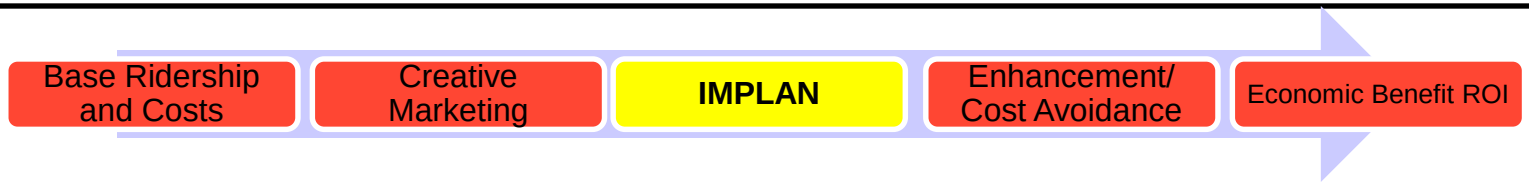
Base Ridership and Costs | Creative Marketing | **IMPLAN** | Enhancement/ Cost Avoidance | Economic Benefit ROI

Research and Analysis

Execute IMPLAN Model

Summary of Total Value Added Impact

	Kansas	Oklahoma	Totals
Infrastructure	$27,230,912	$9,171,584	$36,402,496
Station/Operational Spending	$20,738,560	$8,082,672	$28,821,232
Tourism/Business Spending	$8,991,744	$5,169,088	$14,160,832
Totals	56,961,216	22,423,344	$79,384,560



ROI: Marketing Strategies Employed

Year	Economic Benefit	Operating Loss	Capital Outlay
1	$79,400,000	($12,540,000)	$66,500,000
2	43,000,000	($12,540,000)	5,000,000
3	43,000,000	($12,540,000)	5,000,000
4	43,000,000	($12,540,000)	5,000,000
5	43,000,000	($12,540,000)	5,000,000
6	43,000,000	($12,540,000)	5,000,000
7	43,000,000	($12,540,000)	5,000,000
8	43,000,000	($12,540,000)	5,000,000
9	43,000,000	($12,540,000)	5,000,000
10	43,000,000	($12,540,000)	5,000,000
11	43,000,000	($12,540,000)	5,000,000
12	43,000,000	($12,540,000)	5,000,000
13	43,000,000	($12,540,000)	5,000,000
14	43,000,000	($12,540,000)	5,000,000
15	43,000,000	($12,540,000)	5,000,000
16	43,000,000	($12,540,000)	5,000,000
17	43,000,000	($12,540,000)	5,000,000
18	43,000,000	($12,540,000)	5,000,000
19	43,000,000	($12,540,000)	5,000,000
20	43,000,000	($12,540,000)	5,000,000

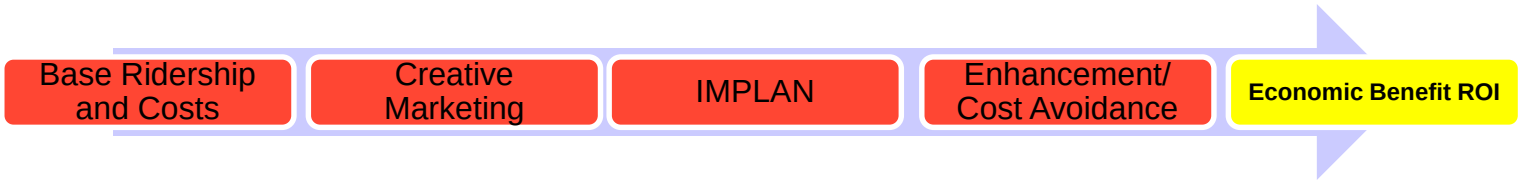
	1-Year	5-Year	10-Year Return
Economic Benefit	$66,860,000	$188,700,000	$ 341,000,000
CAPEX	$66,500,000	$86,500,000	$111,500,000
Return	**1.01**	**2.18**	**3.06**

Base Ridership and Costs → Creative Marketing → IMPLAN → Enhancement/ Cost Avoidance → **Economic Benefit ROI**

Partial Return on Investment

Base Ridership + Marketing Strategies Only

	1-Year	5-Year	10-Year
Economic Benefit	$66,860,000	$188,700,000	$341,000,000
Investment	$66,500,000	$86,500,000	$111,500,000
Return on Investment	1.01	2.18	3.06



Research and Analysis

Enhancement of Value/ Cost Avoidance

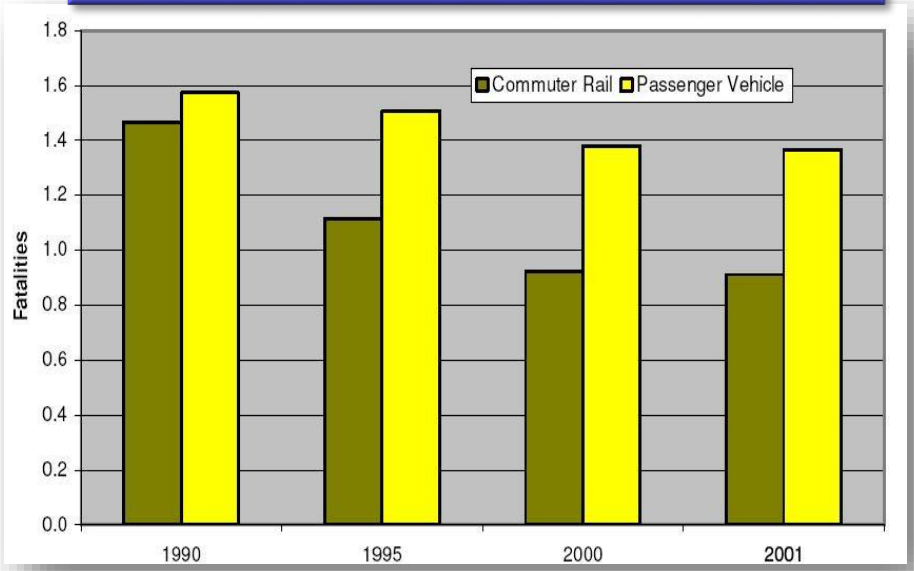
- Passenger rail can reduce the cost of:
  - Car (Property) Accident Costs
  - Car (Fatalities) Accident Costs
- Sources for value of cost avoidances:
  - Federal Railroad Administration
  - KDOT
  - National Safety Council
  - U.S. Department of Transportation
  - Office of Management and Budget
  - National Highway Safety Administration
  - U.S. Environmental Protection Agency

Research and Analysis

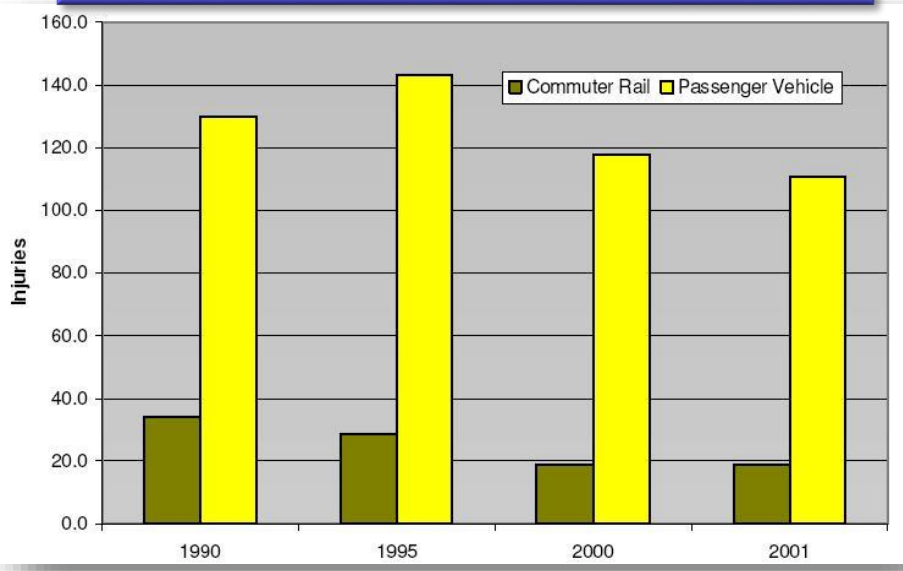
Life and Limb

- Economic value of preventing a human fatality: $5.8 million
  - Sources: *US Department of Transportation and US Bureau of Transportation, Statistic and Federal Transit Administration*

Fatalities
Rail vs. Passenger Vehicle



Injuries
Rail vs. Passenger Vehicle



Base Ridership and Costs | Creative Marketing | IMPLAN | **Enhancement/ Cost Avoidance** | Economic Benefit ROI

Return on Investment

Base Ridership + Marketing Strategies + Cost Avoidance

	1-Year	5-Year	10-Year
Economic Benefit	$72,660,000	$217,700,000	$399,000,000
Investment	$66,500,000	$86,500,000	$111,500,000
Return on Investment	1.09	2.52	3.58

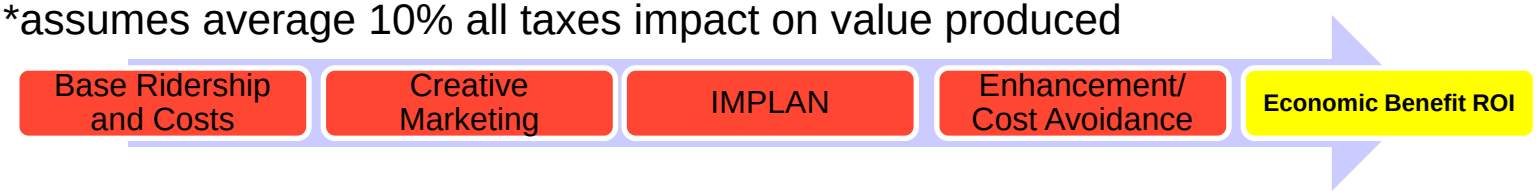
Base Ridership and Costs → Creative Marketing → IMPLAN → Enhancement/ Cost Avoidance → **Economic Benefit ROI**

Return on Investment (after tax impact)

Net out of pocket investment*:	$ .64
Value produced from investment:	$3.58
Incremental economic benefit:	$2.94
Tax considered ROI:	**4.6:1**

- ***For each $.65 of net investment, NFA project produces $2.94 in economic benefits, a 4.6 to 1 economic development ratio***

*assumes average 10% all taxes impact on value produced



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NFA NorthernFlyerAlliance

ECONOMIC BENEFIT STUDY